

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
1	SPM	0	0	0	0	It might be useful to give a very brief introduction on the treatment of uncertainty at the very beginning (or make at least a reference to box SPM.3) to make the SPM more digestible (Wehrli, Andre, European Environment Agency)	Reference to the treatment of uncertainty and the calibrated language used in this report has been added at the beginning of the SPM.
2	SPM	0	0	0	0	Make sure that you use the terms disaster risk management vs disaster risk reduction consistently (Wehrli, Andre, European Environment Agency)	Usage of these terms has been carefully checked for consistency with their definitions in the glossary of this report.
3	SPM	0	0	0	0	There is no paragraph in the Summary on Sand and Dust Storms. I think a paragraph on the issue is of relevance and should be added, especially as this issue is not well studied in source regions. (El Mallah, Fatma, League of Arab States)	There is a sentence about projections of dust storms in Chapter 3 ES. But sentence is based on a very limited number of studies, and therefore not elevated to the SPM.
4	SPM	0	0	0	0	The Institute of Marine Sciences in Egypt registered for the first time a hurricane on the Mediterranean Sea in front of the city of Mersa Matrouh in November 2010, and in front of Alexandria in December 2010. This is something new to the region that needs to be studied in full depth with all its expected impacts. (El Mallah, Fatma, League of Arab States)	Reject. Too detailed for SPM.
5	SPM	0	0	0	0	"I have made the comment in specific terms above. It is evident to readers that different chapter authors have interpreted their instructions differently. Not all chapters present a coherent summary of key policy-relevant issues and then back it up in the text. As noted in more above, all chapters should follow one format. I would propose that chapter 6 be the model as it is the model readable of those I reviewed." (Showing comment above) Related to my comment above, I do not feel that the overall summary effectively captures all or most important issues in each chapter. This problem needs to be rectified by better-determining the key points of each chapter and then extracting from these the points to be highlighted in the summary. (Brooke, Roy, United Nations)	The Executive Summaries of chapters now have a more uniform structure, and the SPM aims to highlight key findings of each chapter.
6	SPM	0	0	0	0	The Executive Summary has been a great effort to really find the relationship between extreme events and the adaptation to climate change. However, it still needs much more strength to <u>certainly give the right idea.</u> (Mata, Luis Jose, IMF)	This comment has been taken into consideration.
7	SPM	0	0	0	0	Many abstract descriptions are used throughout SPM. To facilitate the reader to understand, major examples should be used to the extent possible. (JAPAN)	To the extent possible, more concrete examples have been included in the SPM.
8	SPM	0	0	0	0	No comments. However, it is expected that this part is to be carefully polished after final revision of the main text. (RUSSIAN FEDERATION)	This comment has been taken into consideration.
9	SPM	0	0	0	0	A general comment is that the calibrated uncertainty language is used unevenly in the current version of the SPM, with heavy use in some sections, and virtual absence in others. (Zwiers, Francis, Environment Canada)	The Executive Summaries of chapters now broadly use the calibrated uncertainty language, facilitating incorporation of such language in the SPM as well.
10	SPM	0	0	0	0	Summary is in general difficult to read as it is very focused on confidence levels and climate data, and may leave policy makers wondering what they should do with the data presented. There should be a short summary of the top 5-10 key messages and clear recommendations for policy makers. (International Petroleum Industry Environmental Conservation Association (IPIECA))	The SPM has been revised extensively to increase the accessibility and relevance for policy makers.
11	SPM	0	0	0	0	Well written, providing clear messages to policy makers. (GREECE)	Thank you.

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12	SPM	0	0	0	0	The structure of the SPM has a good internal logic and is supported. However, it is noted that the assessments related to chapters 1 to 9 are not reflected in a balanced manner. E.g. no information related to case studies (chapter 9) has been addressed in the SPM. The more detailed comments below try to address this imbalance and to include policy relevant findings of chapters in the SPM. (Radunsky, KLaus, Umweltbundesamt GmbH)	The SPM has been revised to highlight the key findings of each of the chapters of the report and to provide specific reference to case study examples.
13	SPM	0	0	0	0	It is noted that the wording in the executive summaries of the chapters is sometimes clearer compared to the wording in the SPM. The comments below try to improve clarity, e.g. by using language already developed in the executive summaries of chapters. (Radunsky, KLaus, Umweltbundesamt GmbH)	This comment has been taken into consideration, and responses to specific comments appear below.
14	SPM	0	0	0	0	It is suggested to inform under each subheading first about the robust findings and include thereafter the more uncertain ones. The rationale behind such ranking is that the more robust findings should frame the thinking of the reader more than the more uncertain ones. (Radunsky, KLaus, Umweltbundesamt GmbH)	The SPM is structured to reflect the conceptual linkages among findings, rather than their placement in a hierarchy of certainty.
15	SPM	0	0	0	0	It seems that figure 1.1 of chapter 1 might add value to the SPM to better inform about the key concepts and their relationship. It is therefore suggested to include that figure in the SPM as well. (Radunsky, KLaus, Umweltbundesamt GmbH)	The SPM has been revised to include a conceptual figure (Figure 1-1) illustrating the key concepts of the report and their
16	SPM	0	0	0	0	It is noted that key research gaps or gaps in databases and tools (including those related to ICT - information and communication technologies) are not addressed in the SPM. Due to the relevance for the policy level it is suggested to include an additional short chapter highlighting that there still significant research gaps and gaps in databases and tools and to link that general message to the technical summary or the underlying chapters. (Radunsky, KLaus, Umweltbundesamt GmbH)	The purpose of the SPM is to present the key findings of the chapters of the report. Such gaps, where identified, are included in the SPM where they are part of those key findings and are discussed in the chapters of the report.
17	SPM	0	0	0	0	In the Summary for Policymakers, the concept of resilience is put forward repeatedly and linked to issues of sustainable development (page 7, line 46-47), building sustainable livelihoods (page 8, line 4-5), deliberate social-ecological transformations (page 9, line 31-32) and the notion of resilience thinking (page 10, line 9). First of all, for policymakers, the entire concept of resilience might be explained in its central contents and its links to sustainability. For policymakers, the notion of “resilience-building” will be most important, and the SPM should give a few more concrete examples how, in the policy context, resilience-building might be supported and facilitated through political decisions. The focus here should be on issues of resilient transformations as argued in chapter 8. From this summary, policymakers should get a clear idea that building resilience is not only part of promoting sustainability, but that resilience thinking and resilience-building imply a paradigmatic shift in fostering sustainable development, by focussing on dynamics, transformations, adaptations and institutional capacities rather than on the dominant ideas of command and control in sustainability thinking. (Bohle, Hans-Georg, University of Bonn)	Assessment findings related to resilience are included in various parts of the revised SPM, as supported by the key findings in the underlying chapters of the report.

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18	SPM	0	0	0	0	UNCERTAINTY STATEMENTS: the assignment of uncertainties needs careful consideration in this SPM. There is a clear difference between what Chapter 3 and 4 are able to provide with regard to uncertainties, compared to, e.g., Chapter 5-8. This is reflected in the SPM when comparing sections A-C, with D-F. For example, if Chapter 3/4 state that something will happen, then this is assumed to be based on a formal uncertainty analysis resulting in a "statement of fact" similar to the "the warming of the climate system is unequivocal" in WGI AR5. However, there are many statements in the SPM, mainly in sections D-F, which could easily be interpreted as "statements of fact", but which might not have undergone the formal assessment of uncertainty necessary according to the IPCC AR5 Uncertainty Guidance Note. We suggest to clarify these differences in the treatment of uncertainty in the SPM by adding a paragraph either in Section A or then before sections D, E, F. (Stocker, Thomas, IPCC WGI TSU)	The Executive Summaries of chapters now broadly use the calibrated uncertainty language, facilitating incorporation of such language in the SPM as well.
19	SPM	0	0	0	0	TRACEABILITY OF UNCERTAINTY STATEMENTS: In many instances it is impossible to trace the bolded uncertainty statements given in the SPM back to the underlying assessed evidence in the Chapters. This gives the impression that uncertainty language has been added as an afterthought during the writing of the SPM, rather than being grounded firmly in the underlying chapter assessment which should be the case at the stage of a second order draft. With Chapter 4 based statements, corresponding uncertainty terminology can be found in their chapter SPM, but can not be traced any further to the Chapter text. The problem is most pronounced in Section F of the SPM, where assessed uncertainty statements are supposedly coming from Chapter 8, but can not be traced back to either the Chapter 8 SPM or main text. This traceable account is a key element of the revised Guidance on the Treatment of Uncertainties in the AR5 and must be ensured. (Stocker, Thomas, IPCC WGI TSU)	The Executive Summaries of chapters now broadly use the calibrated uncertainty language, facilitating incorporation of such language in the SPM as well in a manner that is clearly traceable to the underlying chapter Executive Summaries.
20	SPM	0	0	0	0	CHAPTER CROSS-REFERENCING AND TRACEABILITY: Adding to the problem of traceability, is the fact that statements given in the SPM are frequently linked to 6 or more different chapter sections, and in some instances, as many as 8 - 12 sections! This is not useful for the reader, who wants to be able to clearly trace the underlying evidence for each statement given in the SPM. These lengthy citations to the underlying chapter sections gives the negative impression that 1) The SPM authors are unable to clearly and accurately trace the basis of the SPM statements, and 2) That there is considerable redundancy and overlap between/within the SREX chapters. It should be noted that within the SPM's for both the WG1 and WG2 contributions to the AR4, normally 1 - 3 chapter sections were linked to each statement, thus, providing much clearer traceability. (Stocker, Thomas, IPCC WGI TSU)	The SPM has been revised to highlight the key findings of each of the chapters of the report with traceability of statements ensured.
21	SPM	0	0	0	0	LENGTH: The SPM is currently still too long and we feel it needs to be substantially reduced in length in order to be useful to the policymakers and the public. (Stocker, Thomas, IPCC WGI TSU)	The length of the SPM has been carefully considered to ensure effective presentation.

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22	SPM	0	0	0	0	The SPM needs substantial strengthening. Many of its current messages are too vague and have been formulated more sharply in various recent policy reports. The real question to us is what science tells us about how climate change is changing disaster risk, and what this means for (a) how to better manage disaster risk -- particularly what's different in light of the changing risks (b) how to integrate elements of disaster risk management into adaptation planning and policy. (International Federation of Red Cross and Red Crescent Societies (IFRC))	This comment has been taken into consideration. The SPM has been revised to highlight the key findings of each of the chapters of the report, including those relevant to the points raised in this comment.
23	SPM	0	0	0	0	The SPM needs better figures on the science. The current science figures are difficult to understand and not comprehensive. Ideally the SPM would instead include a graphic representation of the information in the regional table in chapter 3, as was included in the FOD of chapter 3. (International Federation of Red Cross and Red Crescent Societies (IFRC))	The figures have been improved to increase clarity. The Chapter 3 Author Team is convinced that the figures included in the SOD are informative and do provide
24	SPM	0	0	0	0	Specifically, the SPM needs to strengthen the connection between the information on science and impacts, and what this means for decision-making. This connection is a weak link in the report as a whole in terms of how the different chapters -- particularly 5, 6, and 7) address this. This shortcoming needs to be fixed there, also to inform such linkages in the SPM. This also needs to include a better discussion of how uncertainties in the science affect decision-making at different scales. For many of our applications, the aggregated regional information of chapter 3 is not the most relevant information. The SREX -- and by extension the SPM -- should include more in-depth discussion on what can and cannot be provided at smaller scales and what this means for decision-making in particular contexts. The table in the SPM is one of the few places where this is explicit -- a very good start, but it needs more discussion (in the table or around it) and a stronger link to underlying material in the chapters. (International Federation of Red Cross and Red Crescent Societies (IFRC))	The revision of the SPM, including the table, has aimed to further convey the findings of the report that relate to this important point.
25	SPM	0	0	0	0	My comments on the SPM have been integrated with those of colleagues at the UNISDR to be presented collectively (Briceno, Salvano, United Nations)	Noted

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26	SPM	0	0	0	0	<p>DEPARTURES FROM IPCC AR4: SREX includes some clear departures from assertions made regarding extreme weather by the IPCC in AR4. In AR4, it was "likely" that heatwaves were "more frequent over most land areas"; in SREX while p.4/28-34 is quite explicit on the certainty of intensifying heat waves, later on Africa and Asia are singled out at only low/medium confidence of any increase in drought (p.3/8-9) - that is for half of the world's landmass. Whereas AR4 said on drought: "Globally, the area affected by drought has likely increased since the 1970s." SREX however refers only to "some" regions, or even "areas" as affected by climate-related drought (p.5/17-18), which also seems to be contradicted by language on p.5/51-54. On floods/heavy rainfall, AR4 stated "the frequency of heavy precipitation events has increased over most areas" - again "likely", with flooding referred to in several areas as another likely increasing impact; in relation to AR3, it was also said that, "There is now higher confidence in the projected increases in droughts, heat waves and floods, as well as their adverse impacts." In SREX, p.3/11-13 and p.5/33-34 dismisses any observational influence of climate change on flooding, save when qualified for "some catchment areas" or "snowmelt and glacier-fed rivers" (p.5/35-37). Finally regarding tropical cyclones, in AR4 it was said that "There is observational evidence of an increase in intense tropical cyclone activity in the North Atlantic since about 1970, with limited evidence of increases elsewhere. There is no clear trend in the annual numbers of tropical cyclones. It is difficult to ascertain longer-term trends in cyclone activity, particularly prior to 1970." SREX largely dismisses or downgrades confidence in any link between climate change and tropical cyclone activity (p.3/5-6; p.5/6-8). Editorial recommendation: State very clearly where findings of SREX conflict or depart from conclusions of AR4. AR4 is understood as the last key scientific reference point for climate science, and revising its findings (up/down) should not be passed over without explicit mention. (McKinnon, Matthew, DARA)</p>	<p>For the physical science basis assessed in Chapter 3, a detailed comparison between SREX and the AR4 is provided in the underlying Chapter. It is unpractical to repeat this level of information in the SPM where the focus is on the new assessment coming from SREX.</p>

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27	SPM	0	0	0	0	<p>CHOICE OF EMPHASIS: The excellent document seems nevertheless to provide a bias towards a technical conservatism in conveying scientific analysis of climate phenomena at the expense of conveying an understanding of risks linked to climate change that would enable policy-makers to react appropriately (sections A-C). For instance, with respect to cyclones, whether or not their is a high confidence link between climate change and the total number of all storms (p.5/6-8) is purely tangential to a degree of significance of risk (which SREX discounts). Whereas the very high confidence increase in intensity of tropical cyclones (p.5/8-10) through heavier rainfall and higher wind speeds implies significant additional risks and damage. Congruent with the mission of the IPCC in relation to the Convention, it seems more appropriate that emphasis be given primarily to scientific findings that provide policy-makers with headline points on important risks, rather than dismissive comments that will likely only be understood by policy-makers in sum to amount to a greater disregard for climate change and its impacts. The question here is, was the report commissioned to tell people what science says in relation to what people think about climate change (i.e. strong associations with increased numbers of cyclones etc.); or rather, was the report commissioned to clarify key impacts relating to climate change and extreme weather that policy-makers should be highly cognizant of. Again, as an example, with respect to flooding, the headline point should maybe not be lack of influence of climate on flooding (p.5/33-34), but rather, flooding is with high confidence increasing in catchment areas and snow-melt/glacial fed rivers as a result of climate change. The latter implies phenomenal increases in human risks and is much more significant to policy-makers than the absense of some global confidence trend linked to flooding that is not concretely tied to anything, but only serves to address public conceptions/misconceptions. Editorial recommendation: Reverse emphasis so that key risks that are identifiable with confidence and do imply extremely dangerous impacts on populations be placed under bold; with lower confidence findings used to qualify the topic area not in bold.</p> <p>(McKinnon, Matthew, DARA)</p>	The SPM has been revised to more clearly communicate the importance of all three components of disaster risk (physical hazards, exposure, and vulnerability), as well as the importance of trends in these components in determining future disaster risk.

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28.1	SPM	0	0	0	0	<p>TREATMENT OF TROPICAL CYCLONES AND CLIMATE CHANGE: The report's choice of portrayal of the state of scientific debate relating to tropical cyclones seems to sideline with the hardline of latest research arguing that no trend is identifiable, especially not in the frequency of cyclones - if even to the opposite, with decreases identifiable across several models. It is of course logical physics that more heat in the atmosphere and oceans in particular will lead to more evaporation and therefore more energy in the atmosphere, and so potentially more cyclone and storm activity as a result. That aside, there are different issues that may not have been given due consideration regarding the issue of frequency and activity of cyclones as relates to climate change. Firstly, Kerry Emmanuel (2005, Nature: http://www.nature.com/nature/journal/v436/n7051/full/nature03906.html) has shown that maximum dissipation power is more of a concern than models that give inconclusive results on frequency (Lang; Landsea etc.). There has been a clear trend of increase in the maximum dissipation power of storms since 1970 based on KE's and other research. In particular regarding more severe storms (category 3 and above) for which there is also very strong reporting since the 1960s advent of satellites (larger storms are harder to miss, easier to interpret), there is very recent evidence of both an increase in frequency and intensity/wind speed (e.g. Bender et al, 2010 Science: http://www.sciencemag.org/content/327/5964/454.short; Holland et al; 2010 American Geophysical Union: http://adsabs.harvard.edu/abs/2010AGUFMGC51K..07H), also on density, Geng et al (2003, Climate: <a 211="" 27="" 937="" 959"="" data-label="Page-Footer" href="http://journals.ametsoc.org/doi/abs/10.1175/1520-</p> </td> <td> <p>Chapter 3 has carefully and comprehensively assessed the available literature, resulting in the assessment provided. The observed and projected impacts from tropical cyclones are highlighted in several instances in the SPM.</p> </td> </tr> </tbody> </table> </div> <div data-bbox=">Government and Expert Review</p>	

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28.2	SPM	0	0	0	0	<p>0442%282003%2916%3C2262%3APCOECA%3E2.0.CO%3B2). It should further be borne in mind that the argument of improved-reporting-of-phenomena-contaminating-trend-data-over-time being equal can be juxtaposed with improved reporting across a range of phenomena. Peduzzi (2005, Environment and Poverty Times: www.grid.unep.ch%2Fproduct%2Fpublication%2Fdownload%2Farticle_climate_change_hazards.pdf&ei=ixCWTF7IG82cOvafpMwH&usg=AFQjCNH4erloi-54WR3CTswvRcmuSkSK4g) compared for instance the improvement of reporting of hydrometeorological phenomena vs geological. During a period of no particular assumed increase in earthquakes and related phenomena, there is a very, very distinct increase in reported hydrometeorological phenomena, versus a very minor increase in report earthquakes. Limited models produced by the insurance industry, furthermore, of which Economics for Climate Adaptation Working Group (2009 - see Swiss Re) publishes some results, show estimated increases in wind-speed and map corresponding impact threats - orders of 10% wind speed increases over 20-30 year timeframes are postulated for the Florida region for instance. Literature cited here are just examples, but generally, counter opinions in literature, either are unable to model larger-scale storms, pass on hints of less storm activity among smaller storms as generalized for all types of tropical cyclones, or ignore the relationship between reporting improvements which is great for smaller storms but much less significant for larger ones. SREX as currently framed seems to pick sides favouring arguments that seriously downplay potentially highly dangerous interference between climate change and tropical cyclone activity. Editorial recommendation: Consider providing more emphasis to the other side of the debate, emphasizing in particular that the debate is complex and heated, but acknowledging at bare minimum the very substantial risk that small increases in the intensity of bigger storms could mean for communities, particularly when once sure defences, or past thresholds are breached for the first time. (McKinnon, Matthew, DARA)</p>	
29	SPM	0	0	0	0	<p>On the whole, SPM should be improved if the objective is to provide a useful reference for decisionmakers (planners, policy makers, politicians). Many of them are more related with the terminology of DRM than with CCA's because DRM has been, in the past, part of public policy in any degree (clearly more than CCA). Notwithstanding that SREX is DRM-oriented, SPM is using mainly terms and an approach from CC perspective, making emphasis in the concept of "extremes" (hazards: term that has been not used in the SPM...) than on the accepted and recognized trends on exposure and vulnerability (real main drivers of disaster risk). Then, SPM is making emphasis "again" as in the beginning of 1990's on hazards..., the the decisionmakers shall be confuse thinking that extremes are again the main driver when they during years have been understanding risk as an unresolved problem of development . (Cardona, Omar, Universidad</p>	<p>The SPM has been revised to more clearly communicate the importance of all three components of disaster risk (physical hazards, exposure, and vulnerability), as well as the importance of trends in these components in determining future disaster risk.</p>

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30	SPM	0	0	0	0	Decisionmakers should be aware explicitly and directly from the SPM that CCA is indeed in most cases the Disaster Risk Reduction when we are speaking about weather or climate events (hydrometeorological hazards); CCA it is not a new and a different activity indeed (it is basically a change of terminology). DRM includes also geohazards, therefore CCA is a specific intervention action of risk reduction regarding climate events. Of course, it is so important to mention in the SPM the differences between on corrective and prospective risk reduction; i.e. between the reduction on existing and stationary risks and new possible risks including the CC as a factor in the exacerbation of the present climate hazards. (Cardona, Omar, Universidad Nacional de Colombia)	The SPM has been revised to more clearly communicate the interactions between DRM and adaptation to climate change.
31	SPM	0	0	0	0	Decisionmakers should understand clearly that the reduction of the present and future disaster risks related to climate is basically making interventions on vulnerability (socio-economic, institutional ...) and on the exposure in prone areas, by one side, and by environment management and CC mitigation (reduction of gases) on the other side (intervention on hazards). The messages to decisionmakers from the SPM should be simple and clear. There are confusing statements in the SPM related to extremes considered as of low and medium confidence, evidence... that are like a contradiction due to main emphasis made in the SPM is to extremes. If the emphasis were to vulnerability and exposure and less to extremes (hazards), they should be a confirmation that the hazards are the origin of risk and are important but they are not the main driver of disaster risk at present and in the future, notwithstanding the CC. (Cardona, Omar, Universidad Nacional de Colombia)	The SPM has been revised to more clearly communicate the importance of all three components of disaster risk (physical hazards, exposure, and vulnerability), as well as the importance of trends in these components in determining future disaster risk.
32	SPM	0	0	0	0	It is critical to make a distinction between threats and vulnerabilities. Generally, the report fails to make this distinction and conflates the two terms. Threats are always negative; vulnerabilities, however, can be both positive and negative--such as with the opening of the Northwest Passage, allowing more rapid transportation of shipping goods while also providing potential for human smuggling, illicit trafficking, disasters at sea in what is a fragile Arctic ecosystem, and violations of what Canada considers sovereign maritime territory. For more on these distinctions, see: Liotta, Security Dialogue (Oslo, Norway): "Through the Looking Glass: Creeping Vulnerabilities and the Reordering of Security" (Volume 37, Number 1, March 2005): 49-70; Liotta and Shearer, Ecosystem Services and Security: The Fog of Vulnerability, in Achieving Environmental Security: Ecosystem Services and Welfare, P. H. Liotta, David Mouat, William Kepner, Judith Lancaster, , editors (Amsterdam: IOS Press, 2010): 3-12. (Liotta, Peter, Independent Scholar)	In the SREX report, vulnerability has been defined (see the glossary) with a focus on adverse effects.
33	SPM	0	0	0	0	"Vulnerability is the susceptibility or predisposition for loss and damage to human beings and their livelihoods as well as their physical, social, and economic support systems due to climate changes including, climate variability and extreme events. Vulnerability includes the characteristics of a person or group and its situation that influences its capacity to anticipate, cope with, resist, respond to, recover from the impact, and adapt." The definition could be followed by a statement that, "This report focuses on vulnerability to hazardous environmental events." (Dow, Kirstin, University of South Carolina / Carolinas RISA)	The definition of vulnerability has been substantially revised, and the introduction of the SPM has been adjusted to further clarify the report's focus.

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34	SPM	0	0	0	0	The Summary for Policy Makers provides useful and important information as well as recommendations, however, it also lacks structure. The SPM currently is presented as a list of the main points without a connection from one Paragraph to the other, more in a bullet point style. Especially Part E (Avoiding, preparing for, and responding to changing disasters and extremes) could provide more case study examples (also by referring to the main report) so that a better picture of good practice is drawn. The SPM could provide a stronger call for a multi-stakeholder, multi risk and disciplines approach. (Ammann, Walter, I. Global Risk Forum, GRE Davos)	The SPM has been revised with the objective of ensuring clear structure and relevance for its policymaker audience. Case study examples have been further included and referenced.
35	SPM	0	0	0	0	The SPM is very much focused on the human being. We see no reason to refer to "sensitivity" for the natural systems, while referring to "exposure and vulnerability" for the human systems - this difference does not seem useful. Sensitivity is a vague concept. Sensitive to what? Some sensitive natural systems will surely stand easy the CC while others won't. Therefore, we suggest to change this sentence in: "... disasters, result from the exposure and vulnerability of human and natural systems, and from the type ..." (BELGIUM)	Usage of the term "vulnerability" in the SPM has been considered, and use of the term "sensitivity" has been removed to avoid confusion.
36	SPM	0	0	0	0	Box 3: Editorial: all over the SPM, reference is made to the level of available evidence, confidence or likelihood. Therefore we suggest to insert BOX SPM 3 at the beginning of the SPM. (BELGIUM)	Reference to the treatment of uncertainty and the calibrated language used in this report has been added at the beginning of the SPM.
37	SPM	0	0	0	0	SPM1 Plan - Le résumé est divisé en six parties alors que le rapport comporte huit chapitres ; tous deux suivent grosso modo la même progression. Deux parties A et B situant les concepts se réfèrent principalement aux chapitres 1, 2,3 et 4. La partie C, sur les changements des extrêmes suscités par le changement climatique correspond principalement au chapitre 3, un peu au chapitre 4. Les parties D et E sur les actions de RRC se réfèrent principalement aux chapitres 5 et 6. Enfin la partie F sur le développement durable correspond essentiellement au chapitre 8. Les chapitres qui nourrissent le plus le résumé pour décideurs sont les chapitres 3, 5, 6 et 8, les chapitres 1 et 2 sont cités de façon dispersée, les chapitres 7 et 9 ne sont pratiquement pas repris. Les cinq sections les plus citées sont dans un ordre décroissant : 63 (national systems for managing the risks), 64 (aligning national DRM to the challenge of climate change and development), 46 (total costs of climate extremes and disasters), 35 (impacts of CC on the natural physical environment), 83 (integrating short term and long term responses to extremes). Ce dépouillement confirme que les chapitres 2 et 4 devraient être plus différenciés, - le premier consacré à l'exposition (voir OG 5), le second à la vulnérabilité (voir OG6)- ou , regroupés. Le chapitre 7 manque de substance utilisable par l'ACC, et les case studies sont venues trop tard ou ne sont pas assez analysés en retours d'expérience(lessons learned). (BOURRELIER, PAUL-HENRI, AFPCN)	Appropriate and effective inclusion of material from all chapters has been considered in the revision of the SPM.

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
38	SPM	0	0	0	0	SPM 2 Contenu - La sélection reprend assez fidèlement les principaux constats du rapport en simplifiant un peu mais sans corriger transversalement sa structure feuilletée formée d'affirmations successives fondées sur une masse de références. Les apports les plus intéressants, qui portent d'une part sur des acquis assez robustes de la RRC et d'autre part sur les projections de l'ACC nuancées par des appréciations sur la complexité et les incertitudes, ne sont ni hiérarchisés, ni mis en relief. Pas plus que le rapport, le résumé n'est structuré pour fournir au lecteur des réponses à ses propres questionnements, ou au moins le mettre sur la piste avec des arguments pour se positionner : que sont exactement ces extrêmes dont on parle tout le temps sans jamais bien les définir et préciser leurs menaces, comment classer et véritablement réduire les risques de désastres pour demain ou plus tard ? Le lecteur pressé sera déconcerté par la teneur dominante, celle de la complexité et de l'incertitude, et finalement, s'il y a un message perceptible, c'est celui plutôt trivial destiné aux spécialistes de la RCC et de l'ACC d'échanger activement et de travailler ensemble. Cet aboutissement au terme d'une compilation considérable est normal si on considère qu'un rapport spécial de caractère technique comme le SREX n'est pas directement destiné aux politiques qui demandent du temps pour la maturation. (BOURRELIER, PAUL-HENRI, AFPCN)	The SPM has been revised to maximize the relevance and accessibility of the SPM content for its policymaker audience.
39	SPM	0	0	0	0	SPM2 contenu suite - Mais il comporte un risque de malentendu ou d'inexploitation. Nous formulerons donc quatre recommandations : 1° supprimer dans le titre du résumé l'expression for policy makers (affaiblie par la traduction française « pour décideurs »). 2° faire en sorte que le groupe de travail 2 du GIEC utilise pleinement pour son 5e rapport le SREX enrichi par les observations qui lui auront été adressées. Par exemple des séances communes pourraient être organisées le moment venu pour assurer le meilleur transfert et une actualisation de certains éléments. 3° établir un extrait substantiel du SREX et le diffuser aux acteurs de la RRC ainsi qu'aux autorités impliquées dans des actions en faveur du développement. 4° proposer un dispositif de travail pour la suite en prenant le temps nécessaire, pour dégager quelques idées transversales fortes : a- distinguer les catégories d'extrêmes pour saisir leurs relations avec les désastres : tout indique qu'elles sont fondamentalement liées à des caractéristiques telles que les distributions de probabilité anormales, les bifurcations des trajectoires et les risque de surprise b- les stratégies d'action qui associent une vigilance renouvelée à l'égard de désastres potentiels proches, et des stratégies fondées sur des projections des tendances du futur justifiant des mesures sans regret et win-win c- l'importance en définitive des valeurs comme les droits de l'homme, la démocratie, le partage des connaissances, la solidarité et les partenariats actifs, la créativité et l'innovation mise à leur service. (BOURRELIER, PAUL-HENRI, AFPCN)	The SPM has been revised to maximize the relevance and accessibility of the SPM content for its policymaker audience.

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
40	SPM	0	0	0	0	The IPCC SREX – Summary for Policymakers is a well-balanced report, which makes a number of significant points about the risks of extreme events and the relationship between disaster risk reduction and climate change adaptation. The report is well researched and presents a very objective and thorough review and assessment of the available literature. The writing team have assembled a well-informed document and we applaud the side-by-side examination of the potential for “adaptation” and “disaster risk management” to reduce risks and impacts. With regards to the impacts from extreme events, we would like to reinforce that climate change adaptation and disaster risk management should be considered as “joined at the hip” with regards to a common force behind sustainable development. (AUSTRALIA)	Thank you for this comment, which has been taken into consideration in revision of the SPM.
41	SPM	0	0	0	0	The bold printed statements are rather lengthy making it very difficult to get the core of the message. There is leeway to shorten the statements so the key message get better conveyed. Particular avoid listings. Proposals are given in the following (Langniss, Ole, Fichtner GmbH & Co KG)	The SPM has been revised to ensure statements are clear and accessible for its policymaker audience along these lines.
42	SPM	0	0	0	0	The information given in the SPM should be less general but more adapted to the user (policy maker) needs. He/she will be less interested in the finding that e.g. different actions are needed at different scales or levels (general statement), than in action-related information: at a given scale or level, where is the relevant information, what could be done in a specific situation? The SPM should be structured in a user-driven way. It should provide information on the most important policy questions: Basic concepts from ch 1 and 2 / Detection of extreme events and disasters: past and present observations, observed trends, projections at different levels / Attribution to climate change at different levels / Impacts on the physical environment, on human systems and ecosystems at different levels / Risk management at different levels (information needed for efficient management and possible information lacks /successful strategies (low regrets options, integrated approaches) / Transformation pathways, development, etc. at different levels (GERMANY)	The SPM has been revised to maximize the relevance and accessibility of the SPM content for its policymaker audience.
43	SPM	0	0	0	0	Titles of subsections are missing, e.g. p 5 the text addresses projections of changes in physical quantities and then suddenly in the last two paras impacts of these changes. (GERMANY)	Subsection headings have been added to the SPM where appropriate.
44	SPM	0	0	0	0	The uncertainty scale should be introduced right at the start possibly in a box. (GERMANY)	Reference to the treatment of uncertainty and the calibrated language used in this report has been added at the beginning of the SPM.
45	SPM	0	0	0	0	It is not obvious, why some paras are printed in bold letters. Bold letters should not be used for trivial or obvious findings and should be used with care. (GERMANY)	The SPM has been formatted with use of bold font to highlight the SREX report's key findings of relevance to policymakers.

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
46	SPM	0	0	0	0	Detection/observations of changes in extreme events and attribution of the causes of change to climate change and/or anthropogenic activities should be separated (GERMANY)	The FOD SPM did not include anything on attribution. Thus a new paragraph summarizing key conclusions on the attribution of changes in extremes to causes, based on the revised version of the Chapter 3 ES, has been included in Section B of the SPM.
47	SPM	0	0	0	0	Extreme events are a potential threat to development and achieving MDGs. Evidence available specifically on vulnerability of developing countries and the poor should be reported more systematically (e.g. in separate paras). (Compare also comment no. 2) (GERMANY)	The SPM includes, as appropriate, findings relevant to developing countries and the poor, as assessed in the report's underlying chapters.
48	SPM	0	0	0	0	The report places strong emphasis on analysis of links between DRR approaches and adaptation to climate change. This is much appreciated. However, links with broader policies and planning for sustainable development should also be taken into account in terms of general mainstreaming and policy coherence. (GERMANY)	The revision of the SPM has aimed to communicate findings in the underlying chapters regarding links among DRR approaches, adaptation to climate change, and sustainable development.
49	SPM	0	0	0	0	Disaster risk reduction usually aims at individual, municipal or governmental level. The involvement of various levels (vertical and horizontal) is deemed a key factor for success. However, the private sector especially small and medium sized industries (large scale industries usually take care of disaster risks already) have not been addressed with regard to disaster risk reduction measures. But their role is crucial with regard to economic reconstruction after a disaster, and the less industry is destroyed the faster reconstruction can be. In addition, industrial plants often stock chemicals, fuel and other toxic elements which could easily be carried away by floods. The flooding of New Orleans can serve as an example. Thus, adaptation to climate change through DRR in an holistic approach and shall incorporate the private sector and small and medium sized industries. Therefore, we suggest to also address this issue in the IPCC report. (GERMANY)	The report includes consideration of the private sector, industries, and associated infrastructure and capacities.
50	SPM	0	0	0	0	One objective of the report is "to assess the influences of climate change on exposure and vulnerability and on weather and climate events, with a focus on extreme events..." (p.1, l.17-19). Differing from this objective several conclusions (sentences in bold types) attempt to attribute trends in extreme events or extreme impacts to anthropogenic climate change instead to assess extremes in the light of climate change, for example on p.3, l.39-40 and p.5, l.33-34. This is clearly a tremendously different and difficult task. Please be always consistent regarding the objective of the assessment. (GERMANY)	This comment has been taken into consideration, noting that the findings mentioned in this comment for pages 3 and 5 are not inconsistent with the scope of the report mentioned in this comment from page 1. Please note that "influences of climate change" includes attribution.

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
51	SPM	0	0	0	0	In general the SPM contains a lot of information, but it isn't clear what the headline messages are. It should have an introductory paragraph on why this is an important topic. Some stronger messages could be pulled out. We felt that more could be made of the evidence in the underlying report . Many statements are about things that are already known. The SPM should focus more on pulling out new and interesting messages. The case studies at the end contain common themes and could be used as examples in the SPM. The chapter is very long and could be shortened considerably by using plain language and shortening sentences. Policymakers will find much of the current text difficult to follow. Diagrams and pictures could be used to summarise much of the information and this would be more attention-grabbing to policymakers. The explanations of how likelihood and confidence are used should be put before any statements on either of these are made, otherwise the reader has no frame of reference. In general, it could be significantly improved by following more of a narrative and focussing on what some of the potential solutions are, whilst using a clearer, more consistent style of writing. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	The SPM has been revised to address all of these points, providing key findings that are relevant and accessible to policymakers, favouring economy of language, using diagrams to summarize the report's major concepts, highlighting case study results, and referring the reader to the box on treatment of uncertainties early in the SPM.
52	SPM	0	0	0	0	There are no statements in the SPM on SIDS - although they are a big focus in chapter 3. Maybe if the SPM focussed more regionally, this could be pulled out. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	Small Island States are highlighted in several instances in the SPM (including the Table). A chapter 3 based statement concerning the physical impacts of projected extreme sea level on Small Island States has been included in Section D.
53	SPM	0	0	0	0	Figures SP: These are great tables but if they contained less information they would have more impact. For example, they could just contain one emissions scenario (suggest A1B) and could just show the median for all models at the 2081-100 time scale. Also, with information on change in frequency and magnitude next to each other, it is confusing. It isn't clear if the max temperature increases also with frequency and vice versa. Would it be possible to just say what the projected frequency of the maximum value is and what that maximum is? (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	Reject. Removing the information in these figures would leave us open to the charge that we are ignoring uncertainty or downplaying it.
54	SPM	0	0	0	0	We happily note section 6.4.3 on tackling poverty as a key aspect of managing risk. However, this could come across stronger in the SPM, particularly in Section D: current Knowledge of Managing the Risks of Extreme Events and Disasters. Though it is certainly mentioned, its emphasis could be enhanced as poverty and low socio-economic status is the foundation upon which human vulnerability is based. A stronger emphasis on baseline human poverty and health as a fundamental in managing risk might be worth considering. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	The SPM includes, as supported by the underlying chapters, findings relevant to poverty as relates to considerations of vulnerability.
55	SPM	0	0	0	0	couple of paragraphs not referenced to the main text (e.g. Paragraph in Pg8)- these need including. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	The paragraph described here, presumably lines 33-40 on p. 8 in the SPM FOD, is linked to the subsequent paragraph, both in introduction of the table described, which contains many references to underlying sections of the chapter.

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
56	SPM	0	0	0	0	Overall - a useful collection of ideas and statements from across a wide range of sources. Much repetition of AR4 messages, but this may not be a bad thing. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	Thank you for this comment, which has been taken into consideration in revision of the SPM.
57	SPM	0	0	0	0	Useful to have expressions of risk given in terms of "Twenty year events will become 2 year events". Easy to understand and deploy with non-experts. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	We have included the two examples of these that are in Chapter 3.
58	SPM	0	0	0	0	Relevance of the end of paragraph D page 7 and paragraph E : relevance of the proposal to create close links between the administrations and institutions in charge of DRR on one side, and on the other side those in charge of adaptation to CC ; relevance of the proposal to make use of Adaptation financial resources to improve the risk prevention at all territorial scales. The economic analysis is generally absent from the report. The issue of financing of adaptation and/or prevention of risks from natural hazards is not much treated e.g. amounts, trends, burden on the gross internal product .., financial tools, innovative financing, public or private, insurance, re-insurance,... ; thus the mention of the micro-assurance in the developing countries takes non-adequate proportions, and this is even more true because a very particular case is mentioned. The positive effects of changes are little or not mentioned. The « learning via a crisis » appears to be excluded : is this a choice that was done from the beginning (a priori), is this a hypothesis ? The topic that is announced is the adaptation of the human societies : however the topic that was dealt with seems to be more « the territory » ; the scenarios are those of populations that would not migrate whatever extreme event their territory is subject to. Regarding socio-economic aspects, the study is more centered on administrations and associations than on households and economic agents. (FRANCE)	The revision of the SPM has taken these points into consideration. The SPM includes findings relevant to these topics, as supported by the underlying chapters.
59	SPM	0	0	0	0	The bolded statements in the SPM need to be clear and concise. Careful review of statements and revision that simplifies the language, and produces clear statements of findings, is needed throughout. Many important points are obscured by long, and sometime convoluted statements. Often the key point from a policy perspective is the final sentence of a paragraph, rather than the bolded statement (CANADA)	The SPM has been revised with the aim of clearly providing key findings that are relevant and accessible to policymakers.
60	SPM	0	0	0	0	The SPM should more clearly identify the commonalities and differences between climate change adaptation (CCA) and disaster risk reduction (DRR), including sources of funding. This could be achieved through a figure or short table, drawing on the valuable content of Chapter 1 (perhaps using a revised version of Figure 1-1). This context is needed for the many policy makers who would not likely view themselves as part of either community, but need to manage the risks of extreme climate events (and are unlikely to read Chapter 1). (CANADA)	The SPM has been revised, as supported by the underlying chapters, to further highlight findings that pertain to both adaptation and disaster risk reduction. Additionally, a conceptual figure has been included in the SPM as suggested here.
61	SPM	0	0	0	0	The importance of risk perception (or cognitive barriers more broadly) should receive higher profile in the SPM, as a critical enabler / constraint on implementing adaptation actions (chapters 1, 2 and 8 particularly). In addition, the importance of risk accumulation and its relevance to climate change adaptation (section 2.9) should be noted. (CANADA)	The SPM includes, as supported by the underlying chapters, findings relevant to risk communication and perception.

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
62	SPM	0	0	0	0	A very clear statement of the scope of this assessment report is required near the beginning of the SPM. The description on lines 17-20 of page 1 of the SPM are not sufficiently clear about the scope. Phrasing such as "this report assesses" is encouraged whereas more vague phrasing such as 'with a focus on' and 'also examines' are discouraged. (CANADA)	The description of the report's scope has been carefully revised to increase its clarity.
63	SPM	0	0	0	0	It seems that a decision was made to just report likelihood and confidence statements in the SPM and not to include statements about levels of agreement and evidence supporting the confidence statements. This does make the text easier to read. However, low confidence statements can be easily misinterpreted and this might argue for inclusion of information on what led to confidence being low - lack of available data, or lack of evidence or agreement in that data. Alternatively, language should be used, generally, that works to avoid misinterpretation. Preferred phrasing would be as follows: "There are limited data for continent X but for regions where data exist, we find....". (CANADA)	The Executive Summaries of chapters now broadly use the calibrated uncertainty language, including summary terms for evidence and agreement, facilitating its more extensive incorporation in the SPM as well. Explanations of the evidence and agreement underlying confidence assignments are included where they provide additional information of relevance to policymakers.
64	SPM	0	0	0	0	The definition of Vulnerability used in this report is different than that of the AR4. This difference should be acknowledged and the reasons for it clearly explained right at the beginning of the SPM (consistent with the discussion in Chapter 1). (CANADA)	While the glossary definition of vulnerability is presented in the SPM, the definition is not elaborated upon. Instead such discussion occurs in the underlying chapters, especially chapters 1 and 2.
65	SPM	0	0	0	0	It seems that none of the major elements of Chapter 7 were included in the SPM. Suggest that some information from 7.2.5 and 7.4.1 could be incorporated into the SPM, perhaps under the "Avoiding, Preparing for, and Responding to Changing Disaster Risks and Extremes." (CANADA)	The SPM has been revised to further highlight key findings of chapter 7.
66	SPM	0	0	0	0	This version of the Summary for Policymakers seems, for several reasons, much more like a Technical Summary than a Summary for Policymakers. (1) SPMs are supposed to switch to the relative likelihood framework used by policymakers rather than stay in the hypothesis-testing of statistical significance framework that scientists use and that is used in the chapters (at least Chapter 3); thus the SPM should be giving a sense of what the trends are or expected directions based on best judgment and not basically saying that little or nothing can be said until some statistical test is passed; (2) In my view, a policymaker would want to have information on what past trends have been and what future projections are said together, and not separated as is now the case; (3) I think most readers will be wanting to have answers on a regional basis and that this needs to be emphasized, not have general global discussions; the Tables in Chapter 3 are helpful on this (the text in Chapter 3 is not at all helpful in this way); (MacCracken, Michael, Climate Institute)	The SPM has been revised with the aim of clearly providing key findings that are relevant and accessible to policymakers, as supported by the underlying chapters. Regionally relevant information is presented in SPM figures and in the SPM table and discussed to some extent in the SPM text where appropriate. The core writing team, however, made a decision to maintain the distinct sections on observations and projections.
67	SPM	0	0	0	0	Only some of the factors are accompanied by statements of confidence level--this should be made more consistent through the SPM. (MacCracken, Michael, Climate Institute)	The Executive Summaries of chapters now broadly use the calibrated uncertainty language, facilitating its more extensive and consistent incorporation in the SPM as well.

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
68	SPM	0	0	0	0	That the change in the heat index is not mentioned seems an important omission. (MacCracken, Michael, Climate Institute)	Reject. There is only a very limited amount of good data available on the "heat index", because it relies on humidity data, which are problematic, especially for extremes. It is not treated in depth in Chapter 3 and thus not suitable to be elevated to the SPM.
69	SPM	0	0	0	0	I was very surprised that there was no simple figure of a Gaussian (or other) distribution of normal conditions and then showing the various types of shifts and how these could lead to quite large fractional changes in the number of excesses of a particular level (e.g., days with maximum temperatures above some relatively high level). I think that this is very important to explain to the average policymaker and why this issue of extremes is so important. You might even in such a diagram be able to show how a slight shift in vulnerability, so in where along the horizontal axis the threshold exists, can cause a major fractional change in the likelihood of extremes (and such shifts might result from latitudinal shifts in storm tracks, etc. such that the underlying geography is less able to handle intense storms, etc.). Basically, this is suggesting that it is necessary to start at a simpler level in explaining the threat from changes in the intensity, etc. of extremes. (MacCracken, Michael, Climate Institute)	The identified need to present clear representation of the core concepts of the report has been addressed in the SPM through inclusion of an introductory conceptual figure. The specific figure referred to by the reviewer is now included in Chapter 1.
70	SPM	0	0	0	0	I was surprised not to see much here on how climatic conditions can lead to health extremes. While high temperature was mentioned, there was not much on other types of extremes (e.g., higher minimum temperatures not killing off disease vectors, promoting water stagnation that can cause algal blooms and dead zones, and more). There was also not much on the issue of what changes in the weather/climate can do to pests and weeds, etc.--including how certain timing of features can lead to disease or allergy problems, etc. (MacCracken, Michael, Climate Institute)	The SPM includes, only to the extent supported by the underlying chapters, findings relevant to health-related impacts.
71	SPM	0	0	0	0	It did not seem to me as if the varied multiple threats to water resources received much attention--yet it is threats to water resources, food, etc. that are really of interest to decision makers. I think that giving more example of how specific resources for society will be affected would be helpful. (MacCracken, Michael, Climate Institute)	The SPM now includes, as supported by the underlying chapters, findings on impacts related to water resources.

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
72	SPM	0	0	0	0	There seems to be a total absence of discussion of the effect that choosing a baseline has on the conclusions drawn. While a 30-year period might well make sense for meteorological variables when the climate is stable (and that was the situation when the 30-year period became the convention), this is an assumption that needs to be evaluated, especially in considering that potential impacts might have quite different time scales. For example, forests typically have time scales of 100 years or more (for a new forest to get started and then for the ultimate varieties to develop into a mature forest), should not the period of averaging be over 100 years or longer. If one does that, it would make clearer that prevailing forests are currently facing almost continuous extremes through most years, and this would help to explain why many are so stressed. As another example, for the Arctic and permafrost, etc., a longer baseline would seem appropriate. And one more example, for urban infrastructure, it would also seem most appropriate to have a longer time scale for issues like heat index, heat waves, etc. On the other hand, thirty years might be about right for air quality, as it takes perhaps, say, 15 years to replace the transportation fleet and upgrade emissions standards. It just seems to me that it is essential to be using a time interval as the baseline that is appropriate to the impact being studied. Just saying, as is done on page SPM 1, lines 26-27 (and footnote 1) that it is conventional to use 30 years and a variety of definitions does not seem adequate to me in terms of this assumption. (MacCracken, Michael, Climate Institute)	The longer time-scales seem inappropriate for the intended audience of this report. If the variety of time-scales and baselines the reviewer suggests were included the entire SREX would need to be much, much longer - as would be the SPM. Current use of baselines in Chapter 3 reflects a balance between requirement for brevity and the need to provide useful information. Discussion of impact of choice of reference period is nonetheless newly addressed in Box 3.1 of chapter 3 (but too detailed for SPM).
73	SPM	0	0	0	0	The SPM as presently cast is constrained by to the structure of the chapter outline and to academic style (while noting that technical accuracy is a vital feature of the SPM). A narrative style SPM would convey the information in a more meaningful way for policymakers. A number of key elements to this narrative are missing including: 1) Discussion of the scientific basis of why climate extreme events change due to anthropogenic interference with the climate systems 2) Discussion of the way present human systems are currently planned to cope with climate extremes, noting some human systems are not well designed to cope with even current climate extremes 3) Noting that even current well planned human settlements (or indeed natural systems) can tolerate current explicit levels of frequency and intensity (eg 1-100 year flood levels). Need to clearly highlight that the expected changes in the frequency and/or intensity of extremes will exceed current tolerances 4) Give a sense of number of population, infrastructure etc that are exposed to changing extremes 5) Register the urgency of introducing an adaptation focus for new decisions 6) While there are many uncertainties about the science of extreme climatic events and anthropogenic climate change, they should be explained in the context of hedging adaptation policies, not a reason for inaction on adaptation. Focus should also be given to a consistent application to the treatment of uncertainty across the SPM. It may be useful to have Box SPM.3 at the start of the SPM. (AUSTRALIA)	The SPM has been revised to provide a clearer narrative throughout, linking the key findings presented, including findings relevant to these points, as supported by the underlying chapters. Reference to the treatment of uncertainty and the calibrated language used in this report has been added at the beginning of the SPM.
74	SPM	0	0	0	0	Considering that in particular the SPM text is targeting non-specialist decision-makers, who may be inclined to draw conclusions quickly, the text should be edited in co-operation with public communication specialists so as to raise appeal and comprehensibility. (FINLAND)	The SPM has been revised extensively to increase the accessibility and relevance for policy makers.

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
75	SPM	0	0	0	0	We appreciate the efforts made for the definition of terms in Box SPM.1 to adapt SREX to terminology used by risk management community. This is important and useful, but for avoiding potential confusion or misunderstanding in readers not familiar with disaster risk, it could be useful to put some chapeau in Box SPM.1 mentioning briefly the reasons why in this SREX is using those definitions. (SPAIN)	It is important to present definitions in the SPM, and the comment is appreciated. Presentation of the reasons for these definitions, however, is extensively addressed in Chapter 1 of the report.
76	SPM	0	0	0	0	The writing style is not homogeneous, in some cases the chapeau has not text, some messages are unbalanced, etc. It would be important to revise and to homogenize it as much as possible. (SPAIN)	The SPM has been significantly revised to ensure clarity and consistency of writing.
77	SPM	0	0	0	0	It is not too much easy to extract from the text the more relevant messages for policymakers. It could be convenient to include at the end of SPM a short section/summary table/box with the relevant policy finding (no-prescriptive), including those having added value in relation to the AR4. (SPAIN)	The SPM has been revised extensively to increase the accessibility and relevance for policy makers.
78	SPM	0	0	0	0	It would be important to include more regional information and some case studies. This kind of information is very important for the treatment of the extremes. (SPAIN)	Regional information and reference to case study examples have been further included in the SPM where possible, for example in the SPM table.
79	SPM	0	0	0	0	Please revise the the treatment of uncertainty along the text for consistency. In some section and paragraphs it is not mentioned the degree of uncertainty on the findings (SPAIN)	The Executive Summaries of chapters now broadly use the calibrated uncertainty language, facilitating incorporation of such language in the SPM as well in a consistent manner.
80	SPM	0	0	0	0	FAQs that have been incorporated at the end of each relevant chapter of the report succeed to provide practical answers to main questions from the perspective of policymakers. They should therefore be annexed directly to the SPM. Most of them are very much explaining about the appropriate use of insurance in integrated disaster risk management, at the various levels. (NUSSBAUM, Roland, Mission Risques Naturels)	Although the frequently asked questions do provide answers to questions policymakers may have, they are a separate section of the report that will not be included directly in the summary for policymakers.
81	SPM	0	0	0	0	Congratulations on a good first-order SPM draft. Thank you for the opportunity to suggest ways to further strengthen it. 1. UNISDR believes that the SPM will be most useful to policy makers if it provides a summarized assessment of the strategies, policies and programmes currently used for reducing disaster risk that could be helpful for adaptation. This could be provided in the form of a chart and include examples from around the world, an assessment of effectiveness, lessons learned, challenges, and costs. 2. As it is the SPM reads a bit academic. The SPM statements should be able to answer the question “what does a policy maker need to do about this point?” In short, if it is not practical, it will not resonate with policy makers. 3. The SPM should be strengthened with information contained in the SREX chapters on the communication of risk information, education and training, as well as the major challenge of ensuring that funding reaches local levels. (UN-International Strategy for Disaster Reduction (UN/ISDR))	The SPM has been revised to maximize the relevance and accessibility of the SPM content for its policymaker audience. The SPM includes, as supported by the underlying chapters, findings relevant to risk communication, as well as to local-level considerations.
82	SPM	0	0	0	0	It would be good if the SPM were clearer. I realise the challenge of communicating technical information in a clear way, but at the moment I am not sure the key points are as specific as they need to be to be useful to policy makers. (Nightingale, Katherine, Christian Aid)	The SPM has been revised to maximize the relevance and accessibility of the SPM content for its policymaker audience.

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
83	SPM	0	0	0	0	We recommend highlighting the role of social protection in risk management. Suggested text: "Social protection mechanisms (including cash and asset transfers) are important components of disaster risk management and climate change adaptation. Social protection programmes can support vulnerable populations, allowing them to meet basic needs in post-disaster contexts and enhance resilience to future rapid-onset disasters and long-term environmental change." Suggested reference: Johnson, C.A. and Krishnamurthy, P.K. (2010) Dealing with displacement: Can "social protection" facilitate long-term adaptation to climate change? <i>Global Environmental Change</i> 20(4): 648-655. (World Food Programme (WFP))	The SPM includes, as supported by the underlying chapters, findings relevant to social protection.
84	SPM	0	0	0	0	The science figures are difficult to read and not representative of the overall literature. Could the SPM include a graphic representation of the regional findings in the tables in chapter 3? (NETHERLANDS)	Reject. Such a schematic map would have little relevant information. Current figures provide much more information (and are derived from the current literature).
85	SPM	0	0	0	0	In general, writing is sloppy and imprecise. In many cases, the reader is not clear on what basis the conclusions are reached. For which periods, and which definitions of extreme events are trends and causes established? While underlying chapters are pretty precise, this text does a medium job at making conclusions clear. In some cases this is because Executive Summaries suffer from the same issues as the SPM, in summarising underlying chapters. Staying closer to the actual conclusions of the chapters would be recommendable. (NETHERLANDS)	The SPM has been revised to ensure statements are clear and accessible, as well as accurately reflective of the findings of the underlying chapters.
86	SPM	0	0	0	0	Check definitions weather event/ climate event/ extreme event (NETHERLANDS)	These terms are used in keeping with the relevant glossary entries and the conventions introduced in the SPM introduction.
87	SPM	0	0	0	0	The SPM is generally too bland. It needs a stronger focus on implications of the findings of the report for decision-making, including how the climate science from chapter 3 does or does not require decision-makers to adjust practices and/or adopt different policies/approaches. (NETHERLANDS)	The SPM has been revised to maximize the relevance and accessibility of the SPM content for its policymaker audience.
88	SPM	0	0	0	0	This table is an important attempt to bridge the science information from this report to the actual decision-making, and illustrates the challenges of interpreting general IPCC information in specific contexts. However, the report as a whole needs to provide stronger cases like this, and the table needs to be more grounded in chapter 9 and/or examples worked out in several of the chapters. In addition, you could consider adding an additional column that provides some interpretation to the linking of science to options. Note that these are shortcomings of the report as a whole -- we strongly wish this perspective to remain in the SPM, but with stronger underpinning elsewhere. (NETHERLANDS)	The revision of the table and the SPM as a whole has sought to further ground their contents in detailed examples of chapter 9 as well as other chapters.
89	SPM	0	0	0	0	Very importantly, this report in its SPM, and also throughout the rest of the chapters, mixes different definitions of climate change. The glossary clearly states that climate change consists of natural and anthropogenic components. However, in many places the term "climate change" appears to imply only the anthropogenic component. An example is Page 3, Line 51 ("climate change, in addition to natural climate variability..."). This really needs to be corrected throughout the entire report, as this may lead to inaccurate statements. (NETHERLANDS)	Usage of the term "climate change" in the SPM has been carefully checked for consistency with the glossary.

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
90	SPM	0	0	0	0	There is a general problem with the definition of “floods” in the SPM and Chapter 3. Technically, what is meant is river discharge, as this is what is being observed in records and what is being modelled. There are very few models actually simulating changes in flood extent, duration and depth due to climate change. This is also explicitly acknowledged in Chapter 3 (Page 55, Lines 35-36). This needs to be corrected, or at least acknowledged that other processes determine flood occurrence and characteristics, than pure discharge rates (NETHERLANDS)	As the reviewer notes, the complexity of defining and monitoring floods is discussed in Chapter 3 - this is why it is difficult to say much about floods. Doing what the reviewer asks, in the SPM, would add considerable length to the SPM without changing the overall assessment that there is low confidence in projections of floods.
91	SPM	0	0	0	0	This SPM would benefit from including a table similar to the Table 3.1 that explains observed and projected changes in extremes (NETHERLANDS)	Reject. Adding Table 3.1 (or a version of it) to the SPM would simply duplicate the current carefully drafted Chapter 3 statements in the SPM.
92	SPM	0	0	0	0	fig SPM 1a and SPM 1b, comment: Please rewrite the first sentence to “Projected changes (in degrees C) of the annual maximum of maximum daily temperatures with a 20-year return period”. Same for precipitation in Figure SPM.1b. Otherwise there is unclarity as to the meaning of these figures. (NETHERLANDS)	Captions are being revised for Chapter and SPM.
93	SPM	0	0	0	0	A professional science writer should revise this summary in consultation with the authors taking care to maintain the scientific integrity and proper context. The summary is very difficult to penetrate, as if several chapter authors each provided very succinct paragraphs that effectively summarize a given section—even for an expert in the field who has read that chapter. (UNITED STATES OF AMERICA)	The SPM has been revised to maximize the relevance and accessibility of the SPM content for its policymaker audience.
94	SPM	0	0	0	0	There is an imbalance in SPM content devoted to observations compared to projections. Why is there so much emphasis on projections? Policy makers may want an expansion on the observation section, such as on regional details for precipitation events and others found in Table 3.1, also taking into account attributions. (UNITED STATES OF AMERICA)	The overall balance has been improved by expanding the material on observed losses, exposure and vulnerability, and adding a paragraph concerning the attribution of observed physical changes. The material on projected changes has been further condensed to focus on key messages.
95	SPM	0	0	0	0	The authors use the term 'anthropogenic' in situations where it could be interpreted in different ways. It would be helpful to clarify and state a default definition. We assume that the default definition is anthropogenic climate change driven by GHG and aerosols changes, but the authors need to be careful when talking about other anthropogenic-driven impacts. For example, direct surface effects of deforestation or even climate change due to deforestation. (UNITED STATES OF AMERICA)	The term "anthropogenic" has been added to the glossary, and its usage in the SPM has been carefully checked for consistency with its definition.

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
96	SPM	0	0	0	0	Add (Ch 8, P 4, Line 46-48): Disaster risk reduction is increasingly seen as one of the "frontlines" of adaptation, and perhaps one of the most promising contexts for mainstreaming or integrating climate change adaptation into sustainable development planning. (UNITED STATES OF AMERICA)	This statement was not included in the Executive Summary for Chapter 8. The interactions among disaster risk reduction, adaptation, and sustainable development are treated in the revised SPM, as supported by material from underlying chapter executive summaries.
97	SPM	0	0	0	0	Consider adding point from Ch8, P 5, Lines 12-13: Because disaster risk reduction is based on risk assessments that will be affected by climate change, it can no longer be carried out without taking adaptation in account (Milly et al., 2008). (UNITED STATES OF AMERICA)	This point has been considered, but the statement has not been elevated to the SPM, as this statement was not directly included in the final draft of Chapter 8.
98	SPM	0	0	0	0	Ch 8, P5, lines 52-53: "In many cases, the most attractive adaptation actions are those that offer development benefits in the relatively near term, as well as reductions of vulnerabilities in the longer term." This seems like a key point to highlight in the executive summary. (UNITED STATES OF AMERICA)	This sentence is now included in the SPM.
99	SPM	0	0	0	0	Ch, P 6, lines 49-51: "Sustainable development is an international goal that can be threatened in some areas by climate change extremes, thus climate change adaptation and disaster risk reduction are critical elements of long-term sustainability for economies, societies, and environments at all scales." Again, this key point should be highlighted in the exec summ & SPM. (UNITED STATES OF AMERICA)	Although this exact sentence has not been elevated to the SPM, related material has been included in the final section of the SPM.
100	SPM	0	0	0	0	Consider to define "Agreement" better in the report and the SPM (p 11 line 6 in summary for policymakers). It might be described better how "agreement" is operated independent of the term "evidence". (NORWAY)	Further explanation of "agreement" has been added to box SPM.3 and to the presentation of calibrated uncertainty language used in the report. The degree of agreement is a measure of the consensus across the scientific community on a given topic and not just across an author team. It indicates, for example, the degree to which established, competing, or speculative explanations exist within the scientific community. Agreement is not equivalent to consistency. Whether or not consistent evidence corresponds to a high degree of agreement is determined by other aspects of evidence such as its amount and quality; evidence can be consistent yet low in quality.

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
101	SPM	0	0	0	0	It is considerable room for improvement in how the results are summarized in the SPM. The purpose is to identify and synthesize those findings which are relevant for the development of policy. This also needs to take into account that policymakers are not scientists or researchers themselves, hence the emphasis on readability could not be overestimated. The summary for policymakers could cover the changes in extreme events observed and projected, the consequences these events will have and the discovered improvements in risk management needed to be effectuated, and how. (NORWAY)	The SPM has been revised to maximize the relevance and accessibility of the SPM content for its policymaker audience, and to highlight the key findings of each of the chapters of the report, including those relevant to the points raised in this comment.
102	SPM	0	0	0	0	The SPM, could, based on the assessed knowledge, aim towards communicating and visualizing the nexus between climate change adaptation and disaster risk reduction. We suggest that it is developed a figure to illustrate this nexus. (NORWAY)	Such a figure has now been added.
103	SPM	0	0	0	0	The findings related to the immense importance of work on disaster risk reduction in order to reduce the risk caused by extreme climate related events should be stronger emphasised in the SPM. Today, just a fraction of the total amount of money spent on disasters in the world goes to DRR. Information on this, as well as the potential for saving lives and money should stand out as one of the main findings. (NORWAY)	The SPM includes, as supported by the underlying chapters, findings relevant to these points.
104	SPM	0	0	0	0	The impacts of disasters on development should also be made clearer, and findings from earlier IPCC reports that climate change has set back development in some regions should be reiterated and updated (e.g. AR4, climate change has set back development in Africa). (NORWAY)	The SPM includes, as supported by the underlying chapters, findings relevant to these points.
105	SPM	0	0	0	0	There is a lack of focus on gender related to climate change adaptation and DRR in the SPM, and in the overall report. In developing countries, the major part of the victims of disasters is women and children. We find that the SPM lacks mentioning of the gender distribution of people affected by disasters, which is of great importance when it comes to targeting measures on climate change adaptation and DRR. Furthermore, we believe there is growing evidence in the literature on the importance of including women in the planning and implementing of such measures. Findings from the chapters on these points should be added in the SPM (e.g. parts of the text in Ch 8, box 8-1 and page 24, lines 23-35)). (NORWAY)	The SPM includes, as supported by the underlying chapters, findings relevant to gender issues.
106	SPM	0	0	0	0	The SPM is rather “technical”, and we would prefer clearer language. Who are most vulnerable, and what are the important elements in effective response at different levels, are some of the important questions that should be answered as far as possible in the SPM, and in simple language, given of course the status of scientific information. (NORWAY)	The SPM has been revised to maximize the relevance and accessibility of the SPM content for its policymaker audience, and to highlight the key findings of each of the chapters of the report, including those relevant to the points raised in this comment.
107	SPM	0	0	0	0	There should be a figure upfront showing the linkages between disaster risk management, climate change adaptation, and the interaction of these with sustainable development, and the whole scope of the report. We are not sure that Figure 1-1 will manage to do so, maybe especially with reference to chapter 8 that talks about transformations and relexive social learning. Maybe one need a figure showing more the big picture and Figure 5-2 may be is a start. See draft chapter 5. (NORWAY)	Such a conceptual figure introducing the report's scope has now been added.

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
108	SPM	0	0	0	0	In general some efforts needs to be put into developing new and innovative illustrations in the SPM, see also comments to figures in the chapters. (NORWAY)	Such efforts have been made.
1040	SPM	0	0	0	0	The use of confidence, evidence, agreement and likelihood terminology in summary statements should be done in a more coherent way. Some statements have confidence/likelyhood statements, some not. This is to be avoided. The reader should be conveyed with a clear and unambiguous message about these terms. Using one or the other will left the reader wondering what the various approaches mean. (Moreno, Jose, University of Castilla - La Mancha)	There is now much more extensive use of calibrated uncertainty language throughout the SPM.
1041	SPM	0	0	0	0	Evidence should be referred to in a coherent way. There are a number of statments that start by saying "... There is evidence..." How much evidence is "there is evidence"?. This category is not among the ones used to build confidence levels. Phrasings such as the one mentioned should all be consistent with Box SPM3.1 (Moreno, Jose, University of Castilla - La Mancha)	There is now much more extensive use of calibrated uncertainty language throughout the SPM. Consistency with AR5 uncertainties guidance has been insured.
1042	SPM	0	0	0	0	Despite the effort to define some terms in the text, plus in the glossary, readers not familiar with disaster risk might have difficulties in understanding some of the messages. A simple, iconic-type figure (Fig. 1.1 is a good candidate if resiliece were more clearly embedded into the scheme), clearly identifying the various components of risk would be helpful in the SPM. In this regard, ambiguities/sinonyms in the text regarding the use of concepts should be clarified. For instance, pag 2., line 43 "Lack of resilience and the capacity to anticipate, cope with,....causal factors of vulnerability". But resilience refers exactly to .."The ability of a system, community, or society to anticipate, absorb, accommodate, or recover...". A clarification of the terminology if possible thorough a clear diagram would be much appreciated by a reader not familiar with this jargon. (Moreno, Jose, University of Castilla - La Mancha)	A conceptual figure has been added, and the revision of the SPM has aimed for consistency of terminology and clarity for the reader.
1043	SPM	0	0	0	0	Box SPM.1 is a usefull contribution towards comment 3 above. Choosing the three main terms is appropriate, the rest being available in the glossary. I missed, however, the only other important term that is used a number of times in the SPM, and that is resilience. Furthermore, if vulnerability and resilience were related, that would give the reader most of what it needs to understand the SPM without having to visit the glossary.Resilience is important becuae it is a term that is used only at end of the report, when vulnerability is not being used. (Moreno, Jose, University of Castilla - La Mancha)	While vulnerability is defined in the box, the reader should refer to the glossary for resilience. Usage of the term resilience should now be clearer with the context provided throughout the SPM.
1044	SPM	0	0	0	0	Two important elements of the report virtually do not appear up-front in the SPM: regional issues, case studies. The SPM should do a greater effort to capture both of these elements in the form of boxes, tables, etc.Regional issues are of greatest interest to policy makers because it is the closest information that they can draw upon for their policies at least in a context of regional relationships. Furthermore, there is a whole chapter on case studies and the lessons learned from this should be fully used to illustrate what should and should not be done (Moreno, Jose, University of Castilla - La Mancha)	Some regional Information is provided in the figures. Additional reference to the case studies is also present. Finally, the table highlights regional examples.
1045	SPM	0	0	0	0	Fig. SPM1 a, b: These are very important figures, but they are excessively complex and difficult to interpret by non expert. Since there are few other graphical elements, much more effort should be done to convey the message of this figure in a more simple way. (Moreno, Jose, University of Castilla - La Mancha)	Figures have been revised.

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
1046	SPM	0	0	0	0	The information concerning future impacts is extremely limited, and insufficient for a report of this type. Policy makers are particularly interested in this to implement adaptation measures. The information concerning the sectors affected is very limited. Prominent among all sectors is food production and security of which there is very little in this report. Again, regional information is very limited for this and other sectoral topics. (Moreno, Jose, University of Castilla - La Mancha)	Further information is not provided, based on the conclusions available from the underlying chapters.
1047	SPM	0	0	0	0	The SPM is very heterogeneous in its writing style. Some of the headings are clear, simple, and easy to grasp the messages they contain. Others (the second part of the report) is very wordy, extremely complicated to read and there is great difficulty in understanding what in the end matters and is what should be conveyed to policy makers. One additional point that might deserve discussion is the issue of full listings. If we say that something (important) will occur in many places but not in others (probably not being important) we dilute the message from the policy makers perspective. This is a critical issue because if not everything occurs everywhere, or viceversa, making impossible to draw any substantive conclusion with regards to risks where they really occur. (Moreno, Jose, University of Castilla - La Mancha)	The revision of the SPM has focused on clarity and relevance for the policymaker audience.
1048	SPM	0	0	0	0	Table SPM.1 is very complicated and poor as a single piece that attempts to convey the reader some/many/ of the most important achievements of the report. While there is merit in the careful writing of the text, this is not a table that a policy maker can use with virtually any (up or down the hierarchy) to illustrate the main findings of the report. Some simpler, with more examples, would be much more informative (Moreno, Jose, University of Castilla - La Mancha)	The table has been streamlined and clarified. It provides an important summary of information across the report, in a manner relevant to policymakers.
1049	SPM	0	0	0	0	The SPM should contain some graphic element of impacts, not only of the physical component of risk. The physical component are important because they trigger disasters. (Moreno, Jose, University of Castilla - La Mancha)	Further information on impacts and losses has been provided, as supported by the conclusions of the underlying chapters.
109	SPM	1	0	1	0	Box 1: Definitions of other important terms would be appreciated at the beginning, e.g. disaster, disaster risk management, disaster risk reduction, resilience, disturbance (Wehrli, Andre, European Environment Agency)	Definitions of important terms used across chapters appear in the SREX glossary, and only a small number of terms essential to understanding the SPM have been selected for inclusion here.
110	SPM	1	0	1	0	A general statement on the lack of observations and detection of extreme events, the difficulty of projecting extreme events and the heterogeneity of the characteristics and impacts for the different regions and societies should be added. (GERMANY)	The first paragraphs in the 'Climate extremes and impacts' sub-sections of sections B and D address these important points.

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
111	SPM	1	0	2	0	It would be helpful for the SPM to explicitly differentiate an increase in “extreme events” due to increased variability and that due to a shift in the mean with no change in variability. If the mean temperature increases with no change in variance, then in a sense, we still have the same number of very cold days—we have simply increased the temperature below which we call a day “cold”. But in another sense, we have fewer very cold days, if our definition of cold does not change. The report seems to say we will have “more extreme events” when it really means we will have “more events that would seem extreme today”. But it also says “more extreme events” when the variance increases.....It would be very helpful to address this distinction at the beginning—sometimes it makes a real difference. The impact of heat seems to often depend on how much hotter than usual, rather than how much hotter than a given threshold. Sea level rise may increase vulnerability to flooding at some locations, but once development adjusts to the higher levels, flooding ought not increase. There are other cases where the absolute levels matter (e.g. a freeze or threat to a specific structure or land form). (UNITED STATES OF AMERICA)	These topics have been further addressed in the revised paragraph on the effects of a changing climate on extremes in Section A.
112	SPM	1	0	16	0	I find this a very disappointing report. Many of the key findings are convoluted and unhelpful to policymakers. The treatment of uncertainties needs to be more precise - we are dealing with a risk management issue. The document does not make the point - which was presumably important in deciding to undertake this Assessment - that we are likely to experience climate change more through the change in extreme events than in the steady increase in temperatures etc... (Stone, John M R, Carleton University)	The SPM has been revised to increase its usefulness and relevance for policymakers, including further refined characterization of the degree of certainty of assessment findings. In terms of key findings presented, the SPM reflects the underlying material in the chapters of the report.
113	SPM	1	11	1	12	A short introduction (similar to those in the AR4 SPMs) is needed at the outset of the SPM. (CANADA)	The SPM has been revised to provide further introductory material.
114	SPM	1	11	1	12	Last sentence " In some cases, extreme eventseconomics sectors" is not well balanced and in some way dilutes the principal message of the paragraph. So, we suggest, to amend as follows: "In some cases. Some extreme eventsan economics sectors" and to add some examples of positive impacts cases. (SPAIN)	The material in this paragraph has been very substantially revised as required to reflect the underlying material in the final drafts of the report's chapters.
115	SPM	1	13	1	47	It should emphasize both time-scale and space-scale for extremes/disasters/risks (Zhao, Zong-Ci, National Climate Center)	This point has been further emphasized in the revised SPM.
116	SPM	1	13	2	21	Section A on "context and history" does not currently make sense as a distinct section. The key finding statements in this section are based on current knowledge of observations (e.g., lines 14-16) or future projections (e.g., lines 26-28) and could therefore also fit into the sections that follow (sections B and C). (CANADA)	This section has been extensively revised to improve the logical flow with the rest of the SPM.
117	SPM	1	13	2	31	Section SPM.A In this introduction chapter it would be helpful with a reference to the box SPM 3 about treatment of Uncertainty, including the use of the likelihood-term and the confidence-term, which is to be found first at the end of the SPM now. (NORWAY)	Reference to the treatment of uncertainty and the calibrated language used in this report has been added at the beginning of the SPM.

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
118.1	SPM	1	13	2	31	<p>I am missing adaptation here. Quite a critical omission. Notably, since the IPCC tradition is that vulnerability is not a property that can be seen independently from adaptation. See e.g. IPCC (2007b, glossary), where vulnerability (V) is what results if an exposure (E) of a sensitive (S) system to some CC (including extreme events) impacts that system so much, that its adaptive capacity (Ac) is exceeded ($V = f(E,S,Ac)$). This also means, a CC impacted system can be very sensitive, and when the impacts are positive, there is no need to counteract by adaptation any adverse effects. We do not speak of vulnerability in such cases, vulnerability having adverse impacts in mind. However, one speaks of poor adaptation if one fails to exploit a positive CC impact, e.g. if adaptive capacity is not there to profit from it. Not only is the role of adaptation completely missing in here, there is also not the full range of impacts (positive and negative) considered here. All these conceptual ideas are missing in this part of the SPM and I believe they need to be layed out. (BTW, the quick mentioning (not in the bold part) of adaptaton in line 43 on page 2 is not good enough. Line 17 on p. 3 mentions ecosystems to be adapted. Not a good example to discuss these issues, since in contrast to human systems, adaptation of natural systems such as ecosystems is much less under human control and to enhance the adaptive capacity of such systems is much thornier than this is with human systems. The first time adaptive capacity is prominently in the SPM (bold) is in line 53 on page 5. IMHO way too late.) Moreover, in the context of extreme events it is particularly important that the role of adaptation is spelled out. E.g. heavy precip events in Switzerland in 1978 lead to floods, which were perceived by the general public as an extreme event. Not only much attention in the mass media resulted, but also improvements in the hydrological management of related lakes, catchment outflows etc. resulted, i.e. adaptative measures were taken. Several repetitions of even more extreme precip events followed in subsequent years, but which were all overlooked by the general pubic, since the implemented adaptation did prevent similar floods. That there is a difference between perception of what an extreme event is from the merely (natural) scientific perspeptive vs. how such events are perceived by the general public needs to be clarified upfront. i.e. in this section of the SPM. Not only climate changes. also</p>	<p>The role of adaptation is further discussed in the introduction to the SPM, with consideration of the complexities outlined here. The contribution of both climatic and non-climatic factors to uncertainties in outcomes is now more clearly stated.</p>

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
118.2	SPM	1	13	2	31	<p>humans change by adapting to CC. A continuous "arms-race" changes continuously the perception and occurrence of so-called extreme events (depending how you define them, i.e. merely a rare event, or some extreme adverse impact relative to past exposure as far as people can remember it or built their infrastructure for). Another example illustrates another aspect: in Europe summer 2003 and fall 2006 were comparably very rare events. The first received a lot of attention, the second is known by a very few specialists. Here the reason for the difference is not only because adaptive measures change the overall effect of the same rare event, but adding almost 5°C to a seasonal mean in summer leads to extreme temperatures at the end of the seasonal amplitude, while adding the same anomaly in the middle of the range gives only a perhaps upper-range climate at the wrong season. Another basic conceptual issue that needs to be addressed upfront in the context of this report. I believe that all these conceptual issues are not properly addressed and need to be well laid out in this section. BTW, chapter 2 is dealing with these issues and gives adaptation a prominent role (albeit not in the title) and the SPM can draw from there. Finally I am also missing a prominent reminder that the more extreme the event, the bigger the uncertainty in identification, detection, as well as projection becomes (for these reasons I would even challenge the statement made in lines 2 to 4 on p.6 to be actually wrong, non-climatic factors are by far not the only reason for considerable uncertainties). Uncertainty is relevant, most of all in the context of a rational risk management, that is IMHO pivotal in the context of extreme events and policy decisions. Possibly robustness, i.e. fail-safe vs. safe-fail, of risk management with respect to extreme events may need to be introduced here too. Cited References: ----- IPCC, 2007. Climate change 2007: Impacts, adaptation and vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC). In: Parry, M. L., Canziani, O. F., Palutikof, J. P., van der Linden, P. J., & Hanson, C. E. (eds.) Cambridge University Press: Cambridge, UK. vii, 973. (http://www.ipcc.ch) Ip015 (Fischlin, Andreas, ETH Zurich)</p>	
119	SPM	1	13	11	28	<p>This is more a general comment for the style of the SPM. It misses the context for policy makers: What is new relative to the pervious report? What is the tendency of the knowledge? What is the relationship with the main policy questions regarding mitigation and adaptation? Without this information my experience is that the policy makers get lost and don't see the relevance of this SPM. This not only concerns the start of the SPM (which should really guard the polcy maker, but also many of the conclusions miss the tendency of the knowledge of the particular matter. Without this information these conclusions don't add any concrete information. In addition, it is not well written for policy makers because it misses the policy context and it is too technical. I see this as a very fundamental problem in general for SPM's. (NETHERLANDS)</p>	<p>The SPM has been revised to maximize the relevance and accessibility of the SPM content for its policymaker audience.</p>
120	SPM	1	15	0	0	<p>Extreme atmospheric conditions may last between minutes (passing tornado) to decades (extended droughts). (NETHERLANDS)</p>	<p>Further consideration of the temporal scales of extreme weather and climate events has been included.</p>

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
121	SPM	1	15	1	15	Rather use 'affect' than 'impact' (what are the impacts of natural processes on natural ecosystems?) (Wehrli, Andre, European Environment Agency)	"Impacts" is the term generally used--please see the glossary for the definition used in this report.
122	SPM	1	15	1	17	The following wording seems to flow better: The character and severity of impacts, as well as the risk of disasters, result from the exposure (characterized by the type, magnitude, and extent of weather and climate events) and vulnerability of human systems and the sensitivity of natural systems. (Radunsky, KLaus, Umweltbundesamt GmbH)	This sentence has been revised to increase clarity, consistent with the definitions of these terms given in the glossary.
123	SPM	1	15	1	17	The second sentence of the SPM is very long and difficult to follow. It would benefit from the ideas being broken up into two sentences. (AUSTRALIA)	This sentence has been revised to increase clarity.
1050	SPM	1	15	1	17	Amended text: Weather... human society and natural 'systems'. The character human beings 'and their supporting natural and social systems', and from the type, magnitude, "frequency", and extent of weather and climate events. Reason: consistency in use of terms (natural ecosystems, natural systems, physical systems, etc. See below as well. Frequency is also an important component to be included in the list. Additionally, "event magnitude " is not in the glossary. Magnitude is mentioned many times in the report and should be defined. (Moreno, Jose, University of Castilla - La Mancha)	This introductory text has been very substantially revised.
124	SPM	1	15	1	19	Putting exposure and vulnerability before extreme events slowed us down when reading this first paragraph of the whole report. This cart-before-horse effect was compounded by the hierarchy of phrases that we had to parse along the way. Also, "sensitivity of natural systems" could be interpreted properly only with the rest of the text. (It could have meant climate sensitivity.) So although this first paragraph appears to be semantically correct, it is a sort of a puzzle, and it does not get the report off to a good start. (UNITED STATES OF AMERICA)	These sentences have been revised accordingly to increase clarity.
125	SPM	1	15	1	20	The report seems to concentrate on human systems and the terms exposure, vulnerability and sensitivity are therefore defined from the point of view of human systems. I would suggest that this definition would be made explicit in the beginning of the SPM (Kankaanpää, Susanna, HSY Helsinki Region Environmental Services Authority)	These definitions are given in the glossary of the report, as well as in the box SPM.1.
126	SPM	1	15	1	20	This paragraph (part A) should be much more direct and smooth. The constant use of weather and climatic event without specifying the reason for it, does not benefit at all the ideas highlighted in the lines. The lines beginning in line 17, ie, "This report assesses the influence of climate change on.....and on weather and climate events.....disaster risk" should be much clearer. Better, completely rewrite the lines from 15 to 20. Those lines are extremely important for the whole report. Extreme events, extreme impacts and disaster risk are first mentioned in this chapter. Therefore, all must be included and defined in the box SPM1. (Mata, Luis Jose , IMF)	These sentences have been revised accordingly to increase clarity.
127	SPM	1	15	1	20	This opening sentence is very vague. Suggest using punchier language (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This sentence has been revised to increase clarity.
128	SPM	1	15	1	20	I think the phrasing here is not at all clear--for this being the opening few lines of the SPM, this needs to have clear, crisp, short sentences and not such long, complex sentences or the potential reader will be lost right away. (MacCracken, Michael, Climate Institute)	These sentences have been revised to increase clarity.

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
129	SPM	1	15	1	20	The paragraph is good but obscures the main point of the assessment: to identify and assess the effectiveness of measures to reduce risk and adapt to climate change. To refocus this paragraph on the management aspect, line 15 could read: "Weather and climate events impact human society and natural ecosystems yet human behaviour and natural ecosystems can reduce or increase such impacts. Line 20 could include additional info such as: "It assesses measures taken to reduce and manage risk and their usefulness in adapting to climate change." (UN-International Strategy for Disaster Reduction (UN/ISDR))	The role of adaptation and risk management as assessed in this report has been further emphasized here.
130	SPM	1	15	1	20	The SPM needs a clear explanation of the problem and why this report is necessary. The statement about what this report assesses needs to be consistent with the underlying report, which itself is not internally consistent. The authors could consider a formulation such as: This report presents an assessment of: 1) climate change and its effects on extreme events, disaster and disaster risk and disaster risk management, 2) why and how human responses to extreme events and disasters (based on historical experience and evolution in practice) could be integrated more closely with and contribute to climate change adaptation objectives and processes, and 3) why and how climate change adaptation could be integrated into planning for disaster risk reduction and management. (UNITED STATES OF AMERICA)	These sentences have been revised to increase clarity along the lines suggested here.
131	SPM	1	16	1	17	In my opinion, the terms exposure, vulnerability and sensitivity apply to both human and natural systems. From this sentence, one understands that sensitivity as a quality of natural systems only - and that vulnerability and exposure only concern human systems (Kankaanpää, Susanna, HSY Helsinki Region Environmental Services Authority)	This sentence has been revised for clarity in the use of these terms, and sensitivity is no longer mentioned.
132	SPM	1	17	1	18	With respect to weather and climate extremes, the report also attempts to assess the role that external forcing may have had on observed changes, and is projected to have on future changes. Referencing only "climate change" does not convey the notion that human induced changes in atmospheric composition and other human and natural external influences have an effect on climate, and therefore, may have a role (to be assessed) in changes in extremes, and consequently exposure, perhaps vulnerability, and disaster risk. (Zwiers, Francis, Environment Canada)	The introduction has been revised to more clearly communicate the changes in extremes addressed in this report and their causes, including adding the SREX definition of 'climate change' to Box SPM 1.
133	SPM	1	17	1	18	The writing implies the assessment of the impacts of climate change on exposure and vulnerability. I am not sure if the SREX has really assessed as there are not many literatures on this. (Zhang, Xuebin, Environment Canada)	This statement has been revised accordingly to effectively reflect the scope of the report.
134	SPM	1	17	1	19	The statement "assess the influences of climate change on exposure and vulnerability and on weather and climate events" seems much broader than the mandate of this special report - which is managing the risks of extreme events and disasters. The broader context provided by Chapter 1 is valuable, but the rest of the report (and especially the SPM) should be focussed. (CANADA)	The introduction has been revised to more clearly communicate the scope of the report's assessment.
135	SPM	1	17	1	19	The message in this sentence is important, but readability could be improved. (NORWAY)	This sentence, as well as the section as a whole, has been revised to increase clarity.
136	SPM	1	19	0	0	Is there a difference between extreme impacts and disasters? Precision in the use of al lof these terms is important. (UNITED STATES OF AMERICA)	This sentence has been revised to increase clarity.
137	SPM	1	19	1	20	Consider deletion of the word "disaster" in this sentence, since risk management seem to broader than disaster risk management (NORWAY)	The focus of this report includes disaster risk management, hence its mention.

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
138	SPM	1	20	1	20	change to "...to reduce risks and impacts related to climate change..." -- it's crucial to highlight the focus on climate change and extreme events in the risk and impacts discussion in this report. (Stocker, Thomas, IPCC WGI TSU)	Sentence has been revised accordingly.
139	SPM	1	20	1	20	... and the wider impacts for sustainable development and international development co-operation. (LAST WORDS ADDED TO ORIGINAL PHRASE) (FINLAND)	Sustainable development is called out in the introduction to reflect the material in the underlying report.
140	SPM	1	20	1	20	Please add the following sentence at the end of the paragraph: "By providing this information this report aims to facilitate the cooperation between different experts and stakeholders." (FINLAND)	The purpose of the report is addressed in its preface, rather than the SPM.
141	SPM	1	22	1	47	We feel the box could better explain extremes with a diagram showing the relationship of an extreme event to the mean. There should also be some discussion of why trends in extremes are difficult to detect. The needs to be a definition of disasters in this box. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	The SREX definition of 'disasters' has been added to box SPM 1. A figure similar to that suggested by the reviewers is now in Chapter 1, but other conceptual figures were considered more important for the SPM. A general statement about the confidence in observed trends in climate extremes from chapter 3 is provided in Section B of the SPM.
142	SPM	1	22	1	47	We recommend adding a definition of adaptation, as it is one of the key concepts discussed in the Report. For example, the definition provided in the Assessment Reports can be included. (World Food Programme (WFP))	A definition of adaptation has been added.
143	SPM	1	22	1	47	Definitions also of "impact" and "disaster" (perhaps in terms of a confluence of these three factors?) would be helpful, as would placing all this terminology in a common framework. (We see that such definitions are given later.) (UNITED STATES OF AMERICA)	A definition of disaster has been added. Reference to the glossary has also been made, and additional introduction of the terms is now included.
144	SPM	1	24	1	31	To add examples of extreme events such as hot temperature extremes, heavy precipitation, tropical cyclones, mid-latitude storms, and drought to this para is very much helpful to understand what are extreme events in the context of climate change. (JAPAN)	Reject - adding a comprehensive list of extreme events in the context of climate change to the SPM as requested is not feasible (see detailed discussion provided in Chapter 3). Note that the definition of 'extreme events' given in SPM box 1 has been further shortened and generalised.
145	SPM	1	24	1	45	In Box SPM.1 the explanation of the term 'Resilience' is missing, even though the term is used repeatedly in the SPM, including in headings (notably at the top of page 10 ' Resilience based approach'). Less urgent but still worthwhile would be to add the definition of 'coping range' or 'coping capacity' as well in Box SPM.1. (FINLAND)	Although this term is not included in the box, reference is made to the glossary where a definition can be found. There are different interpretations of resilience, and it is preferable to refer to sections of the text than to one specific definition in the SPM.

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
146	SPM	1	24	1	45	The absence of 'resilience' in box SPM.1 may - intently or not - also reflect the emphasis on 'vulnerability' in comparison to 'resilience'. The concepts could however be considered as 'yin' and 'yang' in the process of how societies deal with threats and impacts of natural hazards. Vulnerability stresses the possibility of damage and suffering, against which protection is needed, and thereby it is an event related concept. Resilience on the other hand makes the link with recovery or at a more strategic long term level with a prerequisite for undisturbed sustainable development. Especially due to the latter link to long term perspectives 'resilience' deserves mentioning right from the start, so as to stress that disaster prevention and relief should extend beyond an event based approach and also include the ability to develop sustainably notwithstanding a not entirely known and gradually changing collection of risks of natural hazards (which are sometimes anthropogenic enhanced). (FINLAND)	The importance of both concepts, vulnerability and resilience, is implied in the revised SPM. The reader is referred to the glossary for definition of terms not in the box, such as resilience.
147	SPM	1	24	1	45	A possible summarizing definition of resilience could be: Resilience is defined as the ability of a society to minimize its exposure to natural hazards and disasters, and to quickly and equitably recover from any damage to its economic, social and natural capital without transferring risks to future generations or to other areas. Furthermore, resilience is also understood in a long term context, being the capacity of a society to follow an undisrupted path of sustainable development thanks to timely integration of the management of natural hazards in public and private policies. (FINLAND)	The definition of resilience used in this report is provided in the glossary.
148	SPM	1	24	1	47	BOX SPM.1: Definition of "climate event", "risk", "disaster" should be added (GERMANY)	Box SPM.1 has been extended to include 'extreme (weather or climate) event' and 'disasters'. The definition of all requested terms are provided in the SREX glossary.
149	SPM	1	24	1	47	Definitions, especially the definition of "vulnerability" differs from the definition given in IPCC AR4. The difference and implications for the understanding/concept should be explained. (GERMANY)	While the definition for vulnerability is presented in the SPM, further background is provided in the underlying chapters.
150	SPM	1	25	1	46	I suggest including also the definition of resilience to facilitate understanding of the message and to avoid confusion. (SPAIN)	The definition of resilience used in this report is provided in the glossary.
151	SPM	1	26	1	26	Explain the terms "weather variable" and "climate variable" explicitly in the SPM because the distinction is not clear to the SPM. (Fuessel, Hans-Martin, European Environment Agency)	The definition of extreme (weather or climate) event is provided in the SPM. Further details are discussed in Chapter 3.
152	SPM	1	26	1	26	There is no mention of other non-climatic factors that exacerbate extreme events, like flooding and drought, such as land use planning. (CANADA)	The definition of extreme (weather or climate) event is provided in the SPM, and no longer specifies potential causes. Non-climatic factors that influence extreme events are considered in the context of exposure, vulnerability, and disaster losses throughout the SPM.

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
153	SPM	1	26	1	27	This text is rather complicated to understand. I suggest the following simplifications or explanations, respectively: "Extreme events are defined in this report as the occurrence of a value of a weather or climate variable (e.g. daily temperature or precipitation amount) above (or below) a threshold value near the maximum (or minimum) of observed values of that variable. (Neu, Urs, Swiss Academy of Sciences)	Reject - Proposed change would not improve clarity.
1051	SPM	1	26	1	27	Amended text: Extreme events....variable at a given "place". Reason: Extreme events are local, and reference to it must be made. (Moreno, Jose, University of Castilla - La Mancha)	Disagree - definition is based on the SREX glossary.
154	SPM	1	26	1	31	definition of extreme event is a bit confused and does not help to establish an appropriate clarity in the exposition of the basic definitions. Please, delete all brackets in lines 26 to 31 in order to improved the definition of extreme events. (Mata, Luis Jose , IMF)	Done.
155	SPM	1	26	1	31	This definition is quite technical. The meaning of the term "variable" may not be fully understood by policymakers. The definition also implies that there is a difference between weather and climate variables, and between weather and climate events, but the distinction is not clear. There is also inconsistency throughout the SPM in the usage of the terms "extreme events" and "extremes", which could be confusing. (CANADA)	New, shortened glossary definition used for 'extreme (weather and climate) event' is provided in box SPM 1. More detailed description of weather and climate variables given in chapter 3.
156	SPM	1	26	1	36	sur Extreme Events, se reporter à OG2 (BOURRELIER, PAUL-HENRI, AFPCN)	No action - Unclear which comment reviewer is referring to.
157	SPM	1	26	1	36	Definition of extreme events: in footnote - later there is reference to more commonly used 99% values and annual maxima, so consistency is needed. I would maintain that only events rarer than ann max are truly extreme. In any case, 1 or 5% probability events in 30 years is an unusual definition. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	There can be no consistency in definition of extremes - what is one man's extreme may be another's pleasant climate.
158	SPM	1	26	1	45	A worked example may help bring these rather verbose explanations to life... (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This box presents concise definitions of key terms used in the summary for policymakers. Further context and conclusions pertaining to these terms are provided throughout the rest of the summary for policymakers.
159	SPM	1	26	1	45	Care needs to be given that these definitions accurately reflect those in the underlying report. The authors need to consider whether the topics in this box should be expanded to include other definitions useful for the reader of the entire SPM (e.g. adaptation, adaptive capacity). Alternately, authors may want to consider referring the reader to a 'glossary of terms' that is consistent with definitions throughout the report. (UNITED STATES OF AMERICA)	All of these points have been taken into consideration in the revision of this box. Linkage to the glossary is explicitly provided. The glossary provides the primary definitions of terms used in the report. Additionally a few additional terms have been included in the box as suggested
160	SPM	1	26	1	47	Please move technical definitions to a appendix or something similar. Don't start a SPM with technical definitions. (NETHERLANDS)	This box aims to provide essential definitions of the central concepts of the report to orient the reader. Further introduction is now provided at the start of the summary for policymakers

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
161	SPM	1	27	1	29	Within the definition of "extreme event" the term "hot day" may not be sufficient to convey the meaning of an extreme event. Many warm summer days could be considered "hot days" but would not pose threats to economies, health or infrastructures. The authors may wish to use an alternate term such as "extremely hot day" or "extreme heat event". (CANADA)	New, shortened glossary definition used for 'extreme (weather and climate) event' is provided in box SPM 1, no longer using the term 'hot day'. Nonetheless, the term "warm day" is still used in the SPM. Note that even moderately hot days cause increased mortality.
162	SPM	1	28	1	29	Put "hot day" in quotation marks. (Neu, Urs, Swiss Academy of Sciences)	New, shortened glossary definition used for 'extreme (weather and climate) event' is provided in box SPM 1, no longer using the term 'hot day'.
163	SPM	1	29	1	29	Suggest delete "given some adaptation". This seems to be an unnecessary qualification given that there will be variation in time of the occurrence of types of extreme events in different part of the world. (NEW ZEALAND)	New, shortened glossary definition used for 'extreme (weather and climate) event' is provided in box SPM 1, no longer referring to 'adaptation'.
164	SPM	1	29	1	31	Needs rewording. What's the difference between a meteorological and a climate variable? Only the averaging time period, correct? It's thus not useful to refer to precipitation and temperature as meteorological variables explicitly differentiating them from climate variables. Precipitation and temperature are often referred to as being "climate variables". (Stocker, Thomas, IPCC WGI TSU)	New, shortened glossary definition used for 'extreme (weather and climate) event' is provided in box SPM 1, no longer using the term 'meteorological variable'.
165	SPM	1	29	1	31	Pour les droughts, il serait bon de distinguer le cumul d'événements localisés ou d'intensité moyenne (par exemple des épisodes de pluie) et les sécheresses qui sont clairement des extrêmes météorologiques, dans la partie inférieure de la distribution statistique pour la variable précipitations pendant un temps long, peut être avec un facteur de saisonnalité et d'évaporation défavorable (BOURRELLIER PAULI-HENRI AFPCN)	No action - Unclear comment.
166	SPM	1	29	1	31	Reader is left wondering: Why would an accumulation of moderate weather cause a drought? (UNITED STATES OF AMERICA)	New, shortened glossary definition used for 'extreme (weather and climate) event' is provided in box SPM 1, no longer using the term 'moderate'. In other instances 'moderate' has been replaced by 'non-extreme when considered independently'.
167	SPM	1	30	1	31	This is not clear and can be mis-interpreted. This comes about spatial and temporal scales of extremes. Drought is caused by extreme lack of precipitation (or extreme high temperature) at space and time scales of month or years, though drought may not be related to extreme precipitation or temperature at short (e.g. daily) scale. (Zhang, Xuebin, Environment Canada)	See response to #166
168	SPM	1	30	1	31	One can assume that accumulation of moderate weather and climate events lead to moderate conditions and not significant impacts. However, combined with highly vulnerable conditions even moderate events may lead to significant impacts. Do the authors refer to combined impact of vulnerability and hazards or just successive moderate hazards leading to extreme hazards for extended period of time? Please clarify. (UNITED STATES OF AMERICA)	See response to #166
169	SPM	1	31	0	0	Consider adding 'over a period of months to decades' (NETHERLANDS)	See response to #166
170	SPM	1	31	1	31	insert at the end of sentence: "in a region over a longer time period" (GERMANY)	See response to #166

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
171	SPM	1	33	1	36	Should the definition also mention 10% chance of occurrence in some way? An event that is judged relative to the 10th or 90th percentile may not be very "extreme", but a good part of the literature deals with "extremes" relative to either the 10th or 90th percentile. A further comment is to suggest that "chance of occurrence" be defined more precisely. For example, when speaking of a 1% chance of occurrence, does this refer to events for which the probability of occurrence is 1% in any given year, or does this refer to an event that has a 1% probability of occurrence at some point during a 30-year period?. As written, the definition suggests the latter. (Zwiers, Francis, Environment Canada)	The footnote on thresholds for extreme events was considered too technical and has been deleted. See chapter 3 for a comprehensive discussion.
172	SPM	1	33	1	36	The probabilities given here for defining a threshold for defining an extreme event seem far too large and could be reconsidered from the perspective of authorities involved in risk management - who are used to consider centennial or more return period events. As an example, coastal infrastructure are usually at the minimum based on centennial waves heights and/or sea level values. In some countries (e.g. the Netherlands), the 10 000 years event value is used. At this scale, the statistical value has no meaning in itself: this is just an extrapolation of the statistical law beyond its range of applicability. However, this correspond to the "acceptable risk" wished there. (MODARESSI, HORMOZ, BRGM)	Reject. For many disasters (eg a heat wave) one doesn't need to wait for a one in 10,000 year event for severe consequences to occur.
173	SPM	1	33	1	36	Footnote might be too technical and thus difficult to approve in Plenary. Consider rewording. (Stocker, Thomas, IPCC WGI TSU)	Agree - deleted.
174	SPM	1	33	1	36	<insert [after line below] comparisons with regards to return period and annual exceedance probability> "values with less than a 5% or 1% or even lower chance or occurring during a specified reference period (generally 1961-1990)" This is equivalent to a 1 in 600 and 1 in 3000 year return period (RP) event or a 0.167% and 0.033 % annual exceedance probability (AEP). (AUSTRALIA)	The footnote on thresholds for extreme events was considered too technical and has been deleted. See chapter 3 for a comprehensive discussion.
175	SPM	1	33	1	36	These two very different approaches to defining extremes, and the fact that only the second is impact-based, deserve a little more attention than a footnote. (UNITED STATES OF AMERICA)	The footnote on thresholds for extreme events was considered too technical and has been deleted. See chapter 3 for a comprehensive discussion.
176	SPM	1	33	1	46	Box defines exposure and vulnerability - hard to see why RISK is not defined here as it is used extensively later. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	The glossary presents a definition for disaster risk, and the box now includes a definition of disaster.
177	SPM	1	34	1	34	"1961-1990" Here and elsewhere explain why this short period is used and not the entire period of records. (UNITED STATES OF AMERICA)	From the IPCC WGI AR4 glossary: "Climate in a narrow sense is usually defined as the average weather.....The classical period for averaging these variables is 30 years, as defined by the World Meteorological Organization."
178	SPM	1	34	1	36	Suggested simplification: "Absolute thresholds (rather than thresholds defined through the observed distribution of a variable) can also be used" (Neu, Urs, Swiss Academy of Sciences)	The footnote on thresholds for extreme events was considered too technical and has been deleted. See chapter 3 for a comprehensive discussion.

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
179	SPM	1	37	1	37	Insert: Disaster risk is defined in this report as the 'effect of uncertainty on objectives'. In this definition, uncertainties include possible events (which may or may not happen) and uncertainties caused by a lack of information or ambiguity. This definition also includes both negative and positive impacts on objectives (The ISO 31000 (2009) /ISO Guide 73). (Disaster risk should be defined according to ISO standard) (CHINA)	The glossary presents the definition for disaster risk used in this report.
180	SPM	1	38	0	0	Consider rephrasing: 'Exposure is the occurrence of physical events in the presence of ..., that thereby are subject to potential loss and damage. (NETHERLANDS)	The definition provided for exposure here is consistent with the glossary, which provides the definition used throughout the report.
181	SPM	1	38	1	40	The definition of exposure seems to encompass everything, unless there are places where physical events never occur. Is there a more precise definition used elsewhere in the report? (UNITED STATES OF AMERICA)	The definition provided for exposure here is consistent with the glossary, which provides the definition used throughout the report. Further discussion of the term and concept occurs in chapters 1 and 2 in particular.
1052	SPM	1	38	1	40	Amended text: Exposure is defined..., livelihoods, "natural" services and resources,... Reason: keep consistency in definitions. Some time ecosystems, environmental, natural, etc. is used. Is better to use one term. (Moreno, Jose, University of Castilla - La Mancha)	The definition provided reflects the glossary for the report.
182	SPM	1	39	1	40	Replace "occurrence of physical events" by "occurrence of climate and weather events" (reason: the term 'physical events' might not be automatically set equal to climate and weather events by non-specialists). (Neu, Urs, Swiss Academy of Sciences)	The revision of the definition for exposure means that this suggestion is no longer relevant.
183	SPM	1	42	0	0	it would be ideal to choose a definition that allowed for greater consistency and clear communication across reports. I think the definition offered could be adjusted to include climate stresses and variability - for instance (Dow, Kirstin, University of South Carolina / Carolinas RISA)	The revised definition of vulnerability presented here and in the glossary is a broader definition.
184	SPM	1	42	0	0	The approach I am suggesting approach allows you to specify the report focus without greatly distancing the use of the term vulnerability in this report from the broader use in the AR4 and AR5. (Dow, Kirstin, University of South Carolina / Carolinas RISA)	The revised definition of vulnerability presented here and in the glossary is a broader definition.
185	SPM	1	42	0	0	La définition de la vulnérabilité est générale et couvre bien tous les éléments qui l'influence ; il pourrait être noté que parmi eux il faut mettre en bonne place l'efficacité de la mise à l'abri, des secours et de l'aide humanitaire. (BOURRELIER, PAUL-HENRI, AFPCN)	The revised definition of vulnerability presented here and in the glossary is a broader definition.
186	SPM	1	42	0	0	It should be clearly noted from the start of the report and SPM that the term "vulnerability" in this report has a different definition than usual for IPCC, i.e. excluding the exposure component. (NETHERLANDS)	While the definition for vulnerability is presented in the SPM and glossary, further background is provided in the underlying chapters.
187	SPM	1	42	1	44	Definition of "vulnerability" in terms of "hazardous" seems circular or otherwise open-ended. In fact this definition would work without the word "hazardous." (UNITED STATES OF AMERICA)	The revised definition of vulnerability presented here and in the glossary is a broader definition. The term hazardous is no longer employed.

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
1053	SPM	1	42	1	44	Amended text: Vulnerability is defined ...their "natural", social, and Reason: Natural rather physical systems is appropriate to keep consistency and be more encompassing (Moreno, Jose, University of Castilla - La Mancha)	The definition provided reflects the glossary for the report.
188	SPM	1	42	1	45	Working Group II have used a useful definition of vulnerability that is a function of exposure, sensitivity and adaptive capacity. This seems to be a much more practical definition than the one provided in this SPM (Stone, John M R, Carleton University)	The revised definition of vulnerability presented here and in the glossary is the definition used throughout the report.
189	SPM	1	42	1	45	State explicitly that the definition of vulnerability (to extreme weather and climate events) used in the SREX is different from the definition of vulnerability (to climate change) used in IPCC Assessment Reports (Fuessel, Hans-Martin, European Environment Agency)	While the definition for vulnerability is presented in the SPM and glossary, further background is provided in the underlying chapters.
190	SPM	1	42	1	45	The current definition of vulnerability lacks some quite relevant information, included in the executive summary of chapter 2: Causal factors of vulnerability fall into two broad categories: susceptibility/fragility to hazards and lack of capacity/resilience. Such swentence should be added in the SPM on page 1. (Radunsky, KLaus, Umweltbundesamt GmbH)	In this box only a brief definition of vulnerability is presented, reflecting the definition presented in the glossary. Further information is provided in other sections of the SPM and in the underlvine chapters.
191	SPM	1	42	1	45	Vulnerability of natural systems should be clearly included in itself, not only as a part of "human livelihood". (BELGIUM)	The revised definition of vulnerability presented here and in the glossary is a broader definition.
192	SPM	1	42	1	45	We question whether it is correct only to include humans and factors directly related to human welfare in the definition of vulnerability. What about effects on for example biodiversity and ecosystems only remotely related to human activity? Other parts of the SPM (for example the description of impacts on page 3, line 15-20) also deal with this kind of vulnerability. (NORWAY)	The revised definition of vulnerability presented here and in the glossary is a broader definition.
193	SPM	1	46	1	46	The terms 'disaster', 'disaster risk' and 'extreme impacts' are also used frequently in the SPM, and definitions should be included in Box SPM.1 (CANADA)	A definition of disasters provided in this box, and the reader is referred to the glossary for other relevant terms.
194	SPM	1	46	1	46	The terms 'disaster' and 'disaster risk' are also used frequently in the SPM, and definitions should be included in Box SPM.1 (CANADA)	A definition of disasters provided in this box, and the reader is referred to the glossary for other relevant terms.
195	SPM	1	49	1	49	This block also needs to be reorganized and perhaps it should be removed or modify. Since, it has been suggested to include "extreme Impacts" as a definition in the Box SPM 1. This paragraph is not a "key finding" (Mata, Luis Jose , IMF)	This paragraph has been substantially revised, following from the revised material in the underlying chapter executive summaries. This paragraph provides important introduction relevant to this section on context, and thus it has not been deleted.
196	SPM	1	49	1	49	suggest adding "and/or" to "intensity and/or duration" (NEW ZEALAND)	Others object to the use of "and/or". The revised sentence from the latest version of Chapter 3 ES has been used.
197	SPM	1	49	1	49	I would insert 'spatial extension' in the list of characteristics that may be impacted by CC (currently frequency, intensity and duration). (FRANCE)	Agree - "spatial extent" has been added.

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
198	SPM	1	49	1	50	State explicitly that the terms "extreme events" and "extremes" are used in this sentence (and possibly in the whole report) to refer to extreme weather and climate events rather than to extreme impacts. (Fuessel, Hans-Martin, European Environment Agency)	Done - Distinction has been made clear throughout the SPM
199	SPM	1	49	1	50	Can we say anything about the scale, location and type of those possible unobserved extremes? (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	"previously unobserved' has been deleted.
200	SPM	1	49	1	50	The word "may" here is totally unacceptable. At the very least, given how much change is projected through the century, "may" should be changed to "likely" and toward the end of the century "very likely" (MacCracken, Michael, Climate Institute)	May' has been replace with 'can'. Note that Section A is intended to set the context, explicitly not providing assessment results. For the assessment of projections of future climate extremes using calibrated uncertainty language, the reader is directed to Section D.
201	SPM	1	49	1	50	"unprecedented, previously unobserved extremes." Many previous, as well as this IPCC report have not placed sufficient emphasis on proxy and paleo-data: rather, the focus has been on modeling. Paleodata can document unprecedented and unobserved extreme value data. Paleodata are DATA and can be interpreted by multiple investigators. Uncertainties of these data can be estimated. Modeled information is limited, in most cases, to insufficient systematic gage data. (UNITED STATES OF AMERICA)	"previously unobserved' has been deleted.
1054	SPM	1	49	1	50	Amended text: A changing climate "is likely" to affect the frequency, intensity, duration or "extent" of extreme events and result in unprecedented extremes. Reason: 1. Can affect, and may result is not consistent with a probabilistic assessment of likelihood. Extent is another characteristic that can change and is worth mentioning. Unprecedented and previously unobserved are the same. Choosing one term is enough (Moreno, Jose, University of Castilla - La Mancha)	This sentence is part of the context setting section, and as such, not trying to provide a probabilistic assessment of likelihood. "previously unobserved" has been deleted.
202	SPM	1	49	1	54	It is very difficult to read. The text needs to be articulated such that 1) extreme events are part of climate and do occur regardless of changes in the climate, 2) natural decadal variability modulate the occurrence of extreme events, 3) changes in the climate will alter the likelihood of some extremes (Zhang, Xuebin, Environment Canada)	Paragraph has been revised according to the Chapter 3 executive summary.
203	SPM	1	49	1	54	The text in lines 50-54 do not address the statement in the first bolded sentence. (CANADA)	Paragraph has been revised according to the Chapter 3 executive summary.
204	SPM	1	49	1	54	The bolded statement seems disconnected from the explanation in the paragraph. The authors may want to include a sentence that elaborates on the bolded statement. (UNITED STATES OF AMERICA)	See response to #203.
205	SPM	1	50	0	0	to shorten statement delete "unprecedented" or "previously unobserved" since this basically the same from the policy perspective (Langniss, Ole, Fichtner GmbH & Co KG)	Done - deleted 'previously unobserved'
206	SPM	1	50	1	50	Unprecedented' 'previously unobserved' - in this context these two terms read as synonymous. Recommend only unprecedented used for clarity. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	Done - deleted 'previously unobserved'
207	SPM	1	50	1	50	The difference between "previously unobserved" and "unprecedented" is not readily apparent. Please clarify. (CANADA)	Done - deleted 'previously unobserved'

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
208	SPM	1	50	1	54	The whole concept here is problematic as it seems to suggest that natural and anthropogenic factors can be distinguished and are separate. This is just not the case--once humans start changing the climate, they start having an influence on everything, small at first and very likely growing over time to quite significant. Indeed, for many types of large-scale changes, the human-induced changes themselves will be larger than what natural changes are now. Of course, over geological scales, naturally induced changes are larger--proving that changes in factors can cause climate to change. Basically, natural variations not driven by some forcing factor are really pretty small once one averages over a reasonably sized region (and once we figure out what the driving force has been). I would add also that the wording here in general does not seem to me very clear. (MacCracken, Michael, Climate Institute)	Reject. The paragraph does not suggest what the reviewer claims. Please note - the paragraph has been reworded to improve clarity.
209	SPM	1	50	1	54	These sentences need to be reformulated to increase readability. (NORWAY)	Done
210	SPM	1	51	0	0	Proposition to include after 'natural decadal': '... the coincidence of specific local atmospheric conditions, periodically aggravated by ...' (NETHERLANDS)	Reject. Proposed rewrite makes the sentence too complicated and does not add clarity.
211	SPM	1	52	1	54	Shall this sentence only emphasize that extreme events would also occur in a stationary climate as a direct consequence of how they are defined statistically or is there an intended message beyond that? (Fuessel, Hans-Martin, European Environment Agency)	Statement has been revised.
212	SPM	1	52	1	54	Excellent point. Again, proxy/paleodata are preserved in the environment for many types of hazards. Also, readers may not understand what "[3.1]" means, clarify on first use. (UNITED STATES OF AMERICA)	This is a good suggestion, and a sentence providing this clarity will be considered during the final editorial process. Eg, 'The basis for substantive paragraphs in this SPM can be found in the chapter sections specified in square brackets'. [WGI comment: Needs to be addressed for final draft]
1055	SPM	1	52	1	54	Amended text: Irrespective...over "this century", the occurrence....climate extremes is likely (?) to be expected. Reason: "can be expected" is not in the likelihood assessment table. Do the authors mean "likely"? In addition, correct next century for this century since the assessment refers to this century, not the NEXT one. (Moreno, Jose, University of Castilla - La Mancha)	See #1054.
213	SPM	2	0	3	0	Section B: as this section addressed observations of the past and the present, the present perfect tense instead of the present tense should be used. (GERMANY)	Effective verb tense has been insured throughout
214	SPM	2	1	2	12	It could be helpful to add to this discussion points made in Chapter 1 (pg 23, lines 44-49) about the tendency for CCA to focus on response to extreme events rather than the concatenation of small and medium sized events or on multihazard contexts. Perhaps this would be the place to bring in the statement in Chapter 2 (page 3, line 5) that "The accumulation of the effects of many small disasters may be as damaging or worse than one large disaster." (UNITED STATES OF AMERICA)	Cumulative effects are now more explicitly mentioned in the SPM.
215	SPM	2	2	0	0	supprimer « Extreme Impacts » (voir OG2) (BOURRELIER, PAUL-HENRI, AFPCN)	As suggested the term is no longer used in this context.
216	SPM	2	2	0	0	Proposition: in stead of first sentence the enxt one might be better: 'The risks and impacts of extreme weather strongly depend on p (NETHERLANDS)	This text has been revised.

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
217	SPM	2	2	2	3	Suggest the inclusion of a definition for "extreme impacts," likely as part of Box SPM.1. Simplify subsequent supporting text. (CANADA)	Although this term is not provided in the box, ambiguous use of the phrase has been eliminated
218	SPM	2	2	2	3	Please delete "patterns and trends", which muddles the statement a bit. The sentence would read "Extreme impacts and disaster risk are strongly dependent on vulnerability and exposure as well as on the severity of climate events." (UN-International Strategy for Disaster Reduction (UN/ISDR))	This text has been revised substantially to ensure clarity.
1056	SPM	2	2	2	3	Amended text: Extreme impacts...dependent on "the type and characteristics" of extreme weather ... Reason: Patterns and trends is vague. Furthermore, disasters today do not have anything to do with future trends. I suggest to use "characteristics" of events, because this encompasses magnitude, frequency, extent, to keep the text consistent with page. 1, line 15 (Moreno, Jose, University of Castilla - La Mancha)	This text has been revised to reflect the conclusions of the underlying chapters.
219	SPM	2	2	2	4	Suggest deleting the words 'weather and climate' from this sentence since 'extreme events' were defined on previous page as extreme weather and climate events. The SPM should be checked throughout for consistency in this regard. For ex., lines 39-40 on page 2 use the phrasing ' extreme weather and climate events' but line 45 just uses 'extreme events'. (CANADA)	Consistent and clear phrasing in this regard has been considered throughout the SPM.
220	SPM	2	2	2	12	With the definition of vulnerability I have suggested the bolded text is obvious. The rest of the text is not helpful to policymakers - it is too long, convoluted and qualified. (Stone, John M R, Carleton University)	This text has been revised substantially to ensure clarity and relevance to policy makers.
221	SPM	2	2	2	12	It is suggested to start this paragraph with the wording of chapter 1, page 2, lines 30 to 37. That wording links extreme events with disasters and explains their relationship. The current wording in the SPM addresses similar (if not the same concepts) but is confusing, e.g. in using the term "extreme impact". (Radunsky, Klaus, Umweltbundesamt GmbH)	This text has been revised substantially to ensure clarity.
222	SPM	2	2	2	12	Referring to the comment to SPM, page 1, line 42-45, we think that impacts and disasters only remotely related to humans might also be included. For example, destruction of unique ecosystems caused by extreme events should be considered serious impacts - even if there is only a weak and indirect link to human society. (NORWAY)	This text has been revised to further incorporate this point.
223	SPM	2	2	2	31	I think it would be helpful here to give some indication right near the front--maybe in a table--of the types of impacts that can occur, so from temperature, precipitation, drought, sea level, and so on--Section A as a whole is pretty vague. (MacCracken, Michael, Climate Institute)	Section A has been revised to provide a concise introduction to these points with subsequent sections delving into specific categories of climate extremes with more detail.
224	SPM	2	3	2	5	sentence "Extreme events can arise....people and systems" is unclear. The whole para cannot compensate for a missing definition of "extreme impact". Proposal: insert a definition of "extreme impact" in Box SPM 1. (GERMANY)	Although this term is not provided in the box, clearer use of the phrase has been ensured
1057	SPM	2	3	2	5	Amended text: Extreme impacts can arise when extreme events intersect with people and their natural, social, and economic support systems; the severity of impacts depends on the type and characteristic of the event and the exposure and vulnerability of the affected people and systems. Reason: Exposure and vulnerability determine impact as function of type and characteristics (intensity, frequency, extent, etc.) of the extreme event, not per se. Change the order of using exposure and vulnerability, for consistency (Moreno, Jose, University of Castilla - La Mancha)	This text has been revised to reflect the conclusions of the underlying chapters.

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
225	SPM	2	3	2	12	line 3 is conflicting with lines 7-12; Line 3 should be reconsidered as there are examples of non extreme events leading to extreme impacts. This is the case for example of the 2010 Mérapí eruption, that is considered as centennial, and should be considered as a normal behaviour of the volcano according to the vulcanologists. We propose to replace Extreme impacts actually arise when adverse event (not necessarily extreme) meets vulnerability of exposed elements. line 3: "Extreme impacts can arise when extreme events intersect with people and their natural, social, and economic support systems" Line 7-12 "Given variations in exposure and vulnerability, disasters and extreme impacts can arise from weather or climate events that are not extreme in a statistical sense. This can occur when a critical threshold in a social, ecological or physical system is crossed, or when two or more non-extreme events occur simultaneously or sequentially. Additionally, some extreme events may not lead to disasters and extreme impacts when exposure or vulnerability is low." (MODARESSI, HORMOZ, BRGM)	This text has been revised substantially to address this point and ensure clarity.
226	SPM	2	7	2	8	I think this begs for a better definition of "extreme" impacts, or at least, further explanation. If vulnerability is high, such that extreme impacts can be triggered by weather or climate events that are not extreme in a statistical sense (i.e., events that are not rare), then such extreme impacts must occur relatively frequently, which would then render those impact events less extreme due to their frequency. (Zwiers, Francis, Environment Canada)	Although a definition of this term is not provided in the box, clearer use of the phrase has been ensured
1058	SPM	2	7	2	8	Amended text: Given variations in exposure and vulnerability, extreme impacts and disasters can arise from weather or climate events that are not extreme in a statistical sense. Reason: keep consistency in the order of using the terms and their implied relationships. Disasters can arise when extreme impacts occur. (Moreno, Jose, University of Castilla - La Mancha)	This text has been revised to reflect the conclusions of the underlying chapters.
227	SPM	2	7	2	10	Disasters can also arise when a non-extreme climatic event occurs together with another type of disastrous event. In Guatemala last year we had heavy rainfalls from a storm right after a volcanic eruption which increased tremendously the impact from the rainfall (Castellanos, Edwin, Universidad del Valle de Guatemala)	The revision of this section addresses such complexities as relates to the determinants of disaster.
228	SPM	2	7	2	10	On the same topic, the timing of a non-extreme event is also important: a heavy rainfall at the end of a rainy season when soils are saturated can produce flooding and landslides which would not happen if the rain falls early in the season (Castellanos, Edwin, Universidad del Valle de Guatemala)	This point has been noted and incorporated in the revision of the section.
229	SPM	2	7	2	10	I am not sure that it can be given, as an example of 'weather or climate events that are not extreme in a statistical sense', the case of 'two or more non-extreme events occur[ring] simultaneously or sequentially'. This simultaneity or sequentiality may be extreme in statistical sense. (FRANCE)	Statement was changed and no longer refers to 'simultaneously or sequentially' occurring non-extreme events.
1059	SPM	2	8	8	10	Amended text: This can occur when a critical threshold in a human or natural system is crossed, due, for instance, to two or more non-extreme events occurring simultaneously or sequentially. Reason: Consistency in the use of terms. It must be clarified when the crossing of thresholds can occur for reasons other than extreme weather and climate events (Moreno, Jose, University of Castilla - La Mancha)	This text has been revised to reflect the conclusions of the underlying chapters.
230	SPM	2	10	2	10	Again, "may" needs to be deleted. This could say "Additionally, not all extreme events lead to disasters ..." (MacCracken, Michael, Climate Institute)	The sentence is no longer present in the SPM.

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
231	SPM	2	10	2	12	"when two or more non-extreme events ...". This does NOT prove an extreme impact can be produced by non extreme events. It all depends on how you define what is an extreme. Two or more non-extreme events occur simultaneously or sequently can be extremes since what you need to ask is what is a likelihood of such an extremes. For example, if a day tempertaure above 30 C in Paris is not an extreme, a 30 days in a role with every day tempertaure above 30C in Paris will be a huge extreme heat wave. In such case, the event is not individual day with tempertaure above 30C, but it is temperture above 30C in 30 days that defines such an event. (Zhang, Xuebin, Environment Canada)	Statement was changed and no longer refers to 'simultaneously or sequentially' occurring non-extreme events.
232	SPM	2	12	2	12	Can we be more specific about where the example quoted can be found instead of the broad section? It is difficult to follow statements through to the underlying report. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	Clear line of sight has been insured throughout the SPM.
233	SPM	2	13	0	0	Section A. I do not undersand why the title of the section mention 'context and history'. There is nothing said on history, very few on context. It is more an introduction and a framing of some used concepts. (FRANCE)	The title has been revised, and the section now more clearly provides context for the SPM.
234	SPM	2	14	2	14	Insert "negative" between significant and impacts, "disasters cause significant negative impacts....". It would reflect better the content of the paragraph. (SPAIN)	This text has been substantially revised to reflect the conclusions of the underlying chapters.
235	SPM	2	14	2	15	How the high or medium confidence is defined? This should be clarified at this point or previously. (GREECE)	Reference to the treatment of uncertainty and the calibrated language used in this report has been added at the beginning of the SPM.
236	SPM	2	14	2	18	Somewhere you need to define "disasters". Also, you seem to miss a key point that in developing countries the consequences are mainly in lost lives as the value of possessions is generally low; this is the opposite in developed countries were the direct economic losses are greater but lost lives fewer due to better infrastructure etc... (Stone, John M R, Carleton University)	A definition of disasters has been provided in the SPM as well as in the glossary, and the 2nd point is now addressed.
237	SPM	2	14	2	26	Lines 14 and 26 show information about "degree of certainty", but not the others in item A. These "key findings" should be organized in a different way with respect to the order in which they are attached. A different (new) structure is fully required in item A. (Mata, Luis Jose , IMF)	Section A has been reordered, and calibrated uncertainty language is no longer used in this section.
238	SPM	2	14	2	31	UNISDR is pleased to see these points highlighted in the SPM. (UN-International Strategy for Disaster Reduction (UN/ISDR))	Noted
239	SPM	2	15	2	15	You should insert a reference to box SPM.3 here. Otherwise readers will be left at a guess what the confidence levels mean. (Rock, Joachim, Johann Heinrich von Thuenen-Institute)	Reference to the treatment of uncertainty and the calibrated language used in this report has been added at the beginning of the SPM.
240	SPM	2	15	2	15	Insert "higher" before "direct". This makes the meaning absolutely clear. (NEW ZEALAND)	This statement has been revised, with clarity insured
241	SPM	2	15	2	15	"high confidence" Consider footnote with link to Box SPM.3 Figure 1 on "agreement, evidence, and confidence scales" here where confidence level is first used. (UNITED STATES OF AMERICA)	Reference to the treatment of uncertainty and the calibrated language used in this report has been added at the beginning of the SPM.

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
242	SPM	2	15	2	16	Insert the word "can" between "Disasters" and "create barriers for continued socio-economic development" because this statement is not true for all disasters. (Fuessel, Hans-Martin, European Environment Agency)	This statement is no longer present in the SPM.
243	SPM	2	15	2	16	It is misleading to include a statement with medium confidence in bold letters next to a statement with high confidence. It is suggested to regroup the findings according to their confidence level. (Radunsky, KLaus, Umweltbundesamt GmbH)	This paragraph has been substantially revised. In addition, reference to the treatment of uncertainty and the calibrated language used in this report has been added at the beginning of the SPM.
244	SPM	2	15	2	16	("Disasters create barriers for continued socioeconomic development..."): Please consider different exposures, vulnerabilities, and coping/adaptive capacities of developed countries and developing countries against extreme events and the consequences for further (economic) development. (GERMANY)	No longer relevant--this text has been removed.
245	SPM	2	15	2	16	Disasters are not just barriers for socio-economic development but can also set back progress for years due to the use of limited resources for reconstruction and recovery efforts. Please expand treatment. (UNITED STATES OF AMERICA)	No longer relevant--this text has been removed.
246	SPM	2	16	2	16	Assigning medium confidence to the statement 'Disasters create barriers for continued socio-economic development' seems low. Perhaps there is high confidence that this statement relates to less developed countries. (AUSTRALIA)	No longer relevant--this text has been removed.
247	SPM	2	16	2	18	It is suggested to add the confidence level of the statement that: Disasters can cause important- (Radunsky, KLaus, Umweltbundesamt GmbH)	No longer relevant--this text has been removed.
248	SPM	2	18	2	18	Reference of chapter 3.1 - unclear why this chapter is referenced with this statement as chapter is based on physical changes with no explicit mention of GDP and socioeconomic barriers. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	Chapter 3 was not referred to here. The reference was to Chapter 4, section 4.6.3.1
249	SPM	2	20	0	0	sur la sous-estimation des pertes :Le fait que les pertes indirectes, non monétaires, ne sont pas comptées, n'est qu'une des causes de la sous-estimation. Il serait bon de dire que le pourcentage des biens monétarisés et leur valeur dépend largement des pays : cela explique que l'essentiel des dommages sont ceux de la cote de Floride et que l'Afrique ne compte pour rien. (BOURRELIER, PAULI-HENRI, AFPCN)	He says that losses depend on country wealth. We discuss relative losses as a share of GDP, and they are higher in low and middle income countries
250	SPM	2	20	0	0	replace 'disaster losses' with 'damages' (NETHERLANDS)	We use losses as referring to monetized adverse impacts
251	SPM	2	20	2	22	The statement "substantially underestimate the extent of losses" is not supported by either section 4.6.1.1 or section 6.1. Section 4.6.1.1 does state "Measuring disasters' many effects is problematic, prone to both overestimation (for example, double counting) and underestimation (it is difficult to value loss of life, or damage to the environment). Biases also affect the accuracy of estimates. for example the prospect of aid may create incentives to inflate losses." (CANADA)	Correct, we refer to this in (now) 4.5.6. Uncertainty in Assessing the Economic Costs of Extremes and Disasters."
252	SPM	2	21	2	24	Human lives are hardly an indirect loss! (Stone, John M R, Carleton University)	Correct, and this is not there anymore

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
253	SPM	2	22	2	22	I'd suggest rephrasing to say "Among the factors that these estimates exclude are indirect losses, ..." While the list seems pretty complete, it fails to make clear how the spread of the costs can be far beyond the impacted region--take the Japan earthquake/tsunami, which is not only having impacts in Japan, but around the world in terms of economic impact and likely ultimately for businesses to more broadly spread their critical infrastructure, to emigrations of people, etc. Maybe add some phrase about the spatial scales of disasters (smoke from fires can have impacts at long distances, and so on). (MacCracken, Michael, Climate Institute)	No longer relevant--this text has been removed.
254	SPM	2	22	2	24	The meaning of the phrase "including primarily the economic flows constituting livelihoods and economies" is not clear. (Fuessel, Hans-Martin, European Environment Agency)	No longer relevant--this text has been removed.
255	SPM	2	23	2	23	Insert between human lives and quality of life "health impacts". Health impacts (diseases and epidemics) are important intangible losses (SPAIN)	No longer relevant--this text has been removed.
256	SPM	2	24	2	24	Insert at the end of paragraph: "... and psychological impacts including traumas, anxiety states, mental illness and distress." (Reason: psychological impacts are often underestimated or overlooked and are an important impact of extreme events) (Neu, Urs, Swiss Academy of Sciences)	No longer relevant--this text has been removed.
257	SPM	2	26	0	0	beginning with line 26, the paragraph includes the usage of the term vulnerability that implies stresses associated with changes in averages. So a broader definition of vulnerability with the focus on extreme events, would avoid having implied contradictions in the definition on sequential pages. Also, see the paragraph beginning on line 37. (Dow, Kirstin, University of South Carolina / Carolinas RISA)	This text is not in the SPM anymore, but a broader definition of vulnerability is now used in the report.
258	SPM	2	26	2	26	Specify also that climate change will affect "negatively" disaster risks..... (SPAIN)	No longer relevant--this text has been removed.
259	SPM	2	26	2	27	I would insert 'spatial extension' in the list of characteristics that may be impacted by CC (currently frequency, intensity and duration). (FRANCE)	No longer relevant - Paragraph has been removed
260	SPM	2	26	2	27	Add 'some' before 'extreme events' to accurately reflect the statement in 2.7. (UNITED STATES OF AMERICA)	No longer relevant - Paragraph has been removed
261	SPM	2	26	2	28	Where are the references to back up this statement? (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	No longer relevant--this text has been removed.
1060	SPM	2	26	2	28	Amended text: There is high confidence that climate change will affect disaster risk not only through changes in the frequency, intensity, duration and extent of extreme events, but also through indirect effects on exposure and vulnerability. Reason: If one refers event characteristics to a point, extent is not needed, but if the reference is a given area (region, country) then extent is important. Is not the same an equal amount of disturbed area in smaller bits at different times (all else being equal), than the same area disturbed all in one episode. Additional comment: This statement is in a section of context and history, yet, here we have a major statement for the future. I suggest rewording this statement to not directly imply future changes but to indicate that changes in disaster risk are very likely to occur provided changes in climate, etc. (Moreno, Jose, University of Castilla - La Mancha)	No longer relevant--this text has been deleted.
262	SPM	2	26	2	31	I was surprised not to see anything here about storm surges and coastal inundation, which will be a major impact for many low-lying nations. (MacCracken, Michael, Climate Institute)	No longer relevant--this text has been removed.

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
263	SPM	2	26	2	31	This important finding should come earlier in the chapter. (NORWAY)	No longer relevant--this text has been removed.
264	SPM	2	27	0	0	extremes cannot change in both frequency and magnitude; a shift in the probability distribution automatically implies both (NETHERLANDS)	No longer relevant - Paragraph has been removed
265	SPM	2	27	2	27	suggest adding "and/or" to "intensity and/or duration" (NEW ZEALAND)	No longer relevant - Paragraph has been removed
266	SPM	2	29	2	31	Which is larger- "some" or "many"? The use of different words seems to imply a difference in frequency. If this is intended, which interpretation is implied, and is there a basis for it? Will only the increases apply especially to the most vulnerable, or will the decreases reach them disproportionately also? (UNITED STATES OF AMERICA)	No longer relevant--this text has been removed.
267	SPM	2	31	0	0	editorial: replace 'most vulnerable' by 'particularly vulnerable'. Most vulnerable has a political connotation. In UNFCCC context it refers to a classification that can be linked to funding (for adaptation). There are several classification possibilities depending on the criteria selected leading to different rankings. This terminology is also used in UNFCCC documents. If this proposal is accepted then of course the terminology also has to be changed in the longer report in a number of places. (BELGIUM)	No longer relevant--this text has been removed.
268	SPM	2	32	0	0	BOX SPM.3 including Fig.1 Should be insert here before section B (instead of in the end of SPM) in order to understand the degree of uncertainty described in the text. (SPAIN)	Reference to the treatment of uncertainty and the calibrated language used in this report has been added at the beginning of the SPM.
269	SPM	2	34	0	0	In Section B. It would be very important to include a summary Table or figure (not too much complicated) for a better comprehension and communication of the messages to policy makers and general public. Also it would be important to include explicitly regional information (may be in a table format) as well as some relevant studies cases. (SPAIN)	Reject. Adding Table 3.1 (or a version of it) to the SPM would simply duplicate the current carefully drafted Chapter 3 statements in the SPM. Simplification of Table 3.1 would compromise the accuracy of the carefully crafted Chapter 3 entries. Note: regional information has been added where appropriate, including within Table SPM 1.
270	SPM	2	34	0	0	In Section B. there is not information about forest fires. At least one paragraph should be included with forest fires regional information, including Forest Fire in the Mediterranean. (SPAIN)	All text present in this section had to stem from underlying findings in chapters and their executive summaries. Thus, a paragraph on forest fires could not be included
271	SPM	2	34	3	45	This section would benefit if the text provided more of a synthesis of observed changes in climate extremes from Ch. 3 and from inclusion of some discussion of what can or cannot be said about attributing observed changes in extremes to anthropogenic causes. (CANADA)	Text on observed changes has been significantly expanded. Short paragraph on attributed changes is included in revised SPM.

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
272	SPM	2	34	3	45	The authors should consider restructuring this section so that the discussion of the evidence of extreme events in question comes before the discussion of exposure and vulnerability. (UNITED STATES OF AMERICA)	There was a decision by the core writing team of the SPM to maintain the discussion of exposure and vulnerability at the start of this section, in order to most logically and accurately reflect the structure and findings of the report.
273	SPM	2	34	3	45	Non-detection, non-attribution or low-confidence does not necessarily mean no big impact. Is there literature that indicates that waiting for higher confidence might delay actions, with implications for total impacts? If so, it would be important to reference it here. (UNITED STATES OF AMERICA)	This first point is made on page 3, lines 25-27. We raise the importance of integrating risk management through an iterative approach to avoid major influences on sustainability on page 10, lines 40-47.
274	SPM	2	34	6	9	I think for policymakers it would be much more informative to combine sections B and C so that one discusses observed aspects and then immediately went on to discuss the future, giving an indication of how much the future change is in terms of what has been experienced in the past. I also think that for each variable, it would be helpful to do this by region of the world--right now readers will have to search and search to figure out what is relevant for them. For the IPCC SAR, WG II report, their chapters were quite broad-based by topic with regional characteristics just mixed in--and the consequence was the plenary called for a regionally organized report that was simply (well, it was time-consuming and not quite simple) a cut and paste job. I had urged in comments that they make the SAR SPM a real regional cross-cut, but they chose not to, and so ended up having to then go do it anyway. The tables in Chapter 3 provide the basis for doing this and I would strongly urge it. (MacCracken, Michael, Climate Institute)	Disagree to the combination of observations (now section B) and projections (now section D) into a single section. It is important not to confuse the different sources of information the respective assessment is based on, eg, observations vs. models. In addition section C on 'past experience' builds on observations, and provides the basis for future changes. Regional information is provided in the SPM figures for some extremes, and where available for other extremes within chapter 3.
275	SPM	2	36	2	36	This section would benefit from an introduction that noted how indentifying trends in observational records can assist in adaptation planning and projections, noted some of the difficulties in doing so in terms of availability and reliability of datasets and noted that just because a trend is not evident in the data available does not mean that particular event is not being influenced by anthropogenic climate change and will not change in the future. (AUSTRALIA)	An introduction to this section has been added, but not including all of the details mentioned here.
276	SPM	2	37	0	0	The treatment of vulnerability provided here is very brief compared to our understanding. There are nearly 3 pages of information on physical change in contrast to these 6 lines. Certainly, this can be elaborated to provide better balance and context for the discussion of future projections. I recognize that there is another paragraph on page 4, beginning on line 4. But again compared to the level of detail provided in the discussion of physical events, this summary is quite limited. For instance, it would be appropriate to note the rapid growth of urban areas more explicitly; to address some of the regional differences as is done for physical events; and to discuss demographics and health status in the regional variability. There is some ability to anticipate trends in these areas and the rates of change are rapid and significant. (Dow, Kirstin, University of South Carolina / Carolinas RISA)	This imbalance has been remedied somewhat, working from the conclusions of the underlying chapters.

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
277	SPM	2	37	2	43	This lines need to be reorganized; specially, because they form the first part of item B. Should they be the first part? (Mata, Luis Jose , IMF)	This text has been substantially revised, working from the revisions of the underlying chapters. An introduction to the section has also been added.
278	SPM	2	37	2	43	Developing countries, and LDCs, small islands developing states, and African countries affected by drought, precipitation and floods, have been recognized as particularly vulnerable in the political sphere. The SPM remains very vague on conclusions regarding evidence on this. Differentiated information would be useful, instead of pointing to "exposure and vulnerability are highly context specific (...), varying widely across different locales and populations (...). People are differently exposed and vulnerable according to characteristics such as wealth, gender (...)". More information on vulnerability of poor would be appreciated. (GERMANY)	Further information regarding these points is now included throughout the SPM.
279	SPM	2	37	2	43	This is an important message. We recommend adding information on whether you find the same trends in developed and developing countries. (NORWAY)	Throughout the SPM, further information along these lines is now included.
280	SPM	2	37	3	45	In general this section could be improved by first giving a picture of the situation at the global level and could then focus in to give more information on regions. Some statements in this section fail to state what the time scale of the observation is. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	Including regional detail would take far too much space for an SPM. Regional detail, to the extent that it is available, is in SPM figures, and in Chapter 3.
281	SPM	2	37	6	6	Could the information in these sections be pulled together in a graph/table to give a comparison of the observed and projected impacts. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	See response #280.
282	SPM	2	39	2	40	Clarify whether the statement "Exposure of people and economic assets to extreme weather events is increasing" true in all regions, in most regions, or just in some regions? (Fuessel, Hans-Martin, European Environment Agency)	No longer relevant--this text has been removed.
283	SPM	2	40	2	40	The last sentence of the chapeau does not reflect well the content of the paragraph. It could be more consistent the amended text: "increasing. Trends in vulnerability are increasing more for some areas and groups than for others". (SPAIN)	No longer relevant--this text has been removed.
1061	SPM	2	41	2	42	In this statement it seems that people are exposed based only on socially-related factors, but not based on the different ambients they inhabit. Some are more prone than others to certain events, and this is not reflected here. (Moreno, Jose, University of Castilla - La Mancha)	This text has been revised to reflect the conclusions of the underlying chapters, and it now reflects this complexity.
284	SPM	2	42	2	42	I wouldn't incidentally speak of resilience without giving a definition for this over-used concept, which meanings that may differ quite in the litterature. (FRANCE)	A definition of resilience is provided in the SREX glossary, with clarity of use ensured in the SPM.
285	SPM	2	42	2	43	Authors should consider adding the word "resources" to line 42 (e.g. lack of resilience, resources and the capacity to anticipate...are important causal factors of vulnerability). See chapter 8.5 (UNITED STATES OF AMERICA)	No longer relevant--this text has been removed.
1062	SPM	2	42	2	43	Resilience includes the capacity to anticipate and cope with, so there is some redundance here. Implicit may also be adapting capacity, but perhaps it could be mentioned in this sentence. (Moreno, Jose, University of Castilla - La Mancha)	No longer relevant--this text has been deleted.
286	SPM	2	43	0	0	- note adaptation to climate change is included as a causal factor of vulnerability here (Dow, Kirstin, University of South Carolina / Carolinas RISA)	No longer relevant--this text has been removed.

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
287	SPM	2	43	2	43	Please add after "vulnerability" at individual, organizational and societal level. (FINLAND)	No longer relevant--this text has been removed.
288	SPM	2	44	2	44	We suggest including here the box explaining likelihood attributions that is currently at end of SPM. (UN-International Strategy for Disaster Reduction (UN/ISDR))	Reference to the treatment of uncertainty and the calibrated language used in this report has been added at the beginning of the SPM.
289	SPM	2	45	2	45	The title is misleading as the confidence depends on the type of event. A more neutral wording is: Evidence of change in extreme events over recent decades: (Radunsky, KLaus, Umweltbundesamt GmbH)	Paragraph has been revised. Please note: The sentence referred to was not intended as a title, but rather as the first sentence of the paragraph.
290	SPM	2	45	2	45	Main parts of the chapter 3.2.2.2 "Human Induced Changes in the Mean Climate that Affects Extremes" should be integrated into the SPM. An extract from the passages from line 16 - 17, 27 - 30, 47 - 52 would contribute to human impact on extremes. (GERMANY)	Too much detail for the SPM - please see underlying chapter 3 discussion.
291	SPM	2	45	2	45	Policy makers will want to know what is causing the changes in extremes observed over recent decades. Can the authors qualify the bolded statement with some reference to attribution? I.e., are these changes attributable to anthropogenic forcing, natural variability? (UNITED STATES OF AMERICA)	A paragraph on attribution of changes in climate extremes has been added to the SPM.
292	SPM	2	45	2	52	For some regions a likelihood statement is made whereas for others a confidence statement is provided. This is very confusing, either use one scale or the other. In addition there needs to be a consistent and clear translation from the Agreement/Evidence table to uncertainty qualifiers (Stone, John M R, Carleton University)	Reject. We have used the uncertainty guidance which calls for distinctions of this sort.
293	SPM	2	45	3	13	The mixed use of the likelihood and the confidence scale is confusing. (GERMANY)	See #292.
294	SPM	2	45	3	13	Although there is a need for brevity in the SPM, there is also a need to avoid misunderstanding and misinterpretation. Correct interpretation of results that are stated to be of medium confidence, and especially low confidence, would be aided if the text were to note the basis of the confidence statement in terms of agreement and evidence. This could be done using phrasing such as "region X shows trends consistent with warming in most areas but which are assessed to be of medium confidence due to a lack of literature for several regions." We highly recommend that the basis for statements of confidence be provided in order to avoid misinterpretation. (CANADA)	This would add considerable length and complexity to the SPM. These details are provided in Chapter 3.
295	SPM	2	45	3	13	Suggest including a synthesis of Chapter 3 to provide attribution of observed changes in extreme events, in accordance with Table 3.1. (CANADA)	See #291.
296	SPM	2	45	3	13	Consider adding specific attributions to the list of changes that follow, where possible. See table 3.1. (UNITED STATES OF AMERICA)	See #291.
297	SPM	2	45	3	13	We think that the readability of this section could be enhanced by dividing it into subsections dealing with different kinds of extremes and by highlighting key words (temperature, precipitation, cyclones, droughts). (NORWAY)	Reject. This would make a disjointed and inconsistent structure for an SPM .

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
298	SPM	2	45	3	25	The bold sentences giving the results of changes in extreme events and extreme impacts and their impacts on sectors do not give any aggregated trend of changes / impacts (as increasing/decreasing, positive/negative). Therefore these messages remain trivial and not policy relevant. To improve the relevance of these messages we propose to give a table with clear trends of observed extreme events and extreme impacts and their impacts on sectors (just like AR4, WG I table SPM.2). (GERMANY)	Reject. Adding Table 3.1 (or a version of it) to the SPM would simply duplicate the current carefully drafted Chapter 3 statements in the SPM. Simplification of Table 3.1 to produce aggregated trends would compromise the accuracy of the more detailed Chapter 3 entries.
299	SPM	2	46	2	47	What is "unusually"? If this term is defined e.g. by a probability of days not reaching a certain share of the annual mean temperature please give the definition. Or delete "unusually". (Rock, Joachim, Johann Heinrich von Thuenen-Institute)	'Unusually' has been removed.
300	SPM	2	46	2	48	These indices of extreme temperature of unusually warm days and nights and unusually cold days and nights are very easily misunderstood to mean unusually warm/cold days/ nights within respective warm/cold seasons, but this is not necessarily the case given how this index is derived. Suggest a footnote be added here to ensure that this result is properly understood by readers. (CANADA)	Reject. The reviewer suggestion does not improve clarity.
301	SPM	2	47	2	47	What does "on a global [or continental] scale" mean? Impacts are felt on smaller scales than these. It would be helpful to be more precise about what is meant here. (UNITED STATES OF AMERICA)	This statement has been revised to improve clarity with the addition of 'i.e. for most land areas...'. Specific regional details are provided in SPM Figure 3A, and in Chapter 3.
302	SPM	2	49	2	49	Assigning 'very likely' confidence to a decrease in unusually cold days and nights and an increase in unusually warm days and nights to the Australian region could be increased to 'virtually certain' based on CSIRO and BoM data. See http://www.bom.gov.au/inside/eiab/State-of-climate-2010-updated.pdf (AUSTRALIA)	Chapter 3 assessment is now "likely".
303	SPM	2	49	2	50	RE: low confidence in observed changes in Africa and South America, assumes a logical jump by the reader that this is due to quality of observations? Page 3 line 5, makes such a comment for tropical cyclone activity - suggest similar is done here to clarify (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	New opening paragraph for sub-section 'climate extremes and impacts' addresses this general comment.
304	SPM	2	49	2	52	"medium confidence in Asian and low confidence in Africa etc.". There is a huge potential for misinterpretation. It reads to me like "IPCC has no confidence on if extreme temperature has changed in Africa" and some may then interpret this again as a lack of evidence of changes. The reality is 1) there are limited data available (for studies) for Asia and even more limited data for Africa, as such, there is not much to say about large chunk of the lands there and thus we don't really know much about those regions. However, we do see clear evidence of changes where data are available, and theoretical expectation is that there shall be changes in extreme temperatures. One way is perhaps to say there is limited literatures to assess changes in Asia and more limited literature for Africa due to a lack of available climate data, and that regions with enough data do show certain changes in temperature etc. (Zhang, Xuebin, Environment Canada)	New opening paragraph for sub-section 'climate extremes and impacts' addresses this general comment. Specific details for these regions are provided in Chapter 3 (Table 3.2).

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
305	SPM	2	49	2	52	Consider explaining why the confidence differs – due to lower data coverage or quality? (NORWAY)	New opening paragraph for sub-section 'climate extremes and impacts' addresses this general comment. Specific details for these regions are provided in Chapter 3 (Table 3.2).
306	SPM	2	50	2	50	Statements such as this one (which assess low confidence in trends without giving reasons) are very hard to interpret. A reader could imagine that confidence is low because the observational data are of poor quality, because trend estimation methods are assessed to be unreliable, because trend estimates are only available in limited locations making it difficult to determine whether the available estimates are representative of an entire region, or because available trend estimates at different locations in a region are generally inconsistent with each other. Depending upon the reason, the further inferences that are drawn could be quite different. (Zwiers, Francis, Environment Canada)	See response to #305.
307	SPM	2	50	2	50	Given the rather "bald" statement "There is low confidence in observed trends in temperature extremes in Africa and South America", it would be useful for the policymaker to know why this is so - presumably because of insufficient data. (NEW ZEALAND)	See response to #305.
308	SPM	2	50	2	50	This sentence could be interpreted to mean that there is no trend in Africa and South America. From Ch. 3 it is understood that the real issue is lack of data. Phrasing should be used here to indicate that there are very limited data and this makes it difficult to assess whether or not a trend exists. (CANADA)	See response to #305.
309	SPM	2	50	2	50	It should be clarified if assigning 'low confidence' to observed trends in temperature in Africa and South America is because there is good availability of data but no apparent trend, or insufficient data on which to assess a trend. (AUSTRALIA)	See response to #305.
310	SPM	2	50	2	52	In many, but not all regions'. Table 3.2. includes 14 incidences of medium confidence or higher and 17 of low confidence. The phrasing of the statement implies that the incidences of medium and above outweigh considerably, but not totally, incidences of low confidence. Suggest a more restrained rephrasing. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This statement has been revised for Chapter 3 ES. The "many (but not all)" now refers only to those regions with sufficient data.
311	SPM	2	51	2	52	delete "(but not all)" is redundant. "Many" means in fact "not all" (SPAIN)	Chapter 3 authors want to highlight 'but not all' to avoid any possible misinterpretation.
312	SPM	2	51	2	53	For a nonIPCC audience, such as disaster risk managers, it is difficult to understand how an observed event might only be "likely". The explanation should be included in the box suggested in previous comment. (UN-International Strategy for Disaster Reduction (UN/ISDR))	Reject - The use of uncertainty language is explained in SPM box 3.
313	SPM	3	0	0	0	A statement regarding the attribution of observed trends to anthropogenic climate change is missing for each climate-extreme. The discussion of observed trends goes directly to a discussion of the attribution of (presumably economic) losses -but surely there is a step in between? (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	A paragraph on attribution of changes in climate extremes has been added to the SPM.
314	SPM	3	1	3	2	What is meant by e.g. 95th percentile? What threshold are you talking about here? (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	Reference to '95th percentile' has been deleted.

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
315	SPM	3	1	3	2	this increase in the frequency in the number of heavy precipitation events needs to be more specific than "e.g. 95th percentile"; for what shift in heavy precipitation events is there exactly evidence that it is shifting? (NETHERLANDS)	Reference to '95th percentile' has been deleted.
316	SPM	3	1	3	3	This finding focuses on the "number" of events, saying nothing about the fraction of precipitation in heavy events. By contrast, the finding on page 4, lines 45-49 focuses on frequency and proportion of heavy rainfalls, etc. It will be frustrating, even useless, to be giving policymakers different metrics. These two findings are a key example where it makes sense to be combining the findings from the past and future in one coherent discussion for each variable. (MacCracken, Michael, Climate Institute)	Reject - Chapter 3 have done what the literature allows them to do, using the IPCC uncertainty guidance. Combining the observed trends and the projected trends into a single paragraph would not overcome the issues the reviewer identifies.
317	SPM	3	1	3	3	This finding downgrades findings from the IPCC AR4 which finds likely increase in observed heavy precipitation events over most areas (See among other references WG 1, Table SPM.2) Please explain the change for readers. (UNITED STATES OF AMERICA)	Disagree - SREX assessment does not downgrade the AR4, but is an updated assessment based on available literature. Further details concerning the scientific basis for this statement can be found in Chapter 3.
318	SPM	3	1	3	3	What does "statistically significant" mean here? In scientific language it means that either the null hypothesis has failed or that the investigator has chosen a bad statistical model. If the authors mean to say that they have assessed all of these possibilities and they believe this is "for real," could they use less technical language? (UNITED STATES OF AMERICA)	Reject - The use of non-technical language here will lead to inaccuracy.
319	SPM	3	1	3	3	Basically this says that a certain metric has gone in one direction more often than in the other. Would we ever expect perfect global conservation of trend sign? This statement seems virtually uninformative as stated. I imagine a stronger statement could be formulated. (UNITED STATES OF AMERICA)	Chapter 3 are not looking to formulate "stronger" statements - Chapter 3 are trying to be accurate. The current statement has been considered very carefully, and we believe it is the most accurate way of describing the observed changes.
320	SPM	3	3	0	0	"subregional variations in the trends" what variations are meant here, in sign or size? (NETHERLANDS)	Both.
321	SPM	3	3	3	3	The second sentence of the chapter 3.3.2 (p. 28, l. 17) should be added to this passage to point out that also in regions where heavy precipitation was ought to decrease is no increasing due to newer simulation results. (GERMANY)	No. Statement in 3.3.2 is about projected changes.
322	SPM	3	3	8	9	This statement is much weaker than the statement in the AR4 WG I Table SPM.2, that "increases in the area affected by droughts" are "likely in many regions since 1970s". In the absence of substantial new knowledge on past droughts since the AR4, the statement in the SREX should be consistent with the one in the AR4. (Fuessel, Hans-Martin, European Environment Agency)	It is four years since AR4, and a lot of research has been published. There is no reason to expect all SREX statements should be identical with AR4.
323	SPM	3	5	0	0	period of years is implied with "long-term" here? Please define (NETHERLANDS)	Statement has been revised accordingly.
324	SPM	3	5	3	5	There needs to be a definition of tropical cyclone activity. (Stone, John M R, Carleton University)	Too much detail for the SPM - please see underlying chapter 3 discussion.
325	SPM	3	5	3	6	Suggest that "long-term" be defined. (CANADA)	See response to #323.

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
326	SPM	3	5	3	6	It seems to me the reason that it would also be helpful to say that a problem is in the variability in number of storms, etc. it also seems to me that this is also making the statement based on whether or not a 95% significance level or equivalent has been found--so this finding has not been converted over to the relative likelihood framework; thus, is there a hint at a trend and just not statistically significant, or what. For example, this says that no long-term increases are robust--well, are any decreases significant? (MacCracken, Michael, Climate Institute)	This statement is the conclusion of the comprehensive Chapter 3 assessment.
327	SPM	3	5	3	6	This statement requires further explanation. (UN-International Strategy for Disaster Reduction (UN/ISDR))	No action - comment not specific.
328	SPM	3	5	3	6	Please explain why this finding downgrades the certainty presented in IPCC AR4 Working Group 1 (See Table SPM.2) which reported that it was likely that an increased trend occurred in intense tropical cyclone activity in the late 20th century. (UNITED STATES OF AMERICA)	This is an updated assessment based on available literature. It is not feasible in the SPM to repeat all AR4 conclusions before going into the updated SREX assessment. Further details concerning the scientific basis for this statement can be found in Chapter 3.
329	SPM	3	5	3	6	In this sentence the term cyclone activity is used. Please consider clarifying if it means frequency or is it meant to include also other aspects like cyclone intensity and cyclone related rainfall? (NORWAY)	Too much detail for the SPM - please see underlying chapter 3 discussion.
330	SPM	3	8	0	0	The terms used to describe the available evidence could in some cases be misleading. The unavailability of enough evidence for some regions could simply be due to the lack of published data, information and in-depth studies. The report should be clear and transparent about this matter otherwise there would be more balance to what is happening in some regions than others. For example, North Africa and West Asia are dry regions with the lowest water per capita in the world, and are already experiencing intense and longer droughts and I see no reference to that in lines 8-9 on page 3. (El Mallah, Fatma, League of Arab States)	For a comprehensive assessment, multiple lines of (published) evidence are required. Chapter 3 has not been able to find such evidence for the observed trends referred to by the reviewer.
331	SPM	3	8	3	9	The opposite trends (presumably reductions in frequency of droughts should be specified. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	Agree - revised accordingly.
332	SPM	3	8	3	9	Suggest clarification on what "opposite trends exist" (CANADA)	Agree - revised accordingly.
333	SPM	3	8	3	9	In that there has been no statement of what one would be expecting, this is really a useless and misleading statement. First, if there is no human influence, one would likely expect some random sorts of trends in opposite directions--is that the intent of this statement. Second, if there is a human influence, the same would be expected as the climatic zones shift--and this should be explained. It is for this that I suggested in my general comment that it would be very helpful to be giving a sense of the expected changes in the atmospheric circulation and climatic zones and the types of changes to be expected, and where. (MacCracken, Michael, Climate Institute)	Reject - Too much detail requested by reviewer.

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
334	SPM	3	8	3	9	This section on droughts could note research in Australia that finds anthropogenic climate change has, in part, contributed to the ongoing drought in south-west Western Australia and recent drought in south eastern Australia. See http://www.seaci.org/publications/documents/SEACI-1%20Reports/Phase1_SynthesisReport.pdf and Cai, W. and T. Cowan (2006) "SAM and regional rainfall in IPCC AR4 models: Can anthropogenic forcing account for southwest Western Australian winter rainfall reduction?" <i>Geophys. Res. Lett.</i> 33(24): L24708 (AUSTRALIA)	Too much detail for an SPM. Please note - a paragraph concerning the attribution of climate extremes has been added to this section of the SPM.
335	SPM	3	8	3	9	Can there really be any question that the named regions saw more drought? What does "since the 1950s" mean? More after 1959 than before? Or increasing during the period from 1960 until now? These SPM statements should not be ambiguous in their meaning. (UNITED STATES OF AMERICA)	Statement has been revised.
336	SPM	3	8	3	10	The current phrasing precludes helpful interpretation for decision makers and in this form could just as well be skipped. Another way to present the disparate trends and related uncertainties is to stress that predictability e.g. in relation to management of strategic infrastructure and in relation to default assumptions of farms is expected to deteriorate (if counter-action and/or R&D is not undertaken). See also next remark regarding page 3 lines 39-45 (FINLAND)	Statement has been revised.
337	SPM	3	9	0	0	The chapter summary also includes East Asia in this list and gives some examples of where no trends exist. What are grounds for leaving out East Asia here? (Goodess, Clare, Climatic Research Unit)	The revised chapter 3 executive summary no longer lists 'East Asia'.
338	SPM	3	9	0	0	remove 'also' and replace with; 'but in some other regions also' (NETHERLANDS)	No longer relevant - Statement has been revised.
339	SPM	3	9	3	9	also opposite trends exist' this statement tells policymakers very little without any geographical reference. Where has the opposite trend been observed? Suggest using full statement on chapter 3 pg 55 line12. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	Statement has been revised.
340	SPM	3	11	0	0	The main report mentions (CH3,P55 line 49) notes that instrumental records of flood at gauging stations are sparse and short. Hydrologic statistics need long recording periods (a hundred years and more) before being sufficient to correctly assess a return period. The report also highlights on P 57, line 15 to line 54, that studies are lacking mainly in developing countries. It is true. One of the reasons is probably that there are no validation data to assess hydrological model's quality. Rivers' discharge should be better monitored. Therefore we suggest to include in the SPM some wording related the lack of observation data as well as long term hydrological series, noting that this could possibly be a cause of low confidence levels. (BELGIUM)	Reviewer request too much detail for SPM. Note that the statement has been revised to better support the 'low confidence' statement.
341	SPM	3	11	3	11	"There is no clear and widespread ..." This is partly true. There have been numerous paleoflood studies within a wide range of hydrologically homogeneous regions. There have been regional assessments that show that maximum paleofloods in the past few thousand to 10,000 years are about the same as contemporary (~150 years) maximum floods within these different regions. However, there is limited discussion in the report about these studies and their potential to improve the understanding of flood processes and flood hazards, particularly for large areas in the US and other countries with little or no flood information. (UNITED STATES OF AMERICA)	Statement has been revised. However, the relevance of paleoflood is not clear in the context of climate-driven observed changes.

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
342	SPM	3	11	3	13	Statement regarding flooding is not clear. Surely there is more than low confidence (medium?) that there is no increase in frequency? Given the number of studies showing a lack of trend- the conclusion could be interpreted differently. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	Chapter 3 assessment is "low confidence".
343	SPM	3	11	3	13	The wording is rather different to the chapter summary, but I suppose the general meaning is more-or-less the same. (Goodness, Clare, Climatic Research Unit)	Statement has been revised based on updated Chapter 3 assessment.
344	SPM	3	11	3	13	This statement also needs context. It seems to presume that the projection from climate change is an increase in the number of floods globally--whereas one I think the expectation is of a shift in climatic zones and some regions getting more precipitation and some less (and with the spherical shape of the Earth and particular distribution of continents, it is not at all clear that more floods would be expected. If indeed a shift in climate zones is expected, what should be looked for is changes in particular regions. (MacCracken, Michael, Climate Institute)	No action - The statement is concerned with observations, not projections as implied by the reviewer.
345	SPM	3	11	3	13	Reference could be made to the recent paper in Nature (Pall et al) that found that human induced greenhouse gases contributed to a substantial increase in the risk of flooding in England and Wales in an event in the autumn of 2000. The exact scale of the contribution of human induced greenhouse gases to the flood risk in England and Wales remains difficult to estimate. Pardeep Pall, T. A., Da'ithi' A. Stone, Peter A. Stott, ToruNozawa, ArnoG. J. Hilberts, Dag Lohmann & Myles R. Allen (2011). "Anthropogenic greenhouse gas contribution to floodrisk in England and Wales in autumn 2000." Nature 470(17 February 2011): 382-386 (AUSTRALIA)	Inappropriate to include citations in SPM. The basis for the SPM statements is the underlying chapter assessment - Paper is cited in Chapter 3.
346	SPM	3	11	3	13	Statement requires further explanation. Please address observed extreme floods in Australia, Brazil and Pakistan, in 3 far apart regions, in less than 6 months (July 2010-Jan 2011). (UN-International Strategy for Disaster Reduction (UN/ISDR))	Reject - not appropriate to include in SPM. The basis for the SPM statements is the underlying chapter assessment, which must be based on multiple lines of evidence from peer-reviewed published studies.
347	SPM	3	11	3	13	Not true. There is widespread evidence from stream gages that thousands of flood-control (and other) dams around the world have reduced the magnitude and frequency of floods downstream. The statement was probably intended to speak of a climate-change signal, but it was not so worded. (UNITED STATES OF AMERICA)	Agreed. Statement has been revised to take this into account, ie, statement now refers to 'climate driven changes'
348	SPM	3	11	3	13	Consider this modification: "There is no clear and widespread evidence of the influence of anthropogenic climate change on the observed magnitude/frequency of floods...". For example, consider dams. (UNITED STATES OF AMERICA)	Agreed. Statement has been revised to take this into account, ie, statement now refers to 'climate driven changes'
349	SPM	3	15	0	0	to shorten statement delete "biodiversity" because already incorporated in term "ecosystems" (Langniss, Ole, Fichtner GmbH &Co KG)	No longer relevant--this paragraph has been deleted, based on the revision of the underlying chapter executive summary.
350	SPM	3	15	3	15	There is evidence... use official uncertainty scale (GERMANY)	No longer relevant--this paragraph has been deleted, based on the revision of the underlying chapter executive summary.

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
351	SPM	3	15	3	16	This sentence should be rewritten, as it seems to suggest that these impacts are due to (anthropogenically) changed occurrence of extremes. It probably wants to state that extremes have impacts. Therefore please rewrite to: "Observations of physiology, development, phenology, and carbon balance, show that extreme events lead to widespread impacts on biodiversity and ecosystems" (NETHERLANDS)	No longer relevant--this paragraph has been deleted, based on the revision of the underlying chapter executive summary.
352	SPM	3	15	3	20	The impacts of extreme events on biodiversity and ecosystems is very dependent on other stresses being present. We need some discussion non this here. (Stone, John M R, Carleton University)	No longer relevant--this paragraph has been deleted, based on the revision of the underlying chapter executive summary.
353	SPM	3	15	3	20	If there is 'evidence of widespread impacts' this implies that you should be able to evaluate the quality of this evidence, and thus, quantitatively provide the level of agreement/degree of certainty associated with this statement. (Stocker, Thomas. IPCC WGI TSU)	No longer relevant--this paragraph has been deleted, based on the revision of the underlying chapter executive summary.
354	SPM	3	15	3	20	It would be useful to indicate here the types of extremes being talked about--so extremes of heat, drought, less cold nights, whatever. (MacCracken, Michael, Climate Institute)	No longer relevant--this paragraph has been deleted, based on the revision of the underlying chapter executive summary.
355	SPM	3	16	0	0	Replace "Ecosystem services" with "Ecosystems" (GREECE)	No longer relevant--this paragraph has been deleted, based on the revision of the underlying chapter executive summary.
356	SPM	3	16	3	17	Can ecosystem services be enhanced by extreme events? Can they not? (UNITED STATES OF AMERICA)	No longer relevant--this paragraph has been deleted, based on the revision of the underlying chapter executive summary.
357	SPM	3	17	3	19	Would be useful to have an example of ecosystem that does depend on extremes to put this comment in context. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	No longer relevant--this paragraph has been deleted, based on the revision of the underlying chapter executive summary.
358	SPM	3	17	3	20	Are ecosystem benefits from positive impacts generally increased when the ecosystems are stressed from earlier events? Or are they not? (UNITED STATES OF AMERICA)	No longer relevant--this paragraph has been deleted, based on the revision of the underlying chapter executive summary.
1063	SPM	3	17	3	20	".. some ecosystems adapted to extremes..."(?) Probably just saying that ecosystems are adapted is more accurate since disturbances are part of ecosystems. It appears as if extremes are something rare to ecosystems, which is not the case. Additionally, ecosystems are sensitive to the factors listed here but also to changes in their disturbance regime, which is not mentioned here. (Moreno, Jose, University of Castilla - La Mancha)	No longer relevant--this text has been deleted.
359	SPM	3	18	3	18	in regards to "Susceptability" should this be "vulnerability"? If not then suggest it needs defining. (NEW ZEALAND)	No longer relevant--this paragraph has been deleted, based on the revision of the underlying chapter executive summary.
360	spm	3	18	3	18	Please add sea temperature (UN-International Strategy for Disaster Reduction (UN/ISDR))	No longer relevant--this paragraph has been deleted, based on the revision of the underlying chapter executive summary.
361	SPM	3	19	3	19	"Deforestation" is removal of forest and thus affects forest ecosystems mainly (and other (eco-)systems indirectly). As a stressor, "degradation" is more widely applicable and does not target a single ecosystem type (forest). (Rock, Joachim, Johann Heinrich von Thuenen-Institute)	No longer relevant--this paragraph has been deleted, based on the revision of the underlying chapter executive summary.

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
362	SPM	3	20	0	0	Consider adding 'invasive species and (over)exploitation' at the end of the sentence. (NETHERLANDS)	No longer relevant--this paragraph has been deleted, based on the revision of the <u>underlying chapter executive summary</u> .
363	SPM	3	21	0	0	Why is there no mention of the observed trend in the Arctic summer sea ice extent and ice season length ? (International Petroleum Industry Environmental Conservation Association (IPIECA))	No longer relevant--this paragraph has been deleted, based on the revision of the <u>underlying chapter executive summary</u> .
364	SPM	3	22	3	23	This statement is too narrow because (some) extreme events, in particular the strongest ones, can have impacts on virtually all sectors. (Fuessel, Hans-Martin, European Environment Agency)	This statement has been revised and moved to another section of the SPM.
365	SPM	3	22	3	23	Bolded text states the obvious. (Stocker, Thomas, IPCC WGI TSU)	This statement has been revised and moved to another section of the SPM.
366	SPM	3	22	3	25	Again, it would be useful to provide indications of the types of extremes being referred to. It is not very informative to be making comments without giving more specific examples. (MacCracken, Michael, Climate Institute)	This paragraph has been revised and moved to another section of the SPM, with further specific details provided for sectors described.
367	SPM	3	25	3	25	Section 4.4 is very long. Could specific statements from within it be pulled out and referenced here? Currently it isn't clear how this statement links to the underlying report. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This paragraph has been revised and moved to another section of the SPM, with further specific details provided for sectors described.
368	SPM	3	27	0	0	for which period is this trend valid? It seems (e.g. Figure 4.15) that the 1990s had very high losses, but since there has been a decline. Therefore rewrite this sentence (and in the underlying chapter) that the 1990s have seen the highest losses, after which losses have been lower. There does not seem to be a good basis for the exponential trend fitted to the data in Figure 4.15. (NETHERLANDS)	Yes, and we added further consideration of loss trends in ch 4.
369	SPM	3	27	3	27	"increasing" - please indicate whether this term refers to absolute values or values corrected for inflation etc. (Rock, Joachim, Johann Heinrich von Thuenen-Institute)	Global disaster losses are reported in 2010 USD.
370	SPM	3	27	3	27	Earlier in the SPM (pg 2 of 20) there is the term 'direct losses' for monetized direct damage. It is unclear how 'absolute losses' are similar or different to estimates of direct losses as it does not read from this paragraph that they include the things 'direct losses' fail to include - e.g. quality of life. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	The phrase absolute losses is no longer used.
371	SPM	3	27	3	29	What are absolute losses? Are they what you have referred to elsewhere as direct losses? It seems only monetarized losses are include. I have a feeling this SPM will repeat the problems the IPCC had with the SAR over the value of an individual life. (Stone, John M R, Carleton University)	The phrase absolute losses is no longer used. There is very limited data, and no global time series on monetary intangible <u>and other impacts</u> .
372	SPM	3	27	3	29	this line is very imprecise; few billion in which years? Why is 2005 picked out? (NETHERLANDS)	In 2000, losses have been indeed very low and a few billion USD only. We now changed the year to which values refer to 2010.
373	SPM	3	27	3	29	Replace these lines by 'There is a large intraannual variation in recorded global accumulated losses from weather related disasters, ranging from a few billion to a record of 250 billion (in USD) in 2005 (largely due to hurricane Katrina). Over time, absolute losses show a trend of increase (high confidence). (NETHERLANDS)	We added "...but with large interannual variability"

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
1064	SPM	3	27	3	29	Specify the time period over which this has occurred (Moreno, Jose, University of Castilla - La Mancha)	Further information on the relevant time period has been provided.
374	SPM	3	27	3	36	Following sentence shall be inserted at the end of this paragraph: It shall be emphasized that these direct economic damage exclude indirect losses, thus they underestimate the extent of losses That sentence which is echoing the paragraph in SMP line 20 to 24 at page 2 is helpful for the correct understandings of policymakers on implication of direct losses and indirect losses. (JAPAN)	We mention this is in the text.
375	SPM	3	27	3	37	This paragraph would benefit from more explanation. Is it possible to give more examples of why losses have increased - ? Is there more we can currently say about links with climate change and with what degree of certainty? Although attribution studies are uncommon, can we say what has been achieved in terms of attribution? what about the 2003 European heat wave and the 2000 floods. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	Further information has been provided along these lines in this section, based on the chapter's underlying assessment.
376	SPM	3	27	3	37	We think that both these paragraphs deal with the same aspects and consequently should be combined into one paragraph. Should the key message be something in the line of "absolute losses have increased, but the main driver behind this is changes in exposure....."? (NORWAY)	These are two things in two paragraphs: the one is the overall trend, the other one the attribution question.
1065	SPM	3	27	3	37	For the reader it is difficult to capture the message if you change the references (countries) and make unclear the years. Including particular examples at a general level does not anything beyond what is captured in the general message; and that is that small economies are more sensitive to losses on relative terms. This paragraph should be reworded to better convey its messages. (Moreno, Jose, University of Castilla - La Mancha)	The text has been revised to enhance clarity, based on the conclusions of the underlying chapter.
377	SPM	3	27	3	45	It is suggested to move these robust findings after the first paragraph in this part (page 2, line 44) (Radunsky, KLaus, Umweltbundesamt GmbH)	It is kept in the original place, but a subheading is added "DISASTER LOSSES"
378	SPM	3	29	3	37	Please consider how to better balance this text, taking in to account that elsewhere it is often stated that the developing countries will be the most affected by extreme events, it seems to be contradictory to the listing of losses from developed countries. (NORWAY)	Further information has been provided along these lines in this section, based on the chapter's underlying assessment.
379	SPM	3	31	3	32	It will not be obvious to some readers why the percentage loss from disasters is so low in Africa. A short clause indicating that this is due to low levels of infrastructure and/or damage that does not readily translate into monetary terms, would be important. (Brooke, Roy, United Nations)	We do not have regional breakdown anymore.
380	SPM	3	31	3	32	"The Americas" shall be divided into North America, and Central and South America according to regional classification of AR 5. Many countries in Central and South America are low- and middle-income countries which are highly sensitive to extremes in the context of economic and social damage; few countries in North America are low- and middle-income countries. Consistency of story line with description in SPM page 2 line 14 to 16 is really important for the understandings of policy makers. (JAPAN)	We do not have regional breakdown anymore.
381	SPM	3	33	3	33	Clarify if the term "natural disasters" is being used as equivalent to "weather-and-climate-related disasters", which is the term used in the bolded statement above and in other statistic in this paragraph, or if there is a distinction here. (CANADA)	The term has been deleted as needed to ensure clarity.
382	SPM	3	33	3	33	Please delete "natural" from disasters here and throughout SPM and entire report. "Natural hazards" and "disasters" are fine but not "natural disasters" as there is often little that is natural about them. (UN-International Strategy for Disaster Reduction (UN/ISDR))	The term has been deleted as needed to ensure clarity.

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
383	SPM	3	33	3	34	Check text flow, the sentence "Disasters can cause even larger losses..." does not really fit, unless you e.g. add "even larger relative losses" (Wehrli, Andre, European Environment Agency)	This has been deleted from the SPM.
384	SPM	3	34	3	36	Suggest revision of this statement as it does not accurately represent the underlying chapter, which states "The average costs during 17 disaster years can be much higher, for example in the Samoa these have been reported to be as high as 45.5% as 18 compared with 6.7% across disaster and non-disaster years (Betterncourt et al 2006)". More dramatic figures (350% of GDP) are presented for St Lucia (Executive Summary of Chapter 4) but we could find these in the main body of the chapter. (CANADA)	This text has been substantially revised accordingly.
385	SPM	3	34	3	37	Estimated losses expressed as a proportion of GDP should be mentioned not only that of developing contry (Samoa) but also that of developed country. (JAPAN)	This text has been substantially revised accordingly.
386	SPM	3	34	3	37	Why is Samoa singled out for attention here? An SPM is not the location to unnecessarily focus upon particularly regions and countries. (Stocker, Thomas, IPCC WGI TSU)	This text has been substantially revised accordingly.
387	SPM	3	34	3	37	How robust is the number provided here for average direct losses due to disasters? Need to quantify the uncertainty associated with this number. (Stocker, Thomas, IPCC WGI TSU)	This text has been substantially revised accordingly.
388	SPM	3	34	3	37	How does Samoa's loss of 6.7% GDP compared to developed nations? Either compare with the same figure for developed nations or remove the example. (UNITED STATES OF AMERICA)	This text has been substantially revised accordingly.
389	SPM	3	35	3	37	"For example, average direct losses due to disasters..." to make this statement more useful (without the need to delve into the main report to find out) please give some indication of what time period this data is from when you say "averaged over all...years" and whether or not this includes the Samoa tsunami which would have had a big impact on the stats. (NEW ZEALAND)	This text has been substantially revised accordingly.
390	SPM	3	37	3	37	Why is section 6.1 cited here? 'Observation of vulnerability, exposure, extreme events, impacts and disaster loses' are not within the scope of Chapter 6. It is unclear why anywhere within an SPM (other than perhaps Section A, the introductory sections of the underlying chapters would be cited (i.e. #.1 sections). Such sections only provide the outline and scope for each chapter, so can not possibly contain robust, assessed new information that should be raised to the level of the SPM. (Stocker, Thomas, IPCC WGI TSU)	This has been deleted from the SPM.
391	SPM	3	39	0	0	Please check that the "high agreement" status correctly reflects the full report, taking into account changes that would be done in chapter 4 following SOD comments (we made related comments on chap. 3). We are unsure that all experts and papers would agree with a statement that clearly says that observed losses cannot be linked to climate change (BELGIUM)	Yes, this is the state of the art. There are a number of papers, and they agree that attribution has not been possible.
392	SPM	3	39	3	39	It is unclear what "formally" attributed means. However, "attribute" is used 14 times without the qualifier in the relevant chapter 4. Therefore it is suggested to delete "formally". (Radunsky, KLaus, Umweltbundesamt GmbH)	yes, this is deleted
393	SPM	3	39	3	39	AR4, WGI TS states clearly a causality between temperature extremes and anthropogenic forcing (TS 4.2, p.63). This is relevant to the question of attributing disasters (caused by temperature extremes) to anthropogenic climate change. Therefore include before "There is high agreement": "Although temperature extremes have likely been effected by anthropogenic forcing,..." (GERMANY)	This section pertains to attribution with regard to losses. Thus, inclusion of this point does not fit.
394	SPM	3	39	3	39	The word 'yet' should be deleted, since we can not judge whether this attribution will occur in the future. (UNITED STATES OF AMERICA)	Yes, agreed

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
395	SPM	3	39	3	40	The statement "There is high agreement, but medium evidence that increasing losses cannot yet be formally attributed to anthropogenic climate change." is confusing. Ho can there be "medium evidence" that something is *not* possible? If the reference to "medium evidence" shall be retained, the sentence needs to be formulated in a positive way. (Fuessel, Hans-Martin, European Environment Agency)	Yes, agreed
396	SPM	3	39	3	40	This is a very important "key finding". Therefore, it is important to be clear about: What is the level of confidence (or confidence scale, following SPM3 Figure 1) in this statement? What is the meaning of "increasing losses" and why there are not formally attributed to anthropogenic climate change". (Mata. Luis Jose - IMF)	This text has been substantially revised accordingly.
397	SPM	3	39	3	40	"Medium evidence that increasing losses cannot yet be formally attributed to anthropogenic changes" is an odd statement. I suspect the evidence is bimodal, high for losses associated with the rare physical climate extreme events for which the signal has risen above the noise and can be attributed to anthropogenic change (European Heat Waves) and low for losses associated with the much more common physical climate extreme events for which the signal has not emerged from the noise and cannot be attributed to anthropogenic change (Webb, Robert, NOAA)	Yes, and we have revised the statement
398	SPM	3	39	3	40	Add information on confidence (medium?) (GERMANY)	The degree of certainty in the statement is characterized through use of summary terms for evidence and agreement.
399	SPM	3	39	3	40	Delete "yet": this cannot be known. (GERMANY)	Agreed, and changed
400	SPM	3	39	3	40	This statement is misleading. Although there are few formal attribution events, what work has been done suggests that there is a link. Perhaps this could include a statement on why there haven't been many attribution studies but that this situation is changing. Chapter 3 lines 55-61 pg 14 could be used for this. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	Reviewer is wrong, comment rejected. [WGI comment - Chapter 3 CLA's felt it important to be very clear that we can not just say 'agreed and changed' to this comment. By the way, given that part of the current statement (lines 41-42) refers to chapter 3, a line of cite to Chapter 3 is needed]
401	SPM	3	39	3	40	1. To be consistent with usage elsewhere in the SPM, a confidence statement is required here. 2. Suggest rewording this sentence so it states level of confidence in the ability to attribute losses to anthropogenic climate change (rather than to not attribute losses to anthropogenic climate change). The current negative phrasing is very awkward and difficult to read. (CANADA)	The degree of certainty in the statement is characterized through use of summary terms for evidence and agreement. The statement has also been reworded.
402	SPM	3	39	3	40	Does this phrase mean that there is high agreement that increasing losses cannot yet be formally attributed to anthropogenic climate change? So most people agree that losses can't be attributed to human-induced climate change? But there is less evidence that this cannot be attributed... so that means evidence suggests it can be attributed? Not sure if this is a typo or just unclear. Should it be CAN rather than CANNOT? (Nightingale, Katherine, Christian Aid)	Statement reworded accordingly to enhance clarity

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
403	SPM	3	39	3	40	This sentence is highly suggestive, and draws a negative conclusion. Rather than state what can NOT be concluded, it should state what CAN be concluded from the published literature. It can only be concluded from the underlying Chapter 4 that there is high agreement and medium evidence that increasing losses are due to socioeconomic drivers, and that anthropogenic climate change has played a role. This sentence should be rewritten accordingly; a good example is given in Chapter 4 on Page 3, Lines 7-8. (NETHERLANDS)	Statement reworded accordingly to enhance clarity
404	SPM	3	39	3	40	This sentence is really hard to follow, partly because the result is a non-finding of attribution. So how can there be medium evidence and high agreement if there is no formal attribution yet? The assertion that there is "medium evidence that... losses can not yet be formally attributed ..." seems to be a double negative. If there is evidence that you can not attribute, would it be easier to say that there is little evidence that you can attribute it? (UNITED STATES OF AMERICA)	Statement reworded accordingly to enhance clarity
405	SPM	3	39	3	42	Replace with: 'Factors that contribute to the observed trend of increased total global losses are: increases in the number or severity of extreme events and increase in the vulnerability of people or economic assets (high confidence). (NETHERLANDS)	We now say: "Increasing exposure of people and economic assets is the major cause of the long-term changes in economic disaster losses (high confidence)."
406	SPM	3	39	3	45	What does high agreement and medium evidence translate into in terms of confidence levels? This is needed since the next sentence is formulated in terms of confidence and the reader will want to know how to compare the two statements. Is the point about cyclones not covered already above on line 5. (Stone, John M R, Carleton University)	We now say: "Increasing exposure of people and economic assets is the major cause of the long-term changes in economic disaster losses (high confidence)." Consistency with the IPCC guidance on use of uncertainty language has been insured
407	SPM	3	39	3	45	This statement seems drawn from potential impacts of changes in hurricane/tropical cyclone intensity, but the application is apparently to all impacts--THIS HAS TO BE CHANGED. It is certainly contradicted by what is happening in high northern latitudes, and what is happening in high latitudes is having effects that are spreading toward mid-latitudes. It is true that based on changes in the Arctic, where variability is high, that there can be question of statistical significance, but the Arctic is not separate from the rest of the world (it cannot not change if the rest of the world is changing). Global changes are "very likely" (AR4) due to human activities, and thus this must also be the case in the Arctic (where reasons for amplification of global changes are widely recognized). Thus this general statement is simply wrong--there is high agreement with high confidence that high latitude changes are due to human activities and that the impacts are due to the climate changes that are occurring. FURTHER, this statement is in essence in violation of the relative likelihood framework that is appropriate for the SPM; I conclude this based on the presumption that "formally attributed" means proved to a high statistical degree (so roughly 20 to 1 odds). Well, outside the Arctic, it might be the case that there are 20 to 1 odds, but there are impacts from human activities and they presumably are increasing (let's take, for example, the impacts from rising sea level--maybe small so far, but increasing). (MacCracken, Michael, Climate Institute)	This relates to all disasters, and the text has been clarified

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
408	SPM	3	39	3	45	The statement in the lines 39-45 is combining a conclusion based on (limitations of) observations with a conclusion based on simulation studies regarding likely areas with high exposure. It is recommendable to split these statements into two separate ones. The part based on simulations (and forward looking) should not be placed in section B (pages 2 & 3), but in section C, more in particular combined with the last statement of section C on page 6. The rephrasing of the remainder of the statement for part B (page 3 lines 39-45) is: There is high agreement, but medium evidence that increasing losses cannot yet be formally attributed to anthropogenic climate change. The ability to attribute changes in disaster losses to anthropogenic climate change is limited by data availability; type of weather and climate events studied (e.g., many studies providing evidence of increasing losses focus on cyclones, for which there is low confidence in anthropogenic changes [3.4.4; Table 3.1]); confounding factors; and the methods used to normalize loss data over time. [2.7.1; 4.2.4] (FINLAND)	No, this is text referring to trend analysis, not simulation.
409	SPM	3	39	3	45	The sentence taken out of the phrasing of lines 39-45 can become a separate statement following the one of lines 39-45. Phrasing could be as follows: There is high confidence that changes in exposure of people and economic assets, and in some cases changes in vulnerability, have been the major drivers of observed increases in disaster losses. Review studies and insurance statistics indicate that population and economic activity tends to agglomerate and grow above average speed in areas with elevated risks of natural hazards which are understood to be prone to intensification due to climate change. (FINLAND)	We have considered the comment in revising the chapter text.
410	SPM	3	39	3	45	should include reference to climate variability as additional cause and not only exposure and vulnerability, same as it is done immediately after in 51-54. As they are these two paras do not match. (UN-International Strategy for Disaster Reduction (UN/ISDR))	This statement has been revised based on the chapter's assessment.
411	SPM	3	40	3	45	This line about "major drivers of observed increases in disaster losses" is highly interested. However, the mentioned thoughts, , ie, "economic assets, and in some cases changes in vulnerabilities" are not very smooth explained at all. Also, the specification (details) of the relation between disaster losses to anthropogenic climate change and its relationship with limited data availability is fully elusive (Marta Luis Jose IMF)	This paragraph has been revised to enhance clarity.
412	SPM	3	41	0	0	Where is the evidence in underlying chapters that vulnerability (note: excluding exposure) is increasing? Please check the underlying evidence. (NETHERLANDS)	Agreed, and the statement has been revised accordingly.
413	SPM	3	41	3	41	As there is high confidence that climate change will indirect effect exposure and vulnerability (see SPM SREX p.2, l. 26-28) include after "vulnerability,": "which have been indirectly influenced by climate change" (GERMANY)	We now say the following: "Increasing exposure of people and economic assets is the major cause of the long-term changes in economic disaster losses (high confidence)."
414	SPM	3	42	0	0	As this is a very complex and controversial issue, please check that this explanation of the difficulties of attribution fully reflects the underlying report, and improve wording. The mention of "cyclones" here should probably be "tropical cyclones" (as a link to 3.4.4. is provided), but there are also many studies on other issues, so that we suggest to check that a focus on tropical cyclones is really an issue here. (BELGIUM)	We now say "Increasing exposure of people and economic assets is the major cause of the long-term changes in economic disaster losses (high confidence)."

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
415	SPM	3	42	3	43	The phrase "limited by data availability" needs to be explained--it sounds as if it is referring to access to data being denied rather than to limits of observations before the time of satellites. (MacCracken, Michael, Climate Institute)	The statement has been revised to enhance clarity.
416	SPM	3	42	3	45	"The ability to attribute changes in diaster losses to anthropogenic climate change is limited" primarily by the fact that only a very few rare rare physical climate events have occurred for which the signal has risen above the noise and can be attributed to anthropogenic change. (Webb, Robert. NOAA)	This statement has been revised accordingly.
417	SPM	3	44	0	0	The shortening of the text leaves this a little muddled. Perhaps say 'there is low confidence in attributing any long-term trends to anthropogenic change' (Goodness, Clare, Climatic Research Unit)	The statement has been revised to enhance clarity.
418	SPM	3	44	3	45	The term "confounding factors" merits a bit more explanation. In addition to more people moving toward the coast, building standards have also improved--at the very least, a great deal of money has been invested in coastal protection and hardening order to try to limit or reduce the amount of damage. In addition, better warnings allow greater protection of buildings as well as evacuation. Despite all of this, the amount of damage is increasing significantly. Somehow, the financial investment of all the adaptationand resilience building efforts need to be accounted for as well. (MacCracken, Michael, Climate Institute)	This phrase has been deleted.
419	SPM	3	45	3	45	The reference to 4.2.4 is questionable, since that section is questionable at this location within chapter 4 (Fischlin, Andreas, ETH Zurich)	This reference has been deleted.
420	SPM	3	48	0	0	In Section C. There is not information about forest fires. At least one paragraph should be included with forest fires regional information, including Forest Fire in the mediterranean. (SPAIN)	The SPM can only include such information as available in the underlying Chapter executive summaries and conclusions. Thus, a paragraph on forest fires has not been included.
421	SPM	3	48	6	9	It would give much more impact and be of much more interest to policymakers if this section outlined what the most vulnerable areas are and what they're vulnerable to. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	Throughout the SPM, there is consideration of the determinants of disaster risk and the factors that contribute to vulnerability.
422	SPM	3	48	6	9	The authors should consider restructuring this section so that the discussion of the evidence of extreme events in question comes before the discussion of exposure and vulnerability. (UNITED STATES OF AMERICA)	This section (now as section D) has been restructured so that climate extremes are considered under the first heading. Vulnerability is considered in other sections of the SPM, to best reflect the material in the underlying report.
423	SPM	3	48	6	9	This section is almost entirely focused on projections of extreme events. Are there no additional assessed conclusions to be drawn upon for vulnerability, exposure and impacts? (UNITED STATES OF AMERICA)	The balance of the section (now as section D) has been considered in communicating the assessment conclusions of the underlying chapters.
424	SPM	3	48	6	9	Section SPM.C We think that the readability of this chapter could be significantly improved by highlighting keywords (temperature, precipitation, droughts etc.) or by starting the paragraphs with keywords (for example: "Droughts: There is medium confidence....") (NORWAY)	Although this is an interesting idea, the core writing team decided not to restructure the section (now section D) in this manner.

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
425	SPM	3	51	0	0	incorrect use of the term climate change; "climate change, in addition to natural climate variability...". This needs to be corrected throughout the entire report. (NETHERLANDS)	Use of the term climate change has been considered throughout, ensuring consistency with the glossary.
426	SPM	3	51	0	0	Include 'frequency' (NETHERLANDS)	This statement has been substantially rephrased.
427	SPM	3	51	3	51	Please clarify how climate change affects the "type" of extreme event. Does this refer to types that are new to a region or new types of extreme events altogether? (CANADA)	This statement has been substantially rephrased.
428	SPM	3	51	3	51	There is no question that climate change will affect all of the factors, especially when there is no indication of direction and amount of change, so change "can" to "will." Indeed, this is how climate change will be manifested--there will no longer be anything that is purely natural--everything is affected. (MacCracken, Michael, Climate Institute)	This statement has been substantially rephrased, although 'will' is not used.
429	SPM	3	51	3	51	Should "Anthropogenic" be inserted before "Climate change"? (NORWAY)	This statement has been substantially rephrased accordingly to enhance clarity.
430	SPM	3	51	3	53	As the sentence "Climate change...from disasters" is policy relevant please print it bold face type. (GERMANY)	The revised paragraph provides an introduction to the section, and thus it is not presented as a key finding in bold.
431	SPM	3	51	3	53	Can this sentence be backed up by references/sections in the body of the report? This is a different point from the second sentence on non-linear affects, which is referenced. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	The revised paragraph provides an introduction to the section, and thus it is not referenced.
432	SPM	3	51	3	53	This statement is repetitive of pg 1, lines 49-50. (CANADA)	This statement has been substantially rephrased.
1066	SPM	3	51	3	53	Change magnitude of extremes for characteristics of extremes. Reason: frequency, extent, etc. can also be altered. (Moreno, Jose, University of Castilla - La Mancha)	Statement has been removed.
433	SPM	3	51	4	2	You may consider to describe the useful concept of compound events which is described in chapter 3, section 3.1.3 (page 7 line 52). (NORWAY)	Too much detail for introductory SPM material.
434	SPM	3	53	3	53	If something is unprecedented isn't it obvious that it has not been observed before. (Stone, John M R, Carleton University)	This statement has been substantially rephrased accordingly to enhance clarity.
435	SPM	3	53	3	53	This is a bit overstated. Regardless of whether the climate is changing, unprecedented, previously unobserved events (records) will occur, simply because the instrumental record is of finite length. Records are set continually, but would also be set (albeit at a bit different pace) in a stationary climate. See, for example, the response to FAQ 3.2, which looks at an unprecedented extreme event (in a given location). The simple analysis presented there suggests that on a global scale, this event was extreme, but not unprecedented, indicating that it could have happened in an unperturbed climate. (Zwiers, Francis, Environment Canada)	This statement has been substantially revised.
436	SPM	3	53	3	53	The difference between "previously unobserved" and "unprecedented" is not readily apparent. Please clarify. (CANADA)	This statement has been substantially revised.

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
437	SPM	3	53	3	53	The word "may" needs to be changed to the IPCC lexicon. The "previously unobserved" would better say "previously not experienced"--whether observed or not is not really relevant. There will be unprecedented disasters--for example, as sea level rises, there will be greater inundation, and as climate zones shift, there will be areas that are experiencing extremes that were characteristic of other climate zones--so unprecedented for the new locations (e.g., warming in high latitudes that melts permafrost, etc.). (MacCracken, Michael, Climate Institute)	This statement has been substantially revised.
438	SPM	3	53	4	1	thresholds related to what? (Wehrli, Andre, European Environment Agency)	The sentence refers to the 'nature of the climate system', thus it is clear that these thresholds in this context refer to climate system thresholds. See section 3.1.7 for a detailed discussion
1067	SPM	3	53	4	1	Unprecedented and previously unobserved are the same, with one term is enough. (Moreno, Jose, University of Castilla - La Mancha)	"previously unobserved" has been deleted.
439	SPM	3	54	3	54	"...associated with the crossing of poorly understood thresholds..." needs explaining, please illustrate with an example (NEW ZEALAND)	Space in the SPM is limited. It would be problematic to single out one particular example. See section 3.1.7 for a detailed discussion.
440	SPM	4	1	0	0	For a policy maker it would be helpful to explain in a footnote what is a 'non linear' feedback. (BELGIUM)	No longer relevant--the referenced text has been deleted
441	SPM	4	1	4	1	"non-linear feedback", Can a policy maker understand what is a "non-linear feedback"? (Zhang, Xuebin, Environment Canada)	No longer relevant--the referenced text has been deleted
442	SPM	4	1	4	1	Please explain "nonlinear feedback". (UN-International Strategy for Disaster Reduction (UN/ISDR))	No longer relevant--the referenced text has been deleted
443	SPM	4	1	4	2	"Non-linear feedback" is a difficult expression for the reader. More plain expression and to illustrate by an example should be used. Plain expressions and examples are helpful not only for understanding of the readers but also to enrich the content of the report. (JAPAN)	No longer relevant--the referenced text has been deleted
444	SPM	4	1	4	2	"non-linear feedbacks" please explain some of the implications of these to illustrate (NEW ZEALAND)	No longer relevant--the referenced text has been deleted
445	SPM	4	1	4	2	Non-linear feedbacks. We don't think this is useful information for policy makers. For that matter, we're not sure why non-linear feedbacks are singled out rather than just feedbacks. Consider deleting. (UNITED STATES OF AMERICA)	No longer relevant--the referenced text has been deleted
446	SPM	4	1	4	2	"Non-linear feedbacks" could probably be illustrated by an example should be included. Consider also to include a reference to chapter 4, section 4.2.2 (NORWAY)	No longer relevant--the referenced text has been deleted
447	SPM	4	2	0	0	ajouter que par principe méthodologique, les projections de l'effet du changement climatique faites au chapitre 3 sont isolées et ne tiennent pas compte des autres changements dont on a dit qu'ils avaient un effet prépondérant. (BOURRELIER, PAUL-HENRI, AFPCN)	No longer relevant--the referenced text has been deleted
448	SPM	4	4	4	4	Add the word "essential" before "drivers" in order to be consistent with section 2.7. (UNITED STATES OF AMERICA)	Consistency with the underlying chapter executive summary has been insured.
449	SPM	4	4	4	5	If vulnerability includes considerations of exposure isn't this statement somewhat tautological. (Stone, John M R, Carleton University)	Please see the glossary and box SPM.1 for the definitions relevant here.

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
450	SPM	4	4	4	5	Changing the sentence to some policy relevance it should be merged with a statement on climate change and its impact on vulnerability and exposure. Therefore insert after "exposure": ", both will be indirectly effected by climate change,". (GERMANY)	Consistency with the underlying chapter executive summary has been insured, and the revised version of the statement has been moved to another section.
451	SPM	4	4	4	5	Suggest the inclusion of other factors that could lead to changes in risk patterns in order to differentiate from vulnerability and exposure. (CANADA)	Consistency with the underlying chapter executive summary has been insured, and the revised version of the statement has been moved to another section.
452	SPM	4	4	4	10	This long list of key factors determining trends is not needed. This does not add anything to the key conclusion. (Stocker, Thomas, IPCC WGI TSU)	No longer relevant--this text has been deleted from the section.
453	SPM	4	4	4	10	We think that the main (bold) part of this paragraph is somewhat too obvious and that some information as regards the direction of the different trends should be included in the highlighted text. Is the main message that different drivers work in both positive and negative directions and that this makes it difficult to find the overall trend? (NORWAY)	The revised version of the statement has been moved to another section, including further discussion of such complexities.
454	SPM	4	4	4	10	"Trends in vulnerability"? There are trends in exposure, there may be also trends in sensitivity, e.g. building closer to the shoreline vis-à-vis flood risks, there may finally be trends in the development of adaptative capacity and from this may follow vulnerability trends. But they don't come first and I am again missing here a consideration of the role of adaptation (see my comment #1). (Fischlin, Andreas, ETH Zurich)	Please see the glossary and box SPM.1 for the definitions relevant here.
455	SPM	4	5	4	5	Please add "urban" before population; population growth itself is not considered a trend in vulnerability and it sounds ideological (UN-International Strategy for Disaster Reduction (UN/ISDR))	No longer relevant--this text has been deleted from the section.
456	SPM	4	5	4	8	Please put the sentence as follows: "Key drivers of these changes include population growth, economic growth, changing settlement patterns including rapid urbanization, urban sprawl and the habitation of sites which are not suitable for housing, lack of planning and urban government, environmental degradation, changing demographics and health status, science and..... (GERMANY)	No longer relevant--this text has been deleted from the section.
457	SPM	4	8	0	0	This mentions gradual shifts in climate but not the potential tipping points (International Petroleum Industry Environmental Conservation Association (IPIECA))	No longer relevant--this text has been deleted from the section.
458	SPM	4	9	4	10	Please explain in more detail what is meant by interactions among crises and disasters. It is not immediately clear. (Kankaanpää, Susanna, HSY Helsinki Region Environmental Services Authority)	No longer relevant--this text has been deleted from the section.
459	SPM	4	9	4	10	Please replace crises and disasters with "multiple risks" or explain what is meant by crises. (UN-International Strategy for Disaster Reduction (UN/ISDR))	No longer relevant--this text has been deleted from the section.
460	SPM	4	12	4	14	This sentence mixes causes of differences in the confidence in projections with their effects. Suggest to reformulate as follows: "Confidence in projecting changes in the direction and magnitude of extreme events varies significantly according to the type of extreme, as well as the region and season. It depends on the amount and quality of observational data, the level of understanding of the underlying processes, and the reliability of their simulation in models." (Fuessel, Hans-Martin, European Environment Agency)	Reject - proposed change would not improve clarity.
461	SPM	4	12	4	16	The authors should consider switching the order of the first two sentences. The second sentence on assigning confidence levels is more important, and should be bolded. (UNITED STATES OF AMERICA)	Reject - First sentence is critical in the context of this report. Refer to Box SPM 2 regarding the treatment of uncertainty.

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
462	SPM	4	12	4	21	Para unclear, because out of context. (GERMANY)	Paragraph has been revised; intended as an introduction for the climate extremes and impact projections sub-section in section D.
463	SPM	4	12	4	21	Thank you for this explanation about how confidence is determined for scenarios. Please define "emission scenarios" for the audience not familiar with IPCC reports. (UN-International Strategy for Disaster Reduction (UN/ISDR))	These are defined in footnote.
464	SPM	4	12	4	21	Is there literature that indicates that waiting for higher confidence might delay actions, with implications for total impacts? If so, it would be important to reference it here. (UNITED STATES OF AMERICA)	The SPM does not include information on this point, working from the conclusions of the underlying chapters.
465	SPM	4	12	5	54	I think it needs to be made clear in that "anthropogenic" influence in these paragraphs means specifically "anthropogenic influence via changes in climate". While this is covered by the earlier para, it is still easy for the reader to misinterpret some of the statements. So, for instance, when looking at p5 line 33, the "anthropogenic influence" on flooding could easily be interpreted by a reader to include other drivers such as increased runoff due to concrete roads and other forms of urbanisation. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	Agreed - this is especially important for floods. The term 'anthropogenic influence' has been removed.
466	SPM	4	12	6	9	There needs to be a clarification here--for this reviewer as well as for the policymakers who will be reading this--what the basis is here for expressing the levels of confidence. The text reads as if the test is achieving a statistical level of confidence in a strict sense, not accounting in any way for the problems of getting adequate data bases to do the analyses, etc. and not apparently drawing any insight from the time shifting of climatic zones as climate change occurs, etc. If so, say this clearly. I would suggest, however, that for the SPM, that type of framing of what science has learned is meant for the chapter, and not for the SPM, where policymakers want to understand the relative likelihood of what is and is expected to be happening, even if not yet determined with full confidence. The drought and flood situations are an example--a lot of the discussion is focusing on what is happening over relatively large, sub-continental scale regions--and averaging over those whole domains will tend to cancel things out--or at least make statistical detection more difficult. In the text here, even when there is not yet statistical confidence, the nature of the trends or expected trends should be indicated so that adaptation planning can begin--give a sense of the possibilities. While there are certainly uncertainties, it needs to be up to those planning the adaptation measures or experiencing the impacts who decide what level of understanding is adequate for actions to be taken--many decisions are taken by various entities long before a statistical test would indicate a result and scientists should not be withholding information, even if understanding is not yet adequate for scientists to be highly confident. (MacCracken, Michael, Climate Institute)	Refer to SPM box 2 introducing the concept of treating uncertainty.
467	SPM	4	14	4	14	Reliability is not included in the uncertainty guidance, use consistent terms to describe uncertainty. (GERMANY)	"Reliability" is used here in its usual sense - it is not an assessment, so the uncertainty guidance is inappropriate here.
468	SPM	4	15	4	16	Consider bolding 'Assiging 'low confidence' for projections of a specific extreme neither implies nor excludes the possibility of changes in this extreme.' This is an important consideration and should be highlighted. (AUSTRALIA)	It is important, but its seems unnecessary to bold this statement.

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
469	SPM	4	15	4	16	This sentence only describes what "low confidence" is not - both what does it describe? - is it that the currently available scientific evidence is limited? (NORWAY)	As indicated in Box SPM2, it describes the "available evidence". Further details available in Chapter 3 (3.1.5 and Box 3.1)
470	SPM	4	16	4	17	The time frames noted (end of the 21st century) are so far out that you risk losing humanitarian and other readers more concerned with more immediate changes and losses already being observed. It would be useful to balance existing text with the messaging being used in the humanitarian community, namely that the impacts of climate change are being felt now and are here to stay. Possible sources: (1) IFRC. Preparedness For Climate Change. p 8.; (2) Working Group II Contribution to the Intergovernmental Panel on Climate Change. Fourth Assessment Report. Climate Change 2007: Climate Change Impacts, Adaptation and Vulnerability (3) The OCHA Background note at the following link notes some of the practical effects being felt in the humanitarian community such as the increase in Flash Appeals, all of which are related to hydro-meteorological disasters http://ochanet.unocha.org/CC/Community%20Content/Background%20Notes/OCHA%20Policy%20Brief%20Climate%20Change%202009.pdf . (Brooke, Roy, United Nations)	Observed changes are given in Section B of the SPM, now also including a paragraph on the attribution of changes in climate extremes. For projections of temperature, extreme precipitation, and drought in Section D, SPM figures 3 and 4 provide information for both the mid- and late-21st century.
471	SPM	4	17	0	0	add 'in this Special Report' after 'weather events' (NETHERLANDS)	Reject - Sentence begins 'The following assessments of....'.
472	SPM	4	18	4	19	This implies as if we know how the economy will develop the coming 30 years, which we do not. It will raise questions. (NETHERLANDS)	Statement has been revised.
473	SPM	4	18	4	21	To some readers, it may not be clear if the authors intend there to be a distinction between the phrases "Uncertainty is large" and "Uncertainty becomes dominant." To avoid confusion, we would suggest some rephrasing to this paragraph, as follows: Climate projections for differing emission scenarios generally do not strongly diverge in the coming two to three decades, and uncertainty over this time frame is mainly due to natural climate variability. For projected changes by the end of the 21st century, either model uncertainty or uncertainty associated with the emission scenario used becomes dominant, depending on the extreme. (CANADA)	Statement has been revised.
474	SPM	4	19	4	19	It is important to make the point that any projected changes to be useful have to be based on an ensemble of model runs - one model and one run will have high uncertainty when it comes to extreme events - we need statistics. (Stone, John M R, Carleton University)	Too much detail for SPM - see underlying chapters for details of assessment.
475	SPM	4	19	4	19	This is worded a bit awkwardly. It clearly intends to say that the signal-to-noise ratio is still relatively small at the moment and that the ratio is expected to increase. However, as written, the statement could naively be interpreted as saying that we expect natural variability to decrease in the future, as opposed to natural variability staying much the same and signal strength increasing. (Zwiers, Francis, Environment Canada)	Statement has been revised.

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
476	SPM	4	19	4	19	the sentence "but uncertainty is large over....to natural climate variability" is not clear . Is uncertainty large for all extremes ?. (SPAIN)	Paragraph has been revised. Please note: this paragraph provides a general introduction to the projections of climate extremes and impacts. The paragraph begins by specifically stating that confidence in projections depends among other things on the 'type of extreme'.
1068	SPM	4	19	4	21	"depending on the type of extreme." Add type. (Moreno, Jose, University of Castilla - La Mancha)	Reject - does not add clarity. 'Type of extreme' is specified in the bolded statement for this paragraph.
477	SPM	4	21	4	21	Specify some types of extreme. (SPAIN)	Reject - This paragraph provides a general introduction to the projections of climate extremes and impacts.
478	SPM	4	23	4	23	Please explain "radiatively" or avoid use. (UN-International Strategy for Disaster Reduction (UN/ISDR))	Reject - 'Radiative forcing' is a key concept used in IPCC reports. See SREX glossary.
479	SPM	4	24	0	0	add 'policies' to sentence about socioeconomic and technological development (NETHERLANDS)	Reject - description here based on SRES SPM.
480	SPM	4	24	4	24	"40 scenarios" etc. The text reads like "the report uses 40 emission scenarios" which is clearly wrong. It is about 40 different possible outcomes from model simulations under ONE emission scenario. (Zhang, Xuebin, Environment Canada)	Reject - as indicated, a subset of 40 scenarios is used.
481	SPM	4	25	0	0	add 'however' after scenarios (NETHERLANDS)	Reject - not needed.
482	SPM	4	28	0	0	Virtually certain is never used in Table 3.3 and I find this insertion of 'most regions' rather misleading. I would be more inclined to use 'very likely' with 'most regions'. (Goodess, Clare, Climatic Research Unit)	Paragraph revised based on updated Chapter 3 ES which separates global and regional scales.
483	SPM	4	28	4	29	please make clear that this statement is based on climate model projections. Please replace the word "hot" and "cold" with the more neutral words "high" and "low", like in the figures (e.g. "maximum" temperatures). (NETHERLANDS)	Reject - Assessment results are not just based on models, but also physical reasoning and expert judgement (see chapter 3). "Hot" and "cold" are used widely in the underlying literature
484	SPM	4	28	4	29	Can we refer to 'unusually warm days and nights' and 'unusually cold days and nights' to make this more understandable to the reader? Refer to Table 3.1. (UNITED STATES OF AMERICA)	Statement revised. It is not necessary to repeat 'unusually' here, as this is the basis of an 'Extreme event' as now defined in SPM box 1.
1069	SPM	4	28	4	29	It is understood that this is valid independent of the scenario considered but perhaps it should be mentioned given the uncertainty that it is mentioned in the preceding paragraph for projections by the end of the century. Additionally, and even though you mentioned in that paragraph that your projections are generally for the end of the 21st century, provided that these statements tend to be read on their own, it might be worth specifying the time period for which you are issuing this statement. This may apply to other statements following. (Moreno, Jose, University of Castilla - La Mancha)	Done for this statement.

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
485	SPM	4	28	4	34	Some main outputs from chapter 4.3.4.2 (p. 29, l. 25 - 53, "Heatwave in Europe 2003") can be integrated in this part (GERMANY)	Example seems out of place here, given consideration of human impacts elsewhere in SPM
486	SPM	4	28	4	34	There is no mention here of how absolute humidity tends to rise with temperature, and so the heat index increase is very large. For many areas, policymakers will really want to know about the change in the heat index rather than in just temperature. (MacCracken, Michael, Climate Institute)	Too detailed for SPM. There are a very limited number of studies addressing projections in heat index. Heat index is briefly mentioned in Box 3.1.
487	SPM	4	28	5	21	This should come earlier - e.g. before the section about vulnerability in page 4, line 4-10. It seems more logical to describe the CC before the vulnerabilities. (NORWAY)	This section now begins with climate extremes.
488	SPM	4	28	5	49	Section C: Projections...: The amount of detail provided here from Chapter 3 is too much and out of balance with the overall content of this SPM. We would like to see this information made more concise, and more in line with how the 'observations' from Chapter 3 are reported in Section B of the SPM. One approach might be to start with only the information contained currently in the bolded statements here, and adding additional information only where this is considered crucial. (Stocker, Thomas, IPCC WGI TSU)	Some statements have been combined. Detail has been reduced.
489	SPM	4	29	4	29	From Ch. 3 it seems this result applies only to scenarios A2 and A1B. This should be made clear. (CANADA)	Agree - done.
490	SPM	4	29	4	30	Does a 'hottest day' equal an 'annual extreme' here? If so, why not use the same language for both? If not, this needs more explanation. Lines 28-34 use very different language to lines 37-43, but are talking about the same issue. This could be confusing to the reader. Is it possible to use more consistent language? (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	Text has been revised accordingly. The figure caption text still provides additional clarifying detail.
491	SPM	4	29	4	32	This statement is too aggregate and hides the substantial differences across emissions scenarios shown in Figure SPM.1.a. Separate sentences should more accurately describe the projected changes for a low emission scenario (i.e., SRES B1) and a high emissions scenario (i.e., SRES A2). (Fuessel, Hans-Martin, European Environment Agency)	The dependence on emission scenario is now explicitly mentioned in the paragraph
492	SPM	4	30	4	32	It needs to be explained why the return frequency is less in high latitudes. Is this referring to high latitude land areas or all high latitude areas (so strongly stabilized by the ocean and freezing point of water)? Is it because there will be a lot of soil moisture in high latitudes and so there is temperature buffering by evaporation? How does one explain the anomalous situation in Russia in the summer of 2010, where it was apparently a 7 standard deviation anomaly, and might not this occur again in the future? Again, the reasons for this difference need to be explained. (MacCracken, Michael, Climate Institute)	Statement no longer applies - reference to high latitudes for temperature extremes has been removed from the SPM. Please see figure SPM 3A for regional detail.
493	SPM	4	32	0	0	add 'The average temperature increase in higher latitudes however will be approximately twice the global average.' after the first extreme in this sentence. (NETHERLANDS)	Statement no longer applies - reference to high latitudes for temperature extremes has been removed from the SPM. Please see figure SPM 3A for regional detail.
494	SPM	4	32	4	33	The conjunction "and/or" leaves unnecessary ambiguity. Do we really mean to say that at least one of these changes is very likely, but we don't know which? (UNITED STATES OF AMERICA)	"and/or" is the chapter 3 assessment.

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
495	SPM	4	33	4	33	Please explain what is meant by moderate temperature extremes. The term to me seems a bit contradictory (Kankaanpää, Susanna, HSY Helsinki Region Environmental Services Authority)	Sentence deleted.
496	SPM	4	33	4	33	What do you mean by a "moderate ... temperature extreme"? (Rock, Joachim, Johann Heinrich von Thuenen-Institute)	See #495
497	SPM	4	33	4	33	A "moderate temperature extreme"? wording contradicting (GERMANY)	See #495
498	SPM	4	33	4	33	Please clarify the meaning of a "moderate temperature extreme." (CANADA)	See #495
499	SPM	4	33	4	34	The term "Moderate (cold and warm) temperature extremes" is confusing and unclear. How can an extreme be moderate? (Fuessel, Hans-Martin, European Environment Agency)	See #495
500	SPM	4	33	4	34	This should be removed: 1) Fig SPM 1a does not provide any support to the claim as it did not compare regional changes in extreme temperature with that in global mean temperature, 2) Fig. 3.1 also show very clearly that many regions also show smaller changes. (Zhang, Xuebin, Environment Canada)	See #495
501	SPM	4	33	4	34	A policymaker scanning the SPM might be confused and frustrated by the seemingly self-contradictory phrase "moderate extremes." (UNITED STATES OF AMERICA)	See #495
502	SPM	4	34	0	0	Figure SPM.1.a it is very important but it is difficult to read values and to interpret by non expert. It could help to add some additional text (and/or clear table) with the more relevant results for each region considered. (SPAIN)	Figure SPM 1A and B (now 3A and B) have been revised to improve readability and clarity; only 1 quantity shown per figure, improved legend, added inset map defining regions, etc. Furthermore, the caption has been revised to improve clarity
503	SPM	4	34	4	34	Figure SPM 1a is hard to use and could be just as well skipped. Therefore the reference to it can be skipped (FINLAND)	See #502
504	SPM	4	36	4	43	Figures SPM 1 a and b are very helpful and illustrative but their interpretation is not easy especially for Policymakers. Therefore we propose an addition to each figure explanation: with the help of one example the right interpretation of the diagrams could be supported a lot. (GERMANY)	See #502
505	SPM	4	36	4	43	Figure SPM 1a is hard to use and could be just as well skipped and consequently this text patch can be skipped as well. (FINLAND)	See #502
506	SPM	4	36	4	43	FIGURE SPM.1a and 1b. We found this figure to be suboptimal for a SPM audience - it was difficult to understand. Here are some suggestions for alternate figures: See (1) Sherwood and Huber, PNAS, 2010, (2) Barriopedro et.al., Scienceexpress, 2011, (3) a cartoon summarizing attribution and projection results of extremes, as IPCC has done in the past for mean climate change. (UNITED STATES OF AMERICA)	This figure is the result of the underlying Chapter 3 assessment. See also response to comment #502.
507	SPM	4	36	4	54	The SPM should be readable and understandable for policy makers, not climate scientists only. The text explaining the figure is not suited to this task. Please rephrase it. If e.g. a "20-year return value" means an occurrence once in 20 years - say so. There is no need to hide your message behind "science speak". (Rock, Joachim, Johann Heinrich von Thuenen-Institute)	Footnote has been added, explaining '20-year return value'. See also response to comment #502.
508	SPM	4	42	4	42	Please spell out and give reference (in AR4?) for GCMs and CMIP3. (UN-International Strategy for Disaster Reduction (UN/ISDR))	Refer to SREX glossary for GCMs. See underlying Chapter for details regarding the CMIP3 project.

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
509	SPM	4	42	4	43	An SPM should not contain external references. Kharin et al., should be replaced with 'based on Fig 3.6'. (Stocker, Thomas, IPCC WGI TSU)	Agreed and removed.
510	SPM	4	45	0	0	"frequency of heavy precipitation" is >not< the same as "proportion of total rainfall from heavy events". Great care must be taken with use of "proportion of total rainfall from heavy events" as it can be misleading and tells you little about genuine extremes such as annual maxima which are used in engineering design and risk assessment. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	Have removed '()' to make it even more clear that these are not the same.
511	SPM	4	45	4	45	Proportion of total from heavy falls or vice versa? (GERMANY)	Sentence is correct.
512	SPM	4	45	4	47	This statement should also be differentiated for low and high emission scenarios even though the differences between emissions scenarios in Fig. SPM.1.b are smaller than in Fig. SPM.1.a. (Fuessel, Hans-Martin, European Environment Agency)	Statement has been revised.
513	SPM	4	45	4	47	The SREX departure statement "The frequency of heavy precipitation (or proportion of total rainfall from heavy falls) is likely to increase over many areas of the globe in the 21st century," departs from the AR4 SYR SPM Table 3 statement on projections for "Heavy precipitation events. Frequency increases over most areas." are "Very likely." The relevant new studies since AR4 should be cited that support this change along with an explanation of the change for the reader. How this is treated needs to be propagated to the relevant sections of chapter 3 (Webb, Robert, NOAA)	New literature is discussed in Chapter 3. It is unpractical to repeat this level of information in the SPM where the focus is on the new assessment coming from SREX.
514	SPM	4	45	4	47	This finding downgrades findings from the IPCC AR4 which finds very likely increase in projected frequency of heavy precipitation events over most areas (See among other references WG 1, Table SPM.2)Please explain the change for readers. (UNITED STATES OF AMERICA)	For the physical science basis assessed in Chapter 3, a detailed comparison between SREX and the AR4 is provided in the underlying Chapter. It is unpractical to repeat this level of information in the SPM where the focus is on the new assessment coming from SREX.
515	SPM	4	45	4	47	Why are the parentheses used? Do they indicate relatively weak likelihood? And what does "or" mean? One or the other, but we haven't yet figured out which? (UNITED STATES OF AMERICA)	Parentheses have been removed. The 'or' is used to clearly identify that these are two different metrics, and the statement applies to both.
1070	SPM	4	45	4	47	".. In the 21st century.." is vague. When are you exactly meaning? If it is the end of the century it should be mentioned, to not mislead the reader (Moreno, Jose, University of Castilla - La Mancha)	Reject - SPM figure 1B (now 2B) includes two time frames for the 21st century.
516	SPM	4	45	4	49	How can this only be likely when we have a rather lengthy and widespread record of this already occurring? I also think it would be helpful to mention that the location of these events will tend to shift as climate zones shift. It should also be mentioned that the hydrological consequences of such shifts are likely to further exacerbate the potential for flooding in that river channels will be less attuned to the heavy precipitation than areas having previously experienced such events. (MacCracken, Michael, Climate Institute)	Observed trend is less certain than suggested by reviewer. Model projections in Fig SPM1b illustrate why this is considered "likely". The comment illustrates why showing the figure in the SPM is important and useful to policymakers.

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
517	SPM	4	46	4	49	Talk of RP events moving from 1 in 20 to 1 in 5 should be avoided as it implies a trend, which invalidates EV theory! Better to use AEP. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	Do not understand comment. The discussion of RP events compares time-slices, so this does not invalidate EV analysis. Much feedback was received indicating that users were comfortable with RP approach.
518	SPM	4	47	0	0	The emissions scenarios are not given in bold in the 3.3.2 summary and are not given in the SPM for the earlier temperature example. (Goodess, Clare, Climatic Research Unit)	Revised SPM statements now explicitly indicate scenarios for both temperature and precipitation projections.
519	SPM	4	47	4	47	"...B1, A1B, A2..." Spell these and subsequent abbreviations on first use and in each chapter. (UNITED STATES OF AMERICA)	B1, A1B, A2 etc refer to the scenario and scenario families defined in the SRES - they are not abbreviations.
520	SPM	4	47	4	48	Suggest the listing of scenarios match the order of the results, so it's clearer that lower emissions scenarios produce less frequent events (one-in-fifteen year events) and higher emissions scenarios produce more frequent events (one-in-five year). This can be achieved by reversing the listing of the scenarios. (CANADA)	Agree - Sentence added to address this point.
521	SPM	4	47	4	49	an increase from a 'one-in-20 year' annual maximum 24-hour precipitation rate to become a 'one-in-5 to one-in-15' : the latter is rather a broad range, isn't it (if you compare a change from 1-in-15 to 1-in-20 with a change from 1-in-5 to 1-in-20). So you might need to provide some more information for the reason of this broad range? (Wehrli, Andre, European Environment Agency)	This level of details is provided in the underlying Chapter 3 text.
522	SPM	4	49	0	0	Concerning Figure .SPM1.b Same comment that for figure SPM.1.a (SPAIN)	Figure SPM 1A and B (now 3A and B) have been revised to improve readability and clarity; only 1 quantity shown per figure, improved legend, added inset map defining regions, etc. Furthermore, the caption has been revised to improve clarity.
523	SPM	4	49	4	49	This statement should be completed by chapter 3.3.2 p.28, l.48 - 49. Cite "The greatest projected reductions in waiting time are in high latitudes, some tropical regions and northern mid-latitudes in winter". May be completed by p. 31, l. 3-4 of chapter 3.3.2 (GERMANY)	Agree - detail added.
524	SPM	4	49	4	49	Figure SPM 1b is hard to use and could be just as well skipped. Therefore the reference to it can be skipped (FINLAND)	See #522
525	SPM	4	51	5	4	Figures SPM 1 a and b are very helpful and illustrative but their interpretation is not easy especially for Policymakers. Therefore we propose an addition to each figure explanation: with the help of one example the right interpretation of the diagrams could be supported a lot. (GERMANY)	See #522
526	SPM	4	51	5	4	Figure SPM 1b is hard to use and could be just as well skipped and consequently this text patch can be skipped as well. (FINLAND)	See #522
527	SPM	4	52	4	54	We suggest including a definition of return period or it could be confusing to lay readers. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	Footnote for 'return value' has been added which also introduces the term 'return period'. See also the SREX glossary.

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
528	SPM	5	2	5	4	This text is confusing because the first sentence restricts the statement to "projections based on unchanging exposure and vulnerability" whereas the second sentence criticizes "these projections [...] because they infrequently include changes in [...] exposure and vulnerability". (Fuessel, Hans-Martin, <i>European Environment Agency</i>)	Comment seems to relate to page 6, lines 2 - 4. Text deleted.
529	SPM	5	2	5	10	This statement hinges on the assumption that the models are reliable when it comes to TCs, when in fact they exhibit shortcomings in related aspects such as the MJO and the monsoon. Furthermore, this implies that the PDF for wind speeds will get a new and more complicated shape. At least the models must have been evaluated with respect to the metric they are predicting – are they able to reproduce the geographical distribution, seasonal variations, relationship with ENSO, and past trends? It is stated further down on the page that low confidence is placed on projected changes in ENSO. How can one explain medium confidence in TCs and low confidence in the reproduction in ambient conditions such as ENSO? (NORWAY)	TC assessment is based on much more than model projections. Use of "likely" does not imply that the models are "reliable". ENSO operates on a different time-scale than climate change, so even if models cannot project ENSO accurately this does not preclude them from projecting changes in other variables (eg temperature).
530	SPM	5	6	5	6	I would suggest rephrasing this to "Model simulations project that the global frequency of tropical cyclones is likely to ..." Generally, rather than use the word "it" I think that the method(s) used to derive the result should be indicated. So, if it is more than models indicating this, maybe say "Model projections and theoretical analysis project ..." or whatever. I would actually urge a checking through for where this can be done--"It" just gives no useful information and fails to explain how scientists have come to their conclusions. (MacCracken, Michael, Climate Institute)	Inserting the reasons for all the many uncertainty assessments would be impractical given the length constraints of an effective SPM.
531	SPM	5	6	5	10	Suggest making it clear that this is only in the ocean basins studied. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	Text revised.
532	SPM	5	6	5	10	Rephrase: 'Based on consistency among models and physical reasoning, it is likely that the global frequency of tropical cyclones will either decrease or remain essentially unchanged, that tropical-cyclone related rainfall and maximum wind speed will increase. There is medium confidence that local trends will be contrair to global projections' (NETHERLANDS)	Text has been revised based on Chapter 3 assessment.
533	SPM	5	6	5	10	If anything is known specifically about land-falling tropical cyclones, it should be stated. If nothing is known, that should be stated, too. Landfall is crucial for impacts, is it not? Change in atmospheric circulation will affect cyclogenesis and trajectories of storms, won't it? (UNITED STATES OF AMERICA)	Too much detail for the SPM. These details are discussed in the underlying chapter.
534	SPM	5	6	5	10	The following sentence from chapter 3 sec. 3.4.4 (page 40 line 55) is very informative and the essence of it might be included in the SPM to explain the relation between intensity, storm-surge and freshwater flooding: "Tropical cyclones are perhaps most commonly associated with extreme wind, but storm-surge and fresh-water flooding from extreme rainfall generally cause the great majority of damage and loss of life." (NORWAY)	Impacts and losses relating to tropical cyclones are treated elsewhere in the SPM, eg, Section D, subsection on 'human impacts and disaster losses.
535	SPM	5	6	5	10	The following sentence from chapter 3, section 3.4.4 (page 40 line 55) is very informative and the essence of it might be included in the SPM to explain the relation between intensity, storm-surge and freshwater flooding: "Tropical cyclones are perhaps most commonly associated with extreme wind, but storm-surge and fresh-water flooding." (NORWAY)	See #535

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
1071	SPM	5	6	5	10	Please, specify time and scenarios for the outcomes of your statements. (Moreno, Jose, University of Castilla - La Mancha)	Reject - Statement is not scenario dependent. General time frame for all projections is provided in the introductory statement for this sub-section of section D.
536	SPM	5	7	5	7	Unfortunately, this comes across as a weak assessment. The statement itself is not very informative because I think, without specifying specific basins, it is virtually certain that the statement is true - there will be increases in some places and decreases in others (this would come about even in an unperturbed climate because that's the nature of spatially distributed chaotic variability). It might be more useful to say that the global frequency of the most intense storms will increase but that this phenomenon may not be experienced in all basins (that is, assuming that such a statement is supported by the science). (Zwiers, Francis, Environment Canada)	Statement referring to the 'most intense cyclones' has been deleted from the SPM.
537	SPM	5	8	5	8	Please include which ocean basins are likely to see cyclone intensity increase. (UN-International Strategy for Disaster Reduction (UN/ISDR))	See Chapter 3 for these details.
538	SPM	5	8	5	9	In our view the finding about increased cyclone related rainfall should be included in the key finding in bold upfront in this paragraph. (NORWAY)	Tropical cyclone related heavy precipitation is now discussed in the earlier paragraph about heavy precipitation.
539	SPM	5	12	5	12	Mid-latitude SEVERE storms or all storms? (GERMANY)	No, just storms. The storms can bring extreme impacts, even though they may not be severe, in themselves. This is discussed in Chapter 3.
540	SPM	5	12	5	13	Is there a difference between saying a "reduction" is 'about as likely as not' and saying either an "increase" or "no change" is 'about as likely as not'. Why did you pick reduction versus increase or no change since there is an equal chance for any of the three. Suggest you do not ever use "about as likely as not" and instead use the informative language from Chapter 3, page 3, line 27 "The magnitude and even the sign of any anthropogenic influence on XXX are uncertain (Webb, Robert, NOAA)	Revised text from chapter 3 uses 'medium confidence'
541	SPM	5	12	5	14	This sentence combines statements about "mid-latitude storms" and about (tropical) "cyclones" in a confusing way. Please make separate statements for the two categories of storms. (Fuessel, Hans-Martin, European Environment Agency)	Revised text now provides a clear distinction between 'tropical cyclones' and 'mid-latitude cyclones'.
542	SPM	5	12	5	14	Difficult to understand for policymakers, please rephrase. (BELGIUM)	Text revised using 'medium confidence'
543	SPM	5	12	5	14	Does this statement imply that an increase is also 'about as likely as not'? What about no change? (UNITED STATES OF AMERICA)	See #542
544	SPM	5	12	5	15	This is awkwardly expressed. I think this assessment could be expressed more directly (e.g., It is more likely than not that the number of mid-latitude storms in each hemisphere will decrease over the coming century due to human induced climate change). (Zwiers, Francis, Environment Canada)	See #542.
545	SPM	5	12	5	15	What about the intensification of winter storms in Central Europe? Publication of Ulbrich, FU Berlin (GERMANY)	Too detailed for SPM. Publication referred to by the reviewer is assessed in the underlying chapter.

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
546	SPM	5	12	5	15	(1)Why is the result stated as a reduction in the number of mid-latitude storms? (Those in the know will know there is an expectation of this, but to other readers, this will not be clear.) Suggest instead just stating that we cannot yet say much about changing frequencies of mid-latitude storms and indicate reasons for expecting a decrease if this is supported by CH. 3. (2) Delete the words "due to future anthropogenic climate change" since this is implicit and is not stated explicitly with all the other findings presented. (CANADA)	1) See #542. 2) Agree - done.
547	SPM	5	12	5	15	I would suggest reversing the ordering of the two sentences--the second sentences seems to me to have the more confident and more important result and it should be in bold and leading with the present first sentence included as supporting and qualifying. (MacCracken, Michael, Climate Institute)	Reject - disagree as to the relative importance of these statements. Note that the 'mid-latitude cyclone' and 'tropical cyclone' statements have now been restructured.
548	SPM	5	12	5	15	Consider switching the bolded and non bolded sections of this paragraph. That storm tracks may shift poleward is an important consideration for policy makers. (AUSTRALIA)	Reject - disagree as to the relative importance of these statements. Note that the 'mid-latitude cyclone' and 'tropical cyclone' statements have now been restructured.
1072	SPM	5	12	5	15	Same as above: specify time and scenarios for the outcome. (Moreno, Jose, University of Castilla - La Mancha)	See #1071.
549	SPM	5	13	5	14	The changed wording from the chapter summary implies large changes in all regions - I would rather say 'show that regional changes in cyclone activity may be large' (Goodess, Clare, Climatic Research Unit)	Statement has been revised - reference to regional changes in cyclone activity has been deleted.
550	SPM	5	14	5	15	Rephrase for clarity to read "Medium confidence is assessed in a poleward..." (NEW ZEALAND)	Statement has been revised along these suggested lines.
551	SPM	5	14	5	15	suggest you consistently had the qualifier next to the confidence "There is medium confidence in a projected poleward 15 shift of mid-latitude storm tracks due to future anthropogenic climate change." (Webb, Robert, NOAA)	Statement has been revised along these suggested lines.
552	SPM	5	17	0	0	Drought affects more people than any other hazard ; and when I read on page 5 line 17 that "there is medium confidence that droughts will intensify in the 21st century", I feel that something is not right. If this hazard is the least understood, it is because it is the least studied. I believe global efforts should pay more attention to the in depth study of this phenomenon and its political and socio-economic impacts especially on water security food security and global security; and the report should be clear on this matter. (El Mallah, Fatma, League of Arab States)	No action - comment not specific.
553	SPM	5	17	0	0	There is 'at most' medium confidence that droughts will intensify (Webb, Robert, NOAA)	The chapter 3 assessment is 'medium confidence'. Paragraph has been expanded to better support this assessment.
554	SPM	5	17	5	19	Rewrite, needs rephrasing. (NETHERLANDS)	Statement has been revised.
555	SPM	5	17	5	21	The AR4 concluded that in general the dry places will become drier. (Stone, John M R, Carleton University)	SREX is an updated assessment based on available literature. Note that dry place becoming dryer does not necessarily translate to drought changes.

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
556	SPM	5	17	5	21	"medium confidence that regions include...." -- what about the regions not spelled out here? Will those not be affected by drought or do they just result in a different uncertainty assessment (Stocker, Thomas, IPCC WGI TSU)	see #553.
557	SPM	5	17	5	21	It is important to recognise that they may be areas within regions not mentioned that will be susceptible to drought; part of this may be due to the resolution of climate models used in reaching this conclusion. (Darch, Geoff, Atkins & University of East Anglia)	This is one reason which preclude a higher level of confidence.
558	SPM	5	17	5	21	The chapter makes a distinction between intensity and duration. Does the use of intensity here also encompass duration? (Goodess, Clare, Climatic Research Unit)	Statement here is based on underlying chapter executive summary which only refers to 'intensify'.
559	SPM	5	17	5	21	Rephrase as follows: There is medium confidence that droughts will intensify in the 21st century in some seasons and areas, due either to an enhanced precipitation deficit or to evapotranspiration excess. So far ensembles of model simulations cannot provide results concerning droughts of sufficiently unanimity such as to provide guidance at specific regional levels across the globe. There is medium confidence that regions that will be affected by an intensification of drought at the end of the 21st century include the Mediterranean, Central Europe, Central North America, and southern Africa. See Figure SPM.2. [3.5.1] (FINLAND)	Statements have been revised based on updated Chapter 3 assessment.
1073	SPM	5	17	5	21	"... in the 21st century.." is vague. It is not the same that this will occur now or at the end of the century. Please, be more specific and refer also this outcome to a given scenario, if it is the case. (Moreno, Jose, University of Castilla - La Mancha)	See #1071. Please note that revised SPM figure 2 (now 3) includes two time frames for the 21st century.
560	SPM	5	18	0	0	Used the wrong qualifier for confidence -- limited is a qualifier for evidence. Change to "Confidence is 'medium' because of ..." (Webb, Robert, NOAA)	Agree - sentence revised.
561	SPM	5	18	0	0	Can you clarify this technical language? (Nightingale, Katherine, Christian Aid)	Sentence revised.
562	SPM	5	18	5	18	Often both enhanced precipitation deficit AND evapotranspiration excess. (Darch, Geoff, Atkins & University of East Anglia)	Revised to and/or.
563	SPM	5	18	5	18	Do you mean Potential evapotranspiration excess? Better yet, delete '...due to ... excess' because it may be too technical for the policymaker level. (UNITED STATES OF AMERICA)	Sentence revised.
564	SPM	5	19	5	21	It is surprsing that this statement has only "medium confidence", considering that Figure SPM.2 apparently comprises various regions where >90% of the models agree on the sign of the chance. (The actual statement cannot be verified because of the insufficient quality of the reproduction of Fig. SPM.2.) (Fuessel, Hans-Martin, European Environment Agency)	Yes, but the actual confidence is modified by other factors including confidence in the models.
565	SPM	5	19	5	21	is there an assessment fro the Australasian region? (NEW ZEALAND)	Regional assessments are in Table 3.3.
566	SPM	5	19	5	21	Looking at the graph, it seems there is agreement over other areas too - e.g. Northern Brazil, Northwest Africa. Why have these been left out of the statement here? (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	The regional areas indicated have now been revised based on the updated Chapter 3 ES.
567	SPM	5	21	0	0	The Middle East region has been forgotten although it is shown to be clearly impacted in Figure SPM.2 (International Petroleum Industry Environmental Conservation Association (IPIECA))	The parts of the Middle East that show consistency are included in the Mediterranean region.

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
568	SPM	5	21	0	0	Central Europe is not included in the chapter summary bold text. (Goodess, Clare, Climatic Research Unit)	The regional areas indicated have now been revised based on the updated Chapter 3 ES.
569	SPM	5	21	5	21	southern' should be 'Southern' (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	To be addressed by the copy-editors.
570	SPM	5	21	5	21	I would have thought this should indicate "central and southwestern North America" given the results from the expansion of the subtropics. I would also note that the regional modifiers to "North America" and to "Europe" should not be capitalized. (MacCracken, Michael, Climate Institute)	Regions listed are based on comprehensive chapter 3 assessment, not speculation about expansion of subtropics. Agree regarding capitalization.
571	SPM	5	23	5	31	FIGURE SPM.2. Why is this figure different from Figure 3.10? They are from the same study. (UNITED STATES OF AMERICA)	The SPM version of the figure does not include seasonal plots, but annual plots should now be identical to Chapter 3 figure (Figure 3.9).
572	SPM	5	23	5	31	FIGURE SPM.2. These may not necessarily be the best drought indicators. CDD (consecutive dry days) is a poor measure of drought. Mean change in soil moisture is not really a drought index. Literature cited in chapter 3 contains better measures of extremes, or unusually low water availability. The choice of drought metric will affect the regions identified as having increased drought risk (e.g. Central North America). One example to consider for a better figure is Sheffield and Wood, Climate Dynamics 2008, Figure 9. (UNITED STATES OF AMERICA)	Chapter 3 had long discussions about the problems with drought metrics. Part of the reason this figure is included is to show some of the inconsistencies between metrics. See also box 3.3 in Chapter 3.
573	SPM	5	24	5	24	Figures from Orlowsky and Seneviratne 2011 as they stand may cause problems if included in SPM as there is no indication they are bullet-proof. There is not enough details here nor in Orlowsky and Senevirante 2011 on how these figures are produced. (Zhang, Xuebin, Environment Canada)	Supplementary information provides detailed instructions to reproduce all SPM figures.
574	SPM	5	24	5	31	How much confidence can we have in projected changes in soil moisture given that its representation is highly model dependent? Wouldn't an average of indices indicating relative changes in soil moisture be more robust (and perhaps also more informative) than an average of absolute values in this case? (Zwiers, Francis, Environment Canada)	This was changed in the figure also following review of underlying paper. Now relative changes (in units of standard deviation) are provided.
575	SPM	5	26	5	26	deviation from the climatology' - give reference period. (Stocker, Thomas, IPCC WGI TSU)	Caption revised.
576	SPM	5	30	5	31	The "stippling" referred to in the legend of Fig. SPM.2 cannot be seen in the figure (most likely due to insufficient size and/or resolution of the figure in the PDF file available for review). (Fuessel, Hans-Martin, European Environment Agency)	Figure quality has been improved.
577	SPM	5	31	5	31	An SPM should not contain external references. Orlowsky and Seneviratne., should be replaced with 'based on Fig 3.10'. (Stocker, Thomas, IPCC WGI TSU)	Agreed. Caption revised.
578	SPM	5	33	0	0	supprimer anthropogenic, car l'attribution du changement climatique n'a pas sa place dans le SREX (voir OG4). (BOURRELIER, PAUL-HENRI, AFPCN)	Done - sentence revised.

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
579	SPM	5	33	0	0	what is the definition of "flood" here? Presumably river flood, as extreme sea levels are discussed further below. There is a general problem with the definition of flood in the SPM and Chapter 3. Technically, what is meant is river discharge, as this is what is being observed in records and what is being modelled. There are very few models actually simulating changes in flood extent, duration and depth due to climate change. This needs to be corrected, or at least acknowledged that other processes determine flood occurrence and characteristics, than pure discharge rates (NETHERLANDS)	Statement has been revised to take this issue into account.
580	SPM	5	33	5	33	"The magnitude and even the sign ... are uncertain", this can also be interpreted as the "changes are small". There is a need for clear text here. (Zhang, Xuebin, Environment Canada)	Statement has been revised to take this issue into account.
581	SPM	5	33	5	33	are uncertain: use uncertainty guidance note (GERMANY)	Statement has been revised.
582	SPM	5	33	5	33	To make this statement more clear, we suggest changing it to "the magnitude and even the sign of any influence by anthropogenic climate change on global patterns..." (UNITED STATES OF AMERICA)	Statement has been revised.
583	SPM	5	33	5	33	The assertion that the impacts of floods are likely to increase (line 51) in most regions, seems at odds with the assertion that the sign of any changes is uncertain (line 33) (UNITED STATES OF AMERICA)	Factors other than changes in hazards can affect impacts (eg, changes in exposure and vulnerability).
584	SPM	5	33	5	34	How is the statement "The magnitude and even the sign of any anthropogenic influence on global patterns of floods are uncertain" any different than an increase/decrease/or no change due to future anthropogenic climate change is "about as likely as not". Suggest you use the informative language from Chapter 3, page 3, line 27 "The magnitude and even the sign of any anthropogenic influence on global patterns of floods are uncertain, and causes of regional changes in floods are complex; thus there is low confidence (due to limited evidence as well as to low agreement of projections) in projections of changes in flood magnitude and frequency" (Webb, Robert, NOAA)	Statement has been revised.
585	SPM	5	33	5	34	Please explain for a non-IPCC audience why "magnitude and even sign of anthropogenic influence on global patterns of floods are uncertain" and projected changes receive low confidence. Note that line 51 on regional floods impacts states they are projected to increase. Kindly make the global-regional differentiation clearer here if relevant. (UN-International Strategy for Disaster Reduction (IUN/ISDR))	The regional statement referred to on line 51 referred to impacts. Factors other than changes in hazards can affect impacts (eg, changes in exposure and vulnerability).
1074	SPM	5	33	5	34	".. anthropogenic influence on .. floods.." is misleading because it encompasses two effects; changes in catchments characteristics and in rainfall due to anthropogenic climate change. Please, clarify what you are referring to. As in the other statements, time and scenarios for the outcomes should be provided. In addition, you indicate that knowledge is uncertain, but uncertainties are part of the assessment. Use the confidence table to indicate that evidence is low. (Moreno, Jose, University of Castilla - La Mancha)	Statement has been revised.
586	SPM	5	33	5	36	Delete the first sentence as the attribution of floods to anthropogenic influence is not the task of SREX. In contrast the trend in magnitude and/or frequency of floods is clearly policy relevant with a view on response measures. Therefore we propose setting the second sentence "An increase in the magnitude...projected to increase." in bold face type. (GERMANY)	Statement has been revised.

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
587	SPM	5	33	5	36	The statement of low confidence in projected changes in global patterns of floods due to anthropogenic influence needs to be reconciled with the previous page's statement of a likely increase in frequency of heavy precipitation around the globe. These statements might be reconciled with a clarification on a difference in time scales. (CANADA)	Statement has been clarified.
588	SPM	5	33	5	36	Specify information on the increase in the magnitude and/or frequency in regions (SPAIN)	Too much detail for SPM. Available regional detail is provided in the underlying chapter assessment.
589	SPM	5	33	5	37	Ditto. Also what level of uncertainty is implied by "anticipated"? (Stone, John M R, Carleton University)	Statement has been revised. 'Anticipated' has been deleted.
590	SPM	5	33	5	37	The greater confidence in drought projections compared to flood projections should be checked. For the UK for example, there is much greater confidence in winter increases in precipitation than in summer reductions in precipitation. Basic physics also suggests greater moisture holding capacity which will contribute higher rainfall for many areas. (Darch, Geoff, Atkins & University of East Anglia)	Confidence levels provided in SREX are the result of the comprehensive assessment of the available literature by Chapter 3.
591	SPM	5	33	5	37	It seems to me it would help to be explaining that climate zones are shifting, and, for example, the northward shift in storm tracks across North America is going to lead (indeed, is already leading) to heavier precipitation occurring more often further north in central North America--dumping more water (or snow) than this area's river channels have been used to handling, and so some record floods have been occurring. That is, it needs to be said that flooding can occur from an excess of rain or from the surface geography not being suited to the amounts of precipitation that have occurred elsewhere (this is perhaps saying that the vulnerability of regions to floods can vary, and shifts of climate zones/storm tracks can thus cause more floods even if storms do not intensify. [I'd also like to ask a question--as the storm tracks shift poleward, the subtropical area where evaporation is dominant increases in area (though perhaps losing some area at its equatorward edge) and the mid-latitude and polar area where water vapor condenses is contracting, and so does not this alone mean that precipitation will be going up to keep the global water cycle in balance--so does not this alone mean there will be a tendency for more flooding in the poleward shifting storm track zone?]) (MacCracken, Michael, Climate Institute)	While we may suspect what the reviewer is saying is correct, it is difficult to find multiple lines of evidence in the published literature to support his suspicions. Moreover, several processes affect floods beside precipitation, for instance also snow melting and evapotranspiration of soil moisture, which are e.g. affected by temperature and radiation in addition to precipitation.
592	SPM	5	33	5	37	The sentence in bold is not easy to understand for a policymaker, e.g. the meaning of "global pattern". The next sentence should in our view be included in the bold because the regional changes are important. (NORWAY)	Statement has been revised.
593	SPM	5	34	5	36	Here is another example of a statement that would be true even in an unperturbed climate (chaotic internal variability means that there will be increases in some basins, and decreases in others). Somehow this needs to convey the notion that the projected changes in magnitude and/or frequency lie beyond changes that might occur due to natural internal variability. (Zwiers, Francis Environment Canada)	Statement has been revised. Clearer link to heavy precipitation projections is now provided.
594	SPM	5	34	5	36	It is unclear what confidence is attached to line 34 - 36. (UNITED STATES OF AMERICA)	Statement has been revised.

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
595	SPM	5	34	5	36	Consider explaining the 'anticipation' aspect in this sentence with the following language: "Nevertheless, simple physical reasoning suggests that projected increases in short-term (i.e., daily) and/or long-term (i.e., monthly) rainfall extremes would contribute an increasing tendency to magnitude and/or frequency of rain-generated floods". (UNITED STATES OF AMERICA)	Statement has been revised. 'Anticipated' has been deleted.
596	SPM	5	35	5	37	"short-term" and "long-term", perhaps say "short-duration" and "long-duration", as "long-term" may be interpreted as "long-term trend". (Zhang, Xuebin, Environment Canada)	Statement has been revised. Both 'short-' and 'long-term' have been deleted.
597	SPM	5	36	5	36	Please include where extreme rainfall is projected to increase. (UN-International Strategy for Disaster Reduction (UN/ISDR))	Refer to SPM Fig. 3b.
598	SPM	5	37	0	0	Add: 'In urbanized areas there is a trend towards higher vulnerability and exposure through more paved areas, buildings and transport infrastructure and deforestation in streambeds, and elsewhere in the rivercatchment areas, and hence less infiltration and more surface run-off. Further exposure results from human made constrictions in the streambed.' (NETHERLANDS)	This paragraph regards changes in physical impacts, without consideration of vulnerability and exposure.
599	SPM	5	39	5	45	The headline statement is just repeated at the end of the paragraph. It would be more useful to know what the potential changes in ENSO and monsoons are. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	Statement has been revised and shortened.
600	SPM	5	41	5	42	Delete the sentence "Land use changes and aerosols from biomass burning appear to influence monsoons, but these effects are associated with large uncertainties." since this is not expert judgement but expert speculation given the lack of any cited literature. (Webb, Robert, NOAA)	Statement has been removed from the SPM.
601	SPM	5	41	5	42	Is there evidence that the effects of changing land use change and biomass burning aerosols related to changes in extreme events? Given that the effects on precip and monsoons are uncertain. (GERMANY)	See #600.
602	SPM	5	41	5	42	Is is necessary to 'highlight' this point in the SPM? It is not so prominent in the chapter text - which also discusses other important uncertainties not mentioned here. (Goodess, Clare, Climatic Research Unit)	See #600.
603	SPM	5	41	5	42	The effect of land use on climate is reflected here through monsoons, but this document needs a more prominent statement about land use and climate extremes in general. (UNITED STATES OF AMERICA)	Other reviewers requested that this specific statement here on land use changes should not be elevated to the SPM due to the associated large uncertainty - statement has been deleted from the SPM.
604	SPM	5	42	5	45	It seems to me that mention should be made that a problem with adequately reproducing ENSO, etc. has been a result of limited spatial resolution and computer resources--and that it is likely that the quality of results will improve over the next few years as more computer resources become available and finer resolution models can be run. (MacCracken, Michael, Climate Institute)	Speculation. Not appropriate for SPM.
605	SPM	5	47	0	0	- "the future". How far in the future? 10 years? 50 years? Short, medium or long term? And what magnitude of rise are we talking about? Presumably there's more detail later on. Would be good to have a little more quantification of this one up front. (Sea level rise is a very visual concept and usually of interest to public and senior policy makers.) (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	Quantification of the link between mean and extreme sea level can't be provided. See chapter 3 for a more detailed discussion.

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
606	SPM	5	47	0	0	Suggest defining the phrase "extreme sea level" (CANADA)	Refer to the SPM box 1 for definition of 'extreme event', and the SREX glossary for the definition 'sea level change'. See chapter 3 for more detail .
607	SPM	5	47	5	48	"Future changes to significant wave height are likely to be .." is not informative. I suspect you mean "Future negative or positive in significant wave height are likely to be .." as stated in Chapter 3, page 3 line 22 (Webb, Robert, NOAA)	Statement referring to wave height has been removed from the SPM. This suggestion has been included in the underlying chapter 3 text .
608	SPM	5	47	5	49	This assessment (particularly on the causes of projected SWH change) seems to contradict the much more cautious assessments of projected changes in tropical and mid-latitude cyclones. (Zwiers, Francis, Environment Canada)	Statement referring to wave height has been removed from the SPM. However, we disagree with the comment about the contradiction in assessments .
609	SPM	5	47	5	49	In which way, Hs will change : increase ? (International Petroleum Industry Environmental Conservation Association (IPIECA))	Direction of change will depend on change in storms.
610	SPM	5	47	5	49	This finding has a higher confidence level compared to those addressed in the above text. It is suggested to move these lines to page 4, line 44. (Radunsky, Klaus, Umweltbundesamt GmbH)	Reject - ordering principle for the statements in the SPM is not based on the level of confidence of a finding.
611	SPM	5	47	5	49	sea level rise can also induce higher water levels in rivers and lead to worse floods upstream. This is briefly noted in section 3.5.5. We suggest to mention this effect also here. (BELGIUM)	Coastal inundation is now specifically mentioned in the revised SPM statement on Sea level extremes .
612	SPM	5	47	5	49	Can you provide more information on what sea level rise projections are in different regions? (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	No, not for extremes.
613	SPM	5	47	5	49	This seems to me far too little to be saying about the effects of sea level rise, which, combined with storm surges, will likely be contributing to some of the largest and most significant disasters in the future. That both the Greenland and Antarctic ice sheets are both already losing mass seems very likely to mean that sea level rise will be much greater than the net zero change (with some uncertainty) that AR4 projects as a result of all processes other than ice dynamics. It is thus seeming more and more likely that overall sea level rise might be a meter over the 21st century-- and with storm surge, the likelihood of disasters would seem to be rising significantly over coming decades. (MacCracken, Michael, Climate Institute)	The contribution of sea level rise to increased extreme sea levels is clearly identified here.
614	SPM	5	47	5	49	Please add at the end:" ...and will have negative impact on coastal erosion and coastal ecosystem degradation". (UN-International Strategy for Disaster Reduction (UN/ISDR))	Coastal erosion and inundation are now specifically mentioned in the revised SPM statement on Sea level extremes based on the Chapter 3 assessment.
615	SPM	5	47	5	49	Is it the mean sea level rise that will contribute to upwards trends in extreme sea levels in the future? Or is it whatever is contributing to the mean sea level rise that will contribute to upwards trends in extreme sea levels in the future? It doesn't seem accurate that the level is a contributing factor. It is just a measurement surely? (Nightingale, Katherine, Christian Aid)	No action - Statement is clear. Sea level rise is not just a measurement, it is a physical quantity.

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
616	SPM	5	47	5	49	What was the direction of the change? Also, there is some ambiguity in the language. Do you mean to say that changes in significant wave height are likely? (UNITED STATES OF AMERICA)	The statement on wave height has been removed from the SPM. However, the direction of change depends upon changes in storms - this is discussed elsewhere in SPM.
617	SPM	5	47	5	49	It might be considered to include a bold text like: "Future changes to significant wave height are likely and the consequences of this will be aggravated by expected mean sea level rise". (NORWAY)	Reject, SPM statements are based on underlying Chapter 3 assessment.
618	SPM	5	50	0	0	As this is now talking about physical impacts, suggest having a sub-heading here. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	Subheadings have been introduced.
619	SPM	5	51	0	0	Change to "In most regions, the impacts of heatwaves, wildfires, droughts, and floods (fluvial and coastal) are projected to increase" (Webb, Robert, NOAA)	This paragraph has been deleted.
620	SPM	5	51	5	51	How is the 'severity of impacts' quantitatively defined? (Stocker, Thomas, IPCC WGI TSU)	This paragraph has been deleted.
621	SPM	5	51	5	51	This is the first time wildfires are mentioned as an extreme - suggest they be mentioned earlier on in the section (CANADA)	This paragraph has been deleted.
622	SPM	5	51	5	51	The assertion that the impacts of floods is likely to increase (line 51) in most regions, seems at odds with the assertion that the sign of any changes is uncertain (line 33) (UNITED STATES OF AMERICA)	Factors other than changes in hazards can affect impacts (eg, changes in exposure and vulnerability).
623	SPM	5	51	5	52	Very importantly, it should be made clear that this is the case only when no adaptation (planned or autonomous) is taken. (NETHERLANDS)	No longer relevant--this paragraph has been deleted.
624	SPM	5	51	5	54	Why are the impacts of pluvial floods projected to increase in most regions while changes in cyclone impacts are uncertain? The text in lines 33-34 above suggests that "even the sign of any anthropogenic influence on global patterns of floods are uncertain". Hence, increases in the impacts of floods must be driven primarily by increases in exposure and vulnerability. However, why are changes in cyclone impacts uncertain when there are also significant increases in exposure in cyclone-prone regions? (Fuessel, Hans-Martin, European Environment Agency)	No longer relevant--this paragraph has been deleted.
625	SPM	5	51	5	54	It would be very useful if this statement on the severity of impacts, which is based on Chapter 4 material, could be split into subsections separately covering heatwaves, wildfires, droughts, floods, and cyclones, in analogy to how the information from Chapter 3 is covered in the SPM. At the level of an SPM, a projection can not be provided without an associated level of uncertainty/confidence included, which is firmly grounded in the underlying chapter assessment. (Stocker, Thomas, IPCC WGI TSU)	No longer relevant--this paragraph has been deleted.
626	SPM	5	51	5	54	Severity of impacts of floods likely to increase due increased vulnerability/exposure rather than increased rainfall? These seem to be statements made elsewhere and should be clarified here. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	No longer relevant--this paragraph has been deleted.
627	SPM	5	51	5	54	This is the most useful summary statement so far - so perhaps should be brought forward to at least above the comments on individual extremes and impacts e.g. to pg 4 line 28. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	No longer relevant--this paragraph has been deleted.
628	SPM	5	51	5	54	This conclusion gives information which is already given in previous conclusions (NETHERLANDS)	No longer relevant--this paragraph has been deleted.

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
629	SPM	5	51	5	54	This statement has many flaws. The authors are cramming all of the impact information into these two sentences. Consider breaking this section down into a further elaboration of specific impacts where assessments have been made. (UNITED STATES OF AMERICA)	No longer relevant--this paragraph has been deleted.
630	SPM	5	51	5	54	Don't you mean to say that the projected increase is largely driven by changes in exposure and vulnerability? Projected changes in climate extremes alone do not justify this statement. (UNITED STATES OF AMERICA)	No longer relevant--this paragraph has been deleted.
631	SPM	5	51	5	54	Second sentence does not need to be bolded. Also, there is no likelihood associated with this particular impact. (UNITED STATES OF AMERICA)	No longer relevant--this paragraph has been deleted.
632	SPM	5	51	5	54	Consider also a reference to chapter 4, section 4.2.2 about feed-back effects etc. (NORWAY)	No longer relevant--this paragraph has been deleted.
1075	SPM	5	51	5	54	This statement captures virtually all of the items covered in chapter 4, which is very insufficient to give the policy makers with a minimal view of what impacts (which sectors) and where (which regions) are, and when, expected to be affected by changes in extremes. (Moreno, Jose, University of Castilla - La Mancha)	No longer relevant--this text has been deleted.
633	SPM	5	51	6	9	Some passages from the topic of "Extreme impacts and Successful Paths to adaption" (chapter 4, p. 14 - 16) should be integrated here (GERMANY)	No longer relevant--this paragraph has been deleted.
634	SPM	5	52	0	0	What specifically is meant by cyclone impacts here? And how does they differ from the impacts referred to at the top of page 6? It's not very informative just to say that something is 'uncertain'. (Goodess, Clare, Climatic Research Unit)	No longer relevant--this paragraph has been deleted.
635	SPM	5	52	5	54	This is a trivial statement, should be deleted. (GERMANY)	No longer relevant--this paragraph has been deleted.
636	SPM	5	53	5	53	This chapeau is very important but there is not any text describing and supporting it. It should be added text with information on the more relevant projected impacts of extremes mentioned in the chapeau, including regional information . (SPAIN)	No longer relevant--this paragraph has been deleted.
637	SPM	6	0	0	0	Section D: Introduction is clear, easy to read and useful. Text is condensed and well structured. (No commenting on the content.) (GERMANY)	Noted
638	SPM	6	0	0	0	Section D should summarize completely within this section and in a more integrated way the chapters 5 to 7 (from local to international) (GERMANY)	The revision of this section (now section C) has aimed to provide further integration.
639	SPM	6	0	8	0	Risk transfer, sharing of residual risk and insurance solutions are not reflected in the SPM as extensively as they are dealt throughout the 9 chapters of the report. The educational issue about the links between risk reduction measures and risk transfer options should be emphasized As indicated above in general remarks on the report, reference should be made to the contrasted situations, even in developed countries, where the situation is often far from exemplative to consider by developing countries. Focus is too much on "novel forms of insurance", whereas classical forms of insurance, in partnership with State and/or floodplain management authorities, are in a trend to develop in many countries and should at least be emphasized as a good practices. (NLISSRALIM, Roland, Mission Riques Naturels)	Risk sharing and transfer now receive further treatment in the SPM.
640	SPM	6	0	9	0	What is the difference in focus between section D and E? There is a lot of duplication and some for some paras it is not clear where they belong. For example the para in E about international framework (p8 16-21) addresses experiences within UNISDR/HFA, i.e. risk management issues and could therefore be moved to section D. Streamlining and clarification of the foci of the sections D and E are needed. (GERMANY)	The corresponding sections (now C and E) have been further distinguished and clarified.

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
641	SPM	6	0	10	0	There is also overlap of sections D and E with section F. Streamlining and clarification of the foci of these sections are needed. (GERMANY)	The corresponding sections (now C and E) have been further distinguished and clarified.
642	SPM	6	1	6	1	It is suggested to include the following policy relevant finding of chapter 4 (page 4, lines 1 to 3): There is robust evidence and gigh agreement that deforestation induces decreases in precipitation and increase in local temperatures in tropical areas. It is very likely that a dryer and warmer local climate will excaberate forest fires. (Radunsky, KLaus, Umweltbundesamt GmbH)	That finding does not appear in the chapter 4 Final Draft executive summary.
643	SPM	6	1	6	4	this paragraph contains different subjects, consider deleting the second sentence) (NETHERLANDS)	The material in this paragraph has been very substantially revised and clarified in the chapter 4 executive summary and thus in the SPM, addressing these points.
644	SPM	6	2	0	0	the bolded statement here fits well with the 1st 2 sentences, but the last statement on line 8 seems to address a different topic that seems deserving of its own treatment. For instance, there could be an additional point along the lines of, "Confidence in our projections of losses due to weather and climate-related disasters is low. Indirect and intangible losses are rarely addressed." (Dow, Kirstin, University of South Carolina / Carolinas RISA)	The material in this paragraph has been very substantially revised and clarified in the chapter 4 executive summary and thus in the SPM, addressing these points.
645	SPM	6	2	6	3	"impacts of ... disasters" seems at least a bit circular (something becomes a disaster when impacts are large). To express this clearly, should "disasters" be replaced with "extremes"? (Zwiers, Francis, Environment Canada)	The material in this paragraph has been very substantially revised and clarified in the chapter 4 executive summary and thus in the SPM, addressing these points.
646	SPM	6	2	6	4	This paragraph is not logical. It starts by saying that projections are based on 'unchanging' vulnerability and exposure, yet then says the confidence is low because these projections include vulnerability and exposure. If vulnerability and exposure are 'unchanged' in the projections, does this not mean that in fact, vulnerability and exposure are NOT included in the projections. (Stocker, Thomas, IPCC WGI TSII)	The material in this paragraph has been very substantially revised and clarified in the chapter 4 executive summary and thus in the SPM, addressing these points.
647	SPM	6	2	6	4	What is meant with "unchanging exposure and vulnerability"? constant with time? No adaptation measures? The second sentence contradicts the first: if exposure and vulnerability are unchanging in the projections, how can that be included "infrequently"? (GERMANY)	The material in this paragraph has been very substantially revised and clarified in the chapter 4 executive summary and thus in the SPM, addressing these points.
648	SPM	6	2	6	4	This line repeats itself. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	The material in this paragraph has been very substantially revised and clarified in the chapter 4 executive summary and thus in the SPM, reducing repetition.
649	SPM	6	2	6	4	The bold summary statement is unclear - it appears to be saying the same thing twice, in two different ways. Suggest concatenating/rephrasing e.g. 'Projections suggest that impacts of weather- and climate-related disasters will increase with climate change. However...(as written) (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	The material in this paragraph has been very substantially revised and clarified in the chapter 4 executive summary and thus in the SPM, addressing such issues of clarity.

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
650	SPM	6	2	6	4	These two sentences are confusing. The first says projections are based on unchanged exposure and vulnerability. The second implies that some do include such changes. The new point in the second sentence relates to non-climate changes - so maybe emphasise this (though some of these presumably affect exposure and vulnerability). (Goodness, Clare, Climatic Research Unit)	The material in this paragraph has been very substantially revised and clarified in the chapter 4 executive summary and thus in the SPM, addressing such issues of clarity.
651	SPM	6	2	6	4	The reference to unchanging exposure and vulnerability may cause confusion. Alternative phrasing: Medium to long term projections that decompose contributions to impacts into changes in exposure and vulnerability and changes in climate indicate that climate change does contribute significantly to aggravation of impacts in many cases. Yet, non-climate factors, such as urbanisation, often seem to have larger contributions in case no planned adaptation is realised. Projected future etc.... (existing text).. (FINLAND)	The material in this paragraph has been very substantially revised and clarified in the chapter 4 executive summary and thus in the SPM, addressing such issues of clarity.
652	SPM	6	2	6	4	The first two bold sentences do not make sense, especially when taken together. It is difficult to discern what is the primary argument that the authors are trying to make in this paragraph. Also, ensure that the scientific support is properly referenced and revised. (UNITED STATES OF AMERICA)	The material in this paragraph has been very substantially revised and clarified in the chapter 4 executive summary and thus in the SPM, addressing such issues of clarity.
1076	SPM	6	2	6	4	This statement is confusing. In the first part you mention projections based on keeping exposure and vulnerability constant to evaluate what changes in climate might do. In the second, you appear to criticize this approach because it does take into consideration the changing socioeconomic, exposure and vulnerability . Please, clarify. (Moreno, Jose, University of Castilla - La Mancha)	This material has been very substantially revised and clarified.
653	SPM	6	2	6	5	This statement is unclear - could just say that in absence in a change in vulnerability there are likely to be impacts, but that most of these studies don't fully consider how vulnerabilities may change. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	The material in this paragraph has been very substantially revised and clarified in the chapter 4 executive summary and thus in the SPM, addressing such issues of clarity.
654	SPM	6	2	6	9	Although exposure is defined earlier- it seems likely to confuse the reader that climate change will have an impact despite no changed in exposure - perhaps it could be rephrased. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	The material in this paragraph has been very substantially revised and clarified in the chapter 4 executive summary and thus in the SPM, addressing such issues of clarity.
655	SPM	6	2	6	9	This paragraph is confuse, It is highly recommended to rewriting it. (SPAIN)	The material in this paragraph has been very substantially revised and clarified in the chapter 4 executive summary and thus in the SPM, addressing such issues of clarity.
656	SPM	6	2	6	9	This conclusion gives information which is already given in previous conclusions (NETHERLANDS)	The material in this paragraph has been very substantially revised and clarified in the chapter 4 executive summary and thus in the SPM, reducing repetition.

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
657	SPM	6	2	6	9	I challenge the validity of this reasoning: confidence would be "low because they infrequently include changes in non-climatic factors, exposure, and vulnerability"? There are other reasons as well: The rarer an event, the more uncertain is almost everything, first of all for very clear scientific reasons, which are climatic factors. This runs in conflict with human interest to be safe from extreme hazards, meaning we would like to know the most where we as scientists know the least. The SPM has to make it explicit that here arises friction between what science can do and what policy wishes it to accomplish (and no wishful thinking will make this friction go away). (Fischlin, Andreas, ETH Zurich)	The material in this paragraph has been very substantially revised and clarified in the chapter 4 executive summary and thus in the SPM, partially addressing these points.
658	SPM	6	3	0	0	please make clear that this is due to anthropogenic climate change, not just "climate change". (NETHERLANDS)	The material in this paragraph has been very substantially revised and clarified in the chapter 4 executive summary and thus in the SPM. Usage of the term "climate change" is consistent with the report glossary throughout the SPM.
659	SPM	6	4	6	4	Should "infrequently" actually be "frequently"? Otherwise doesn't really make sense. (NEW ZEALAND)	The material in this paragraph has been very substantially revised and clarified in the chapter 4 executive summary and thus in the SPM, addressing such issues of clarity.
660	SPM	6	4	6	4	Delete ", exposure, and vulnerability". This preposition is given in the first sentence: "Projections based on unchanging exposure and vulnerability suggest...". It therefore can not give reasons for "low confidence". (GERMANY)	The material in this paragraph has been very substantially revised and clarified in the chapter 4 executive summary and thus in the SPM, addressing these points.
661	SPM	6	5	6	6	Why do you identify the US when in all other parts of the report specific countries are not identified. Suggest you replace 'US' with 'central North America'. (Webb, Robert, NOAA)	The material in this paragraph has been very substantially revised and clarified in the chapter 4 executive summary and thus in the SPM, addressing these points.
1077	SPM	6	6	6	9	This phrase is unclear. You mean to say that "For the studies.... that the expected impacts of changes in exposure are as least as large as...". Based on this, it means that impacts will increase because both, exposure and events will increase. Nothing about vulnerability? (Moreno, Jose, University of Castilla - La Mancha)	This material has been very substantially revised and clarified.
662	SPM	6	8	6	8	I would suggest rewording to say "losses have only rarely" (MacCracken, Michael, Climate Institute)	The material in this paragraph has been very substantially revised and clarified in the chapter 4 executive summary and thus in the SPM, addressing these points.

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
663	SPM	6	8	6	9	This last sentence is redundant with page 2, line 20-24. Consider where this statement is most appropriately placed. (UNITED STATES OF AMERICA)	The material in this paragraph has been very substantially revised and clarified in the chapter 4 executive summary and thus in the SPM, reducing repetition.
664	SPM	6	9	0	0	Confidence in projections that include changes in non-climatic factors, exposure and vulnerability is low since the sets that may be compared are too small. (NETHERLANDS)	The material in this paragraph has been very substantially revised and clarified in the chapter 4 executive summary and thus in the SPM, addressing these points.
665	SPM	6	12	0	0	This section seems to me to continue to reflect the tension between the climate change adaptation and disaster management communities. The balance and tenor of it are uncomfortable. The paragraph beginning on line 20, to me gives a sense of protesting too much. It is the only paragraph with bullet points underneath it in this chapter. (Dow, Kirstin, University of South Carolina / Carolinas RISA)	Improving this balance has been considered in the revision of the section (now section C).
666	SPM	6	12	0	0	That detailed treatment of relevance with a statement like "Whether or not disaster risk management specifically incorporates climate change, disaster risk management is an important component of adaptation" is in some ways redundant and seems unnecessarily defensive about the value of disaster management. That said I think that the headline is also too strong and not entirely correct. It is quite possible that disaster risk management may increase adaptation without including climate change. It is also possible that disaster risk management which does not incorporate climate change runs the risk of fostering path dependence and contributing to significant maladaptation. I think a caveat would be appropriate here. (Dow, Kirstin, University of South Carolina / Carolinas RISA)	This text has been deleted, and the point made here has been considered in the revision of the section.
667	SPM	6	12	0	0	This is particularly important because later paragraphs go on to make statements like (p8,l7), "The integration of disaster risk reduction and climate change adaptation into national development provides the foundation for strategic shifts in managing vulnerability and climate risks." That is only true if the disaster risk reduction specifically incorporates climate change. The combination of business-as-usual disaster management with forward-looking climate change adaptation will not achieve the same positive, strategic result. (Dow, Kirstin, University of South Carolina / Carolinas RISA)	The point made here has been considered in the revision of the section.
668	SPM	6	12	0	0	il serait préférable pour la lisibilité que le titre de D soit parallèle à celui de E, la l'un sur l'état actuel, l'autre sur les changements. (BOURRELIER, PAUL-HENRI, AFPCN)	The titles of both sections have been revised.
669	SPM	6	12	0	0	Please consider the role of the private sector due to disaster prevention and climate change adaptation and refer to the international discussion. It is not sufficient mentioning only "public-private partnerships" (p 7 22). (GERMANY)	The mentioned text has been deleted.

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
670	SPM	6	12	0	0	In Section D. a table and/or diagram should be added summarizing the relevant information (SPAIN)	The revision of this section has aimed to maximize clarity of presentation. Although a table has not been added, conceptual figures have been added, with expansion of the table in the 1st order draft.
1078	SPM	6	12	0	0	There are no confidence or likelihood statements in this section! (Moreno, Jose, University of Castilla - La Mancha)	Uncertainty language is now used throughout the SPM.
671	SPM	6	12	6	12	I would suggest that you introduce the term "integrated risk management" in this section (Wehrli, Andre, European Environment Agency)	Integration is discussed, although this term is not introduced.
672	SPM	6	12	6	12	Part D: This is a very essential part. The author did a good strength. However some suggestions are suggested: reduced a bit the whole text from line 14 page 6 to line 24 page 7. (Mata, Luis Jose , IMF)	The revision of this section has focused on concise presentation.
673	SPM	6	12	6	24	This section should focus on where we might expect disasters to increase, based on projections (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	The revision of this section (now section C) has focused it on current knowledge with the subsequent sections providing more future oriented information.
674	SPM	6	12	7	24	Shows no recognition of the roles of national and international standards. An example of their importance is shown by Circular A-119 of the United States Office of Management and Budget which directs agencies to use such standards in lieu of government-unique standards except where inconsistent with the law or otherwise impractical. <standards.gov/standards-gov/a119.cfm#1>. The website standards.gov provides extensive links and references to the national and international standards literature. (Wright, Richard, American Society of Civil Engineers)	Information presented in this section reflects the findings of the underlying chapter Executive Summaries.
675	SPM	6	12	7	24	The example of the Asian tsunami might provide some interesting insights. Communities were rebuilt to protect them from future tsunamis but with a little imagination they could have also been protected from extreme climate and weather extremes such as storm surges. We have to look for win-win solutions. See duplication with p 8, lines 23-31 (Stone, John M R, Carleton University)	This report focuses on weather and climate related extreme events.
676	SPM	6	12	7	24	If possible, include in chapter D a figure or a table of best practices of risk management to clarify for policy makers how risks could be managed. (FINLAND)	The revision of this section has aimed to maximize clarity of presentation, although a table has not been added. Conceptual figures are now included as part of the SPM.
677	SPM	6	12	7	24	Section D, general comment: in this section there are many mixed references to disaster risk management and reduction, it is important to use "disaster risk reduction" consistently and use "disaster risk management" only when it refers to specific measures for implementation. (UN-International Strategy for Disaster Reduction (UN/ISDR))	The revision of the section (now section C) has insured that usage of these terms is consistent with the definitions presented in SREX glossary.

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
678	SPM	6	14	0	0	the first line in this paragraph addresses both risk management and climate change adaptation policies, but following statements do not address adaptation policies. Adaptation policies are quite new relative to disaster management so that is difficult to judge them on the same metric. Perhaps adaptation policies should be removed from the opening line of this paragraph or alternatively, an additional sentence should be added that specifically addresses adaptation. (Dow, Kirstin, University of South Carolina / Carolinas RISA)	No longer relevant--this text has been deleted.
679	SPM	6	14	0	0	l'ordre des alinéas est peu satisfaisant : par exemple, il est maladroit de commencer par écrire que les mesures prises sont déficientes pour ensuite les détailler pour leur caractère de modèle... (BOURRELIER, PAUL-HENRI, AFPCN)	No longer relevant--this text has been deleted.
680	SPM	6	14	6	15	how can extreme weather and climate events be avoided? You can at most avoid huge impacts (better: reduce their impacts) (Wehrli, Andre, European Environment Agency)	Good point; this text has been deleted.
681	SPM	6	14	6	15	this is too negative in my perception: there have been many (mostly developed) countries that have been very successful in managing disaster risk. Loss of life has decreased or not increased dramatically almost everywhere around the globe. A distinction between types (income levels) of countries and risk cultures should be made here. (NETHERLANDS)	No longer relevant--this text has been deleted.
682	SPM	6	14	6	18	I might be helpful and illustrative to give some examples here of gaps in national and local policies that have increased disaster risk. (Kankaanpää, Susanna, HSY Helsinki Region Environmental Services Authority)	No longer relevant--this text has been deleted.
683	SPM	6	14	6	18	We suggest adding the following informative sentences from Chapter 7 (page 4, lines 16-17) here or in another part of this section: "The problems of disaster risk have continued to grow due to the relentless expansion in exposure and vulnerability even as the international management capacity has expanded. It is a race against time". (NORWAY)	No longer relevant--this text has been deleted.
684	SPM	6	15	0	0	Replace 'Improvements in disaster risk management' with 'Advances in disaster risk management' to be consistent with "Advances in disaster risk management" on line 20, page 6 at the beginning of the next paragraph (Webb, Robert, NOAA)	No longer relevant--this text has been deleted.
685	SPM	6	15	6	15	...sufficient to avoid...: it is impossible to "avoid" weather events, change language (GERMANY)	Good point; this text has been deleted.
1079	SPM	6	15	6	17	Please, reconcile this sentence with page 2, line 37 in which it is stated that in some places vulnerability has been decreasing, and with page 3 line 39 that in some cases exposure and in others vulnerability has increased disaster losses. (Moreno, Jose, University of Castilla - La Mancha)	No longer relevant--this text has been deleted.
686	SPM	6	16	6	16	in harms way?? (GERMANY)	No longer relevant--this text has been deleted.
687	SPM	6	17	6	17	replace "harm's way" with something more common to the non-native english speaking readership. Harms's way is in fact a geographical location. (Stocker, Thomas, IPCC WGI TSU)	No longer relevant--this text has been deleted.
688	SPM	6	17	6	18	A strong statement referring to gaps in policy and suboptimal management as a cause of 'increased disaster risk' MUST be supported with a level of agreement/degree of certainty statement, which is firmly grounded in the underlying chapter assessment. (Stocker, Thomas, IPCC WGI TSU)	No longer relevant--this text has been deleted.
689	SPM	6	17	6	18	Have these policy gaps really increased the risk? Or did they just not decrease the risks as much as better policies? (UNITED STATES OF AMERICA)	No longer relevant--this text has been deleted.

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
690	SPM	6	20	0	0	change to 'may offer lessons" (Webb, Robert, NOAA)	No longer relevant--this text has been deleted.
691	SPM	6	20	6	20	Consider the following change in the bold text: "Advances in disaster risk management offers lessons for improved adaptation to climate change." (NORWAY)	No longer relevant--this text has been deleted.
692	SPM	6	20	6	26	This paragraph needs to emphasize the point that communities and individuals have a significant affect on disaster risk reduction and are not just victims. This is one of the most important lessons learned from the DRR activities and very relevant to CCA. (UNITED STATES OF AMERICA)	This text has been deleted, and the point made here has been considered and incorporated in the revision of the section.
693	SPM	6	20	6	41	The headline statement is not elaborated in the text that follows. (Stone, John M R, Carleton University)	No longer relevant--this text has been deleted.
694	SPM	6	20	6	41	How useful is it to provide that many unspecific references to the underlying report combined a the bottom of the section, but before the bulletized list? Need to provide the source for these statements to each of the individual bullets. (Stocker, Thomas, IPCC WGI TSU)	This text has been deleted, and clarity of line of sight for cited sections has been insured in the revision of the section.
695	SPM	6	20	6	49	From UNISDR's perspective this may be the single most important bullet list of the SPM and the report. It needs to be strengthened dramatically to be useful to policy makers. Each bullet should refer to the chapter from where it is derived, rather than compiling the list in the chapeau. A great concern is the omissions in the bullet list; we suggest including at least two more bullets as follows: one bullet on funding for measures that reduce disaster risk and promote adaptation. The bullet should clarify the need for funding to reach local levels. Another bullet on the communication of risk knowledge (not only for warnings), education and training. (UN-International Strategy for Disaster Reduction (UN/ISDR))	Although this bullet list has been removed, the points made here have been considered and addressed more fully in the revision of SPM.
696	SPM	6	21	6	22	Please rephrase: ..."including measures aiming at reducing risk and managing uncertainty, prevention, mitigation, (delete reduce risk), transfer and share residual risk..." (UN-International Strategy for Disaster Reduction (UN/ISDR))	No longer relevant--this text has been deleted.
697	SPM	6	23	6	23	Please consider adding "and willingness" after "the capacities of governments or agencies to act". (UN-International Strategy for Disaster Reduction (UN/ISDR))	No longer relevant--this text has been deleted.
698	SPM	6	25	6	26	Replace "lessons learned" with "key findings" -- learned by whom? Experts, policy-makers, public? If in fact these are 'lessons learned' from a comprehensive assessment given in SREX why are two chapter introductory sections cited here (1.1 and 5.1)? Such introductory sections only provide the outline and scope for each chapter, so can not possibly contain robust, assessed 'lessons learned' that can be raised to the level of the SPM. (Stocker, Thomas, IPCC WGI TSU)	No longer relevant--this text has been deleted.
699	SPM	6	25	6	41	One of the most important lessons learned from DRR is the importance of participation of communities or people at risk at all levels of managing risk from planning, implementation, enforcement to taking action. Please consider including. (UNITED STATES OF AMERICA)	This text has been deleted, and the point made here has been considered and incorporated in the revision of the SPM.
700	SPM	6	26	6	41	For clarity and traceability I would place the chapter/section references at the end of each bullet point for which they are relevant, rather than listing them all before the bullet points start. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This text has been deleted, and clarity of line of sight for cited sections has been insured in the revision of the section.
701	SPM	6	27	6	41	There is too much detail for a SPM. Adjust (reduce as a summary) these lines or maybe eliminate them all. (Mata, Luis Jose , IMF)	No longer relevant--this text has been deleted.

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
702	SPM	6	27	6	41	l'énumération est faite dans une vision trop statique qui n'incorpore pas les progrès scientifiques et l'innovation (voir OG 9) pour la vigilance (early warning), les secours ainsi que l'aide humanitaire, les normes de construction, des techniques de communication, des réseaux sociaux, des outils de visualisation et d'éducation... (BOURRELIER, PAUL-HENRI, AFPCN)	No longer relevant--this text has been deleted.
1080	SPM	6	27	6	41	I suggest that a box be made with lessons learned incorporating the messages emerging from the various chapters including chapter 9 (Moreno, Jose, University of Castilla - La Mancha)	A box has not been included, but conceptual figures have been added. The table also features information from all chapters including Chapter 9.
703	SPM	6	27	9	22	This section would benefit from more tangible examples of where disaster risk reduction might overlap with adaptation action and where it may do in the future. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	Such overlap and common themes have been highlighted in the revision of this section.
704	SPM	6	28	6	28	We suggest adding "with subnational reach to promote local implementation" after "led by organizations at the highest political level". (UN-International Strategy for Disaster Reduction (UN/ISDR))	No longer relevant--this text has been deleted.
705	SPM	6	28	6	28	"led by organizations at the highest political level, and integrated into economic development, urban planning and environmental management efforts." suggest adding 'urban planning'. (UNITED STATES OF AMERICA)	No longer relevant--this text has been deleted.
706	SPM	6	30	6	30	This bullet reads in a rather circular way, stating that legislation supporting managing disaster risk is more effective in part if there is management legislation that explicitly integrates risk considerations. (Global Climate Observing System Steering Committee)	No longer relevant--this text has been deleted.
707	SPM	6	30	6	30	We suggest reformulating this bullet so that it focuses on the most important aspects that legislation must guide: access to funding for implementation and coordination of all sectors/actors in implementation at various levels. Or copy chapter 6, page 15, lines 44-46. (UN-International Strategy for Disaster Reduction (UN/ISDR))	No longer relevant--this text has been deleted.
708	SPM	6	30	6	31	The assertion that legislation is more effective if the regulations are clear and enforced seems to be almost true by definition. Would it be possible to instead state that in several nations, legislation failed to reduce risk because the regulations were unclear or not enforced? Or possibly list the approaches that did and did not work well? (UNITED STATES OF AMERICA)	No longer relevant--this text has been deleted.
709	SPM	6	34	6	34	Databases of physical observations (GERMANY)	No longer relevant--this text has been deleted.
710	SPM	6	36	6	38	We agree and suggest adding that climate change requires we improve capacities to manage ecosystems as past climatic patterns do not necessarily hold true for the future. (UN-International Strategy for Disaster Reduction (UN/ISDR))	This bullet has been deleted, with the topic addressed briefly in a different context in a subsequent section.
711	SPM	6	37	6	37	We suggest "... coastal wetlands and biodiversity are essential risk management measures helping to reduce disaster risk across..." (UN-International Strategy for Disaster Reduction (UN/ISDR))	This bullet has been deleted, with the topic addressed briefly in a different context in a subsequent section.
712	SPM	6	39	6	41	We fully agree although UNISDR calls the last component "preparedness to respond". It would be useful to add that the weakest link in the chain is usually dissemination and communication. (UN-International Strategy for Disaster Reduction (UN/ISDR))	This bullet has been deleted, with the topic addressed briefly in a different context in a subsequent section.

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
713	SPM	6	39	6	41	Integration of EWS components is essential in reaching the goal of early warning. Failure of one component leads to failure of the entire system. (UNITED STATES OF AMERICA)	This bullet has been deleted, with the topic addressed briefly in a different context in a subsequent section.
714	SPM	6	40	6	40	Please add "...management of risk (hazard and vulnerability) knowledge, such ..." (UN-International Strategy for Disaster Reduction (UN/ISDR))	This bullet has been deleted, with the topic addressed briefly in a different context in a subsequent section.
715	SPM	6	40	6	41	It is worth mentioning here response preparedness as well as response since there is a link to EW also (part V of the Hyogo Framework for Action) (Brooke, Roy, United Nations)	This bullet has been deleted, with the topic addressed briefly in a different context in a subsequent section.
716	SPM	6	42	6	42	Please add bullets based on chapter 5 regarding risk knowledge and communication of risk. Also please add bullets on the need for education based on chapter 2, pg 41, lines 10 to 48. (UN-International Strategy for Disaster Reduction (UN/ISDR))	This bullet has been deleted, with the topic addressed briefly in a different context in a subsequent section.
717	SPM	6	43	0	0	Please rewrite to "incorporate risks associated with climate change". (NETHERLANDS)	No longer relevant--this text has been deleted.
718	SPM	6	43	6	44	The sentence misses the causal connection between disaster risk, climate change and adaptation. We propose to rewrite the sentence as follows: "As vulnerability and exposure is indirectly influenced by climate change (p.2, l.27) and the impacts of weather- and climate-related disasters will increase with climate change (p.6, l.3) disaster risk management should incorporate climate change and will act as important component of adaptation to climate change." (GERMANY)	No longer relevant--this text has been deleted.
719	SPM	6	43	6	44	The sentence "Whether or not disaster risk management specifically incorporates climate change" could give the message for non experts that it is not important to incorporate climate change in disaster risk management . We suggest to delete it and to insert climate change before adaptation. Suggested amended text for the chapeau: "Disaster risk management is an important component of climate change adaptation" (SPAIN)	No longer relevant--this text has been deleted.
720	SPM	6	43	6	44	Climate change will affect disaster risk management, so why wouldn't disaster risk management incorporate this? (UNITED STATES OF AMERICA)	No longer relevant--this text has been deleted.
721	SPM	6	43	6	48	Ditto. Also what level of uncertainty is implied by "anticipated"? (Stone, John M R, Carleton University)	No longer relevant--this text has been deleted.
722	SPM	6	43	6	48	Suggest reviewing the bolded sentence, as it means something slightly different than the sentences following it - in fact, the last sentence talks about increased synergy, not that DRR is a component of adaptation. (CANADA)	No longer relevant--this text has been deleted.
1081	SPM	6	47	6	49	This is an important sentence that merits to be bolded since it conveys important message as to policy makers. (Moreno, Jose, University of Castilla - La Mancha)	No longer relevant--this text has been deleted.
723	SPM	6	48	6	48	Insert "climate change" before adaptation policy. ".... risk management and climate change adaptation policy and practice..." (SPAIN)	No longer relevant--this text has been deleted.
724	SPM	6	48	6	48	We suggest: "... separation or lack of integrated governance between disaster..." (UN-International Strategy for Disaster Reduction (UN/ISDR))	No longer relevant--this text has been deleted.
725	SPM	6	49	6	49	Why is an introductory section to a chapter cited (1.1)? Section 1.1 provides the outline and scope for SREX, so can not possibly contain robust, assessed new information that should be raised to the level of the SPM. (Stocker, Thomas, IPCC WGI TSU)	No longer relevant--this text has been deleted.
726	SPM	6	51	6	51	We suggest: 'reduction' instead of 'management' (UN-International Strategy for Disaster Reduction (UN/ISDR))	No longer relevant--this text has been deleted.

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
727	SPM	6	51	6	52	We suggest that the following words are added to the sentence: "...in order to avoid suboptimal strategies." (NORWAY)	No longer relevant--this text has been deleted.
728	SPM	6	51	7	2	While the statement "In the absence of comprehensive, multi-stressor analyses, measures implements to reduce one risk can amplify other sources" is academically correct, it is operationally impractical at the local scale. A qualifier is needed to not deter local action where the capacity to undertake such analysis is absent. The statement makes adaptation seem overwhelming and misleadingly difficult. (CANADA)	No longer relevant--this text has been deleted.
729	SPM	6	52	0	0	Error?: stressfactors in stead of stressors? (NETHERLANDS)	This text has been deleted, although the word "stressors" was intended.
730	SPM	7	1	7	2	It is useful to provide examples to illustrate the general proposition, but this parenthetical list does not spell out the examples well enough for someone to see them as illustrative of the general statement. Adding 2-3 sentences to explain the concepts may help. (UNITED STATES OF AMERICA)	No longer relevant--this text has been deleted.
731	SPM	7	2	7	2	We suggest adding: "Similarly, adaptation activities in one sector may aggravate risk in another." (UN-International Strategy for Disaster Reduction (UN/ISDR))	No longer relevant--this text has been deleted.
732	SPM	7	3	7	3	Consider to develop a figure to illustrate the complexity of the portfolio of strategies and the multiple stressors mentioned in the previous paragraph. (NORWAY)	No longer relevant--this text has been deleted.
733	SPM	7	4	7	4	consider changing 'cannot' to 'should not' (AUSTRALIA)	No longer relevant--this text has been deleted.
734	SPM	7	4	7	4	We fully agree and believe that this point could be further strengthened. It is important not only to understand "the diverse ways that social processes contribute...to risk" but also to ensure that measures taken to reduce risk reduction and to adapt are embedded and address these social processes. So line 4 could read "understanding and addressing". An example would help to clarify also. (UN-International Strategy for Disaster Reduction (UN/ISDR))	No longer relevant--this text has been deleted.
735	SPM	7	4	7	5	After reading many qualified statements about what we know, it is quite jarring to see the unqualified statement that climate change adaptation can not be effectively pursued without understanding how society increases and decreases risks. Even more so because the statement seems questionable...Do we really know that every society who adapted to climate change understood the diverse ways that social processes increased risk, with greater confidence (for example) than our expectation that the number of hot days will increase? Must every town that builds a dike or family who moves to a colder location first understand all of these social processes? (This statement may arise from the novel definition of adaptation, which includes anticipation but excludes responding to existing changes. Some sections use the novel definition, while other sections use the more traditional definition which includes responses.) (UNITED STATES OF AMERICA)	No longer relevant--this text has been deleted.
736	SPM	7	4	7	5	We think the word "understanding" is not enough to cover what is meant here. It is also important that the understanding is used consider "taking into account" instead. (NORWAY)	No longer relevant--this text has been deleted.
1082	SPM	7	6	7	8	This sentence conveys also an important message for PM and merits highlighting (Moreno, Jose, University of Castilla - La Mancha)	No longer relevant--this text has been deleted.
737	SPM	7	7	7	7	We suggest to add 'housing, land use' between 'livelihoods' and 'infrastructure'. Important to stress housing and land use as key policy areas for building safety and location and resilience. (UN-International Strategy for Disaster Reduction (UN/ISDR))	No longer relevant--this text has been deleted.

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
738	SPM	7	8	0	0	Consider adding: 'availability alone is no guarantee for the use of new technology.' (NETHERLANDS)	No longer relevant--this text has been deleted.
739	SPM	7	8	7	8	Why is an introductory section to a chapter cited (1.1)? Section 1.1 provides the outline and scope for SREX, so can not possibly contain robust, assessed new information that should be raised to the level of the SPM. (Stocker, Thomas, IPCC WGI TSU)	No longer relevant--this text has been deleted.
740	SPM	7	8	7	8	We suggest including at the end an additional sentence: "Most importantly, risk awareness of populations determine how individuals and communities manage their risks and how far they can go in requiring public authorities (local and national) to invest in reducing and managing risk." (UN-International Strategy for Disaster Reduction (UN/ISDR))	No longer relevant--this text has been deleted.
741	SPM	7	10	7	10	The whole paragraph is very prescriptive. (Mata, Luis Jose , IMF)	No longer relevant--this text has been deleted.
742	SPM	7	10	7	10	is "penetration" the correct word here? (Stocker, Thomas, IPCC WGI TSU)	No longer relevant--this text has been deleted.
743	SPM	7	10	7	11	This key finding would benefit by inclusion of the conclusion related to "the degree of success" described in line 14. (NORWAY)	No longer relevant--this text has been deleted.
744	SPM	7	10	7	15	An important factor in new technology penetration not mentioned is culture and local knowledge. If the new technology is not culturally accepted or compatible with local knowledge or practices, it will be more difficult to be accepted (Castellanos, Edwin, Universidad del Valle de Guatemala)	This text has been deleted, although this point has been included in material in the revised SPM.
745	SPM	7	10	7	15	l'alinéa (Penetration of new technologies) sous-estime les capacités des populations pauvres ; celle-ci montrent une capacité remarquable à combiner les moyens traditionnels d'assurer la sécurité par des solidarités, le nomadisme, la mémoire orale... avec les technologies avancées (mobiles, Internet...) qu'elles assimilent de façon surprenante, La pauvreté est certes un facteur de vulnérabilité mais la présentation déséquilibrée ne répond pas à la réalité des capacités des groupes humains. Les sociétés dites avancées ont leurs faiblesses, et celles-ci ont des conséquences non seulement sur leur vulnérabilité mais aussi sur la vulnérabilité globale. (BOURRELIER, PAUL-HENRI, AFPCN)	No longer relevant--this text has been deleted.
746	SPM	7	10	7	15	rather than analysis about what determines the penetration of new technologies, policy makers would benefit from knowing what are the new technologies for adaptation they should consider. (UN-International Strategy for Disaster Reduction (UN/ISDR))	No longer relevant--this text has been deleted.
747	SPM	7	10	7	15	It seems strange to include this discussion, which was a minor part of the underlying chapter and not highlighted in the chapter Executive Summary. If it is to be included, at a minimum there needs to be a justification of why new technology is essential for DRR or CCA and what are the impediments of the new technology? (UNITED STATES OF AMERICA)	No longer relevant--this text has been deleted.
1083	SPM	7	10	7	15	Many factors... is very vague, and hardly invites PM to do react I was wondering if this message could be encapsulated in a more efficient way to signal PMs what is important to insure technology penetration into disaster risk management and cc adaptation (Moreno, Jose, University of Castilla - La Mancha)	No longer relevant--this text has been deleted.

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
748	SPM	7	11	7	11	This is one example, where developing countries are singled out, but this seems to be by far not the only/most relevant example of developing countries being affected particularly strongly. It would be useful to have such indications related to the factors/aspects where this is most relevant. (GERMANY)	This text has been deleted, although effects for developing countries are discussed elsewhere in the revised version of the SPM.
749	SPM	7	13	7	14	Please put the end of the sentence as follows: ".....supply of basic services such as electricity and water, health care and family planning." (GERMANY)	No longer relevant--this text has been deleted.
750	SPM	7	17	7	17	Phrase with a lot of nuisance (imposition) characteristics. (Mata, Luis Jose , IMF)	Clarity of presentation has been insured in the revision.
751	SPM	7	17	7	23	We suggest replacing this paragraph with information about how countries currently fund disaster risk reduction measures, why this is insufficient and how they might finance complementary adaptation activities. The paragraph as it stands reads like propaganda for internationally funded insurance and does not reflect the good discussion in chapter 7. (UN-International Strategy for Disaster Reduction (IIN/ISDR))	This section is not about funding, but using risk transfer. We have substantially revised the text.
752	SPM	7	17	7	24	The language of this statement is too positive. Contrast this paragraph with page 8 line 24 where it says that international funding for disaster risk management is low. The first paragraph refers to financing, the second one to funding, but at the end, both refer to money to prepare for disasters. The statement in the second paragraph is more accurate as the money available for disaster management in developing countries is low and definitely not enough in spite of international efforts. (Castellanos, Edwin, Universidad del Valle de Guatemala)	Agreed, and we have substantially revised the text.
1084	SPM	7	19	7	22	The point here is not only what is being done but whether you send the message that this should be done based on the confidence that you have in your assessment (Moreno, Jose, University of Castilla - La Mancha)	This text has very substantially revised. The aim, however, is to reflect what has been learned from experience.
753	SPM	7	22	7	23	what do you mean by "pre-disaster risk reduction measures"? Why not only talking about "disaster risk reduction measures" (since they focus on prevention and preparedness anyway) (Wehrli, Andre, European Environment Agency)	No longer relevant--this text has been deleted.
754	SPM	7	27	0	0	Assessment of uncertainty and associated uncertainty statements are completely missing from this section (one exception on page 9, lines 18/19)! (Stocker, Thomas, IPCC WGI TSU)	Calibrated uncertainty language is now used across the SPM.
755	SPM	7	27	0	0	titre à rendre parallèle à celui de D (p6) (BOURRELIER, PAUL-HENRI, AFPCN)	The titles of both sections have been revised.
756	SPM	7	27	7	28	The title should include "mitigating" after "avoiding", and "recovering" after "responding" (UN-International Strategy for Disaster Reduction (UN/ISDR))	The title of this section has been revised. Given the dual meanings of "mitigation" in the DRM and climate change contexts, we do not use the term here to avoid confusion. "Recovery" is mentioned in the context of post-disaster recovery, but the scope of this section is broader than this addition would imply.
757	SPM	7	27	7	28	Avoidance of disasters or impacts of disaster risk and extremes are almost impossible in a real world. We recommend replacing it with "mitigation of" or "lessening or reducing impacts of" (mitigation is a better word but due to climate change mitigation we rarely use the word mitigation). (UNITED STATES OF AMERICA)	Agreed--the use of "avoid" has been avoided.

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
758	SPM	7	27	9	22	It is suggested to include in this subchapter of the SPM additional important and policy relevant findings included in chapter 9.3: a.) Adequate response strategies require good knowledge of the risks of disasters. Additional research is required to improve our knowledge and such research needs to include an integration of natural, social, health and engineering science and their applications (from page 81, lines 46 to 49). b.) It is better (more cost efficient?) to invest in preventative and adaptation based tools than in the response to extreme events. (page 82, lines 14, 15). Investment in increasing knowledge and warning systems, adaptation techniques and tools and preventive measures will cost money now, but may save money and lives in the future (page 82, lines 19 to 21). (Radunsky, Klaus, Umweltbundesamt GmbH)	These topics are further addressed in the revised SPM.
759	SPM	7	30	7	31	Suggested rewording: Integrated approaches to the assessment and understanding of risk provide the foundation for actions to prepare for, and respond to extreme weather and climate events and to avoid disasters. Reason: make it clear(er) that you do not talk about avoiding extreme weather and climate events (which is not possible). (Wehrli, Andre, European Environment Agency)	Agreed--the use of "avoid" has been avoided.
760	SPM	7	30	7	31	is a very important idea. Therefore, it should mentioned what type of risk is included, is it related to extreme events and disaster? is it responding to extreme weather (it was not defined in SPM1). Why extreme weather is included here? Perhaps, the whole paragraph needs to be re structured given that it is very approachable. (Mata, Luis Jose, IMF)	No longer relevant--this text has been deleted.
761	SPM	7	30	7	31	Should include "mitigate" after "avoid", and "recover" after "respond" (UN-International Strategy for Disaster Reduction (UN/ISDR))	No longer relevant--this text has been deleted.
762	SPM	7	30	7	38	We fully agree. The lead sentence could be bolder by taking out "integrated approaches to the". Instead the sentence would read "Risk assessment and understanding provide the foundation...". Not sure what "cultural worldviews and preconceptions" refers to. (UN-International Strategy for Disaster Reduction (UN/ISDR))	No longer relevant--this text has been deleted.
763	SPM	7	30	7	39	The text in this para is too much of a text-book type of description. Please highlight what is the most policy relevant finding in bold. Is it only that the approaches need to be integrated? or could other aspects be included in the bold text. As for the rest of the text we believe it is not so important to the policymakers what the tools depend on but rather what is needed in order to perform an effective risk management (NORWAY)	No longer relevant--this text has been deleted.
764	SPM	7	30	7	54	High relevance of this page and the author's proposals: deserve to be emphasized and further developed. Does give the redline of a true low regret stewardship. (FRANCE)	This has been taken into consideration in revisions.
765	SPM	7	30	9	22	Section SPM.E With three chapters about risk management in the report we believe it should be possible to distil more concrete and policy relevant findings in this section E of the SPM. The section should in our view say more about what actions to do before (planning, forecasts), during and after an extreme event. Furthermore, the key message from the following sentences in Ch 8 (p7, lines 18-20) could be simplified and included in the SPM: "In neither the case of DRR or adaptation, however, has the record been encouraging to date in reducing vulnerabilities in practice, particularly in developing countries. The exception to date is the large number of lives saved over the last decade attributed to improved disaster early warning systems." (NORWAY)	This section has been very substantially revised, based on the revisions of the underlying chapters. Providing concrete and policy relevant findings has been the focus.

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
766	SPM	7	32	7	32	Please add between 'stakeholder' and 'involvement', "awareness and". (UN-International Strategy for Disaster Reduction (UN/ISDR))	No longer relevant--this text has been deleted.
1085	SPM	7	34	7	39	I found these two sentences very complicated. This is an SPM and the messages should be as clear as possible for those that are expecting this to make decisions (Moreno, Jose, University of Castilla - La Mancha)	No longer relevant--this text has been deleted.
767	SPM	7	35	0	0	Will policy makers know what is meant by asymmetric reactions to gains and losses? Maybe good to clarify. (Nightingale, Katherine, Christian Aid)	No longer relevant--this text has been deleted.
768	SPM	7	36	7	38	The statement about risk perception and the importance of effective communication exchange is a key message for policy makers. It should appear as a bolded statement in a stand alone paragraph with supporting text. (CANADA)	The SPM now includes a paragraph on risk communication and perception.
769	SPM	7	37	7	38	We agree and see risk perception and communication as key issues that deserve a separate paragraph (based on chapters 1,2,5...) (UN-International Strategy for Disaster Reduction (UN/ISDR))	The SPM now includes a paragraph on risk communication and perception.
770	SPM	7	38	7	38	We suggest adding at the end, "...with all stakeholder groups, aiming at developing a culture of prevention, requiring a paradigm shift from perceiving disasters as 'acts of god' and focusing on preparing to respond to them, to the new understanding that disasters are mostly due to human and social vulnerability, which can be reduced, hence focusing on risk and vulnerability reduction measures." (UN-International Strategy for Disaster Reduction (UN/ISDR))	No longer relevant--this text has been deleted.
771	SPM	7	41	7	41	We suggest to add between 'Effective risk' and 'management', "reduction and". (UN-International Strategy for Disaster Reduction (UN/ISDR))	Text has been revised to include mention of risk reduction.
772	SPM	7	41	7	51	This paragraph describes an adaptive management approach. (Darch, Geoff, Atkins & University of East Anglia)	This paragraph has been revised to include mention of adaptive management.
773	SPM	7	42	0	0	to shorten statement delete "of risk prevention, reduction, and response policies and measures" (Langniss, Ole, Fichtner GmbH & Co KG)	No longer relevant--this text has been deleted.
774	SPM	7	42	7	42	We suggest between 'prevention' and 'and response', add 'mitigation, preparedness'. (UN-International Strategy for Disaster Reduction (UN/ISDR))	No longer relevant--this text has been deleted.
775	SPM	7	43	0	0	to shorten statement delete "and makes adjustments...conditions" since the statement starts already with "iterative" which basically means also continuous adjustments (Langniss, Ole, Fichtner GmbH & Co KG)	No longer relevant--this text has been deleted.
776	SPM	7	47	0	0	On page 7 line 47, it is preferable to read "mainstreaming disaster risk management into policies and practices" as follows "integrating disaster risk management into policies and practices". Mainstreaming gives the impression as if you hide something, where as integrating means you deal with something in full recognition. (El Mallah, Fatma, League of Arab States)	This phrase is no longer used.
777	SPM	7	47	7	48	"Principles include mainstreaming disaster risk management and climate change adaptation into policies and practices..." suggest adding 'climate change adaptation'. (UNITED STATES OF AMERICA)	This text has been deleted, but a statement in line with the suggestion is made in section C.
778	SPM	7	47	7	49	for sake of clarity suggest rewording "Principles include..." to read "Best practic management principles..." (NEW ZEALAND)	No longer relevant--this text has been deleted.

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
779	SPM	7	48	7	48	We suggest between 'into' and 'policies', add 'sectoral'. Also between 'quality of life' and 'infrastructure', add 'land use, housing, health, education, agriculture,' (important to give a wider perspective of sectors). (UN-International Strategy for Disaster Reduction (UN/ISDR))	This text has been deleted, but similar text is now in section C. The focus in this new statement is on development policies at multiple scales.
780	SPM	7	50	7	50	It would be important to specify the more relevant barriers and opportunities. (SPAIN)	No longer relevant--this text has been deleted.
781	SPM	7	53	8	1	This statement is difficult to understand. We suggest "...when they include national and sub-national planning and coordination, knowledge of local conditions and experiences, as well as support local empowerment..." (UN-International Strategy for Disaster Reduction (UN/ISDR))	No longer relevant--this text has been deleted.
782	SPM	7	53	8	14	We believe the need for regulations and institutional arrangements related to spatial planning; water, land use and coastal zone management should be highlighted in one of these two sections. This is important in order to avoid areas of high risk and to maintain and create buffer zones. See box 8-3 in ch 8. (NORWAY)	Sustainable land management, including land use and zoning, is now mentioned in the context of low-regrets actions.
783	SPM	7	54	7	54	"Strategies for improving local disaster risk reduction and climate change adaptation increase resilience when they integrate with national and sub-national planning and coordination..." suggest adding 'with'.. (UNITED STATES OF AMERICA)	No longer relevant--this text has been deleted.
784	SPM	8	0	0	0	Please insert somewhere on this page: 'Successful management of extreme events includes adequate monitoring of the relevant physical (weather, infrastructure) and socio-economic parameters, analysis and modelling, fast and effective communication in relevant terms to the exposed groups, and training adequate behaviour in both the management chain and exposed groups. (NETHERLANDS)	This text does not have line of sight to specific chapter text and thus cannot be added.
785	SPM	8	1	8	5	One of the main limitation to interaction at various levels which constraints risk management is flow of information, particularly from international and national levels to local levels. This report is one example: it contains a huge amount of valuable information but it is very unlikely that it will reach local governments and communities. (Castellanos, Edwin, Universidad del Valle de Guatemala)	The revision of the SPM has aimed to include conclusions from across the report, maximizing relevance for decision-makers at all scales.
786	SPM	8	4	8	4	We suggest between 'an important' and 'adaptation', add 'component of risk reduction and'. (UN-International Strategy for Disaster Reduction (UN/ISDR))	No longer relevant--this text has been deleted.
787	SPM	8	7	8	7	We suggest between 'development' and 'provides', add 'policies, plans and programmes'. (UN-International Strategy for Disaster Reduction (UN/ISDR))	No longer relevant--this text has been deleted.
1086	SPM	8	7	8	8	Changes are occurring and will occur in exposure, vulnerability and events. So include exposure as well here and in the whole paragraph. (Moreno, Jose, University of Castilla - La Mancha)	Information in this statement has been very substantially revised, based on the conclusions of the underlying chapter assessments.
788	SPM	8	8	8	11	Education should be mentioned as one of the main instruments to reduce vulnerability, as presented in this document in case study 9.2.11 (Castellanos, Edwin, Universidad del Valle de Guatemala)	Education and awareness are now mentioned in this section.
789	SPM	8	8	8	22	confusing: too brief to be convincing. Are we really apraising low regrets options in this paragraph?Add: "biodiversity losses and health impacts" to tle ligne 20 list of unapraised stakes. (FRANCE)	It is unclear what this comment is referring to.

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
790	SPM	8	9	8	14	We suggest that the list should include risk communication, education and training. (UN-International Strategy for Disaster Reduction (UN/ISDR))	Risk communication, education, and awareness are now mentioned in this section.
791	SPM	8	11	8	11	This para describes the role of mainstreaming/integration with national development for strategically managing climate vulnerability and risks. It seems premature to mention "ecosystem-based adaptation" in this context. While being an important concept ecosystem-based adaptation is a very recent approach compared to general poverty reduction approaches, development planning etc. Should be deleted here, and could be discussed elsewhere. (GERMANY)	This text has been revised. Ecosystem management and restoration are now mentioned in the context of low-regrets measures without specification of a national-scale focus.
792	SPM	8	13	8	13	"...early warning systems.." Here and in sections 6.3 and 6.4, consider including mention of environmental signs/warnings of imminent extreme events that are particularly useful for people in remote areas who don't have access to technological devices. (UNITED STATES OF AMERICA)	This comment has been taken into consideration in revision.
793	SPM	8	16	8	21	opposer l'international qui progresse dans l'intégration, et le national et le local qui traîneraient n'est pas conforme à la réalité. Il faudrait au contraire mentionner les Plans nationaux et les Plans d'agglomérations. (BOURRELIER, PAUL-HENRI, AFPCN)	No longer relevant--this text has been deleted.
794	SPM	8	16	8	31	UNISDR is pleased to see these points highlighted in the SPM. (UN-International Strategy for Disaster Reduction (UN/ISDR))	No longer relevant--this text has been deleted.
795	SPM	8	19	8	19	Is it appropriate to specifically mention the Hyogo Framework for Action and the UNFCCC? No other references to programs, institutions, sources of information are given in the SPM. (Stocker, Thomas, IPCC WGI TSU)	No longer relevant--this text has been deleted.
796	SPM	8	19	8	19	The Hyogo Framework for Action and UNFCCC deserve a small textbox or footnote for further clarification (FINLAND)	No longer relevant--this text has been deleted.
797	SPM	8	20	8	21	The statement about weaknesses in international support for local level implementation needs some elaboration. What are the reasons for this? Aren't disconnections between international funding and local implementation difficult across the board and not just in the DRR and CAA communities? (UNITED STATES OF AMERICA)	No longer relevant--this text has been deleted.
798	SPM	8	21	8	21	We suggest adding "...international support to national and local level..." (UN-International Strategy for Disaster Reduction (UN/ISDR))	No longer relevant--this text has been deleted.
799	SPM	8	23	0	0	This message is interesting in that it does not reference sustainable development. Sustainable development is an ongoing effort which provides a broad umbrella over disasters and climate change. I recognize that it comes up in a later section but it seems to me like the elephant in the room for this summary message. Funding tensions among development, adaptation, and disaster reduction should also be acknowledged. (Dow, Kirstin, University of South Carolina / Carolinas RISA)	No longer relevant--this text has been deleted.
800	SPM	8	23	8	23	We suggest replacing "management" with "reduction". (UN-International Strategy for Disaster Reduction (UN/ISDR))	No longer relevant--this text has been deleted.
801	SPM	8	23	8	24	We believe the message here should be that it is a significant potential for synergies and this should be added to the sentence. (NORWAY)	No longer relevant--this text has been deleted.
802	SPM	8	23	8	25	phrase erronée sur les synergies : le risk management agit sur toute la chaîne ; c'est la répartition entre le pré et le post accidentel qu'on peut discuter. (BOURRELIER, PAUL-HENRI, AFPCN)	No longer relevant--this text has been deleted.
803	SPM	8	23	8	31	References 6.4.4 and 7.4.2 does not contains related material. (JAPAN)	No longer relevant--this text has been deleted.

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
804	SPM	8	23	8	31	This statement would be more objective and constructive if it were worded in the positive: "There are potential synergies in international financing support for disaster risk management and climate change adaptation". It also needs to be pointed out that despite significant synergies, DRM and CCA are not synonymous. (CANADA)	No longer relevant--this text has been deleted.
805	SPM	8	23	8	31	Last sentence (line 29 to 31) "International efforts, combined with National-level... outcomes in resilience" is relevant to policymakers giving a clear messages. It merit to remark it in bold and to move it to the chapeau in line 24 after "to be achieved". (SPAIN)	No longer relevant--this text has been deleted.
806	SPM	8	23	8	31	If this paragraph only deals with developing countries this should be stated clearly in the text. (NORWAY)	No longer relevant--this text has been deleted.
807	SPM	8	24	8	24	We suggest replacing "management"with "reduction". (UN-International Strategy for Disaster Reduction (UN/ISDR))	No longer relevant--this text has been deleted.
808	SPM	8	24	8	25	rather use disaster risk reduction, not disaster risk management (since post-disaster reponse is a part of the latter, but not of the former) (Wehrli, Andre, European Environment Agency)	No longer relevant--this text has been deleted.
809	SPM	8	24	8	31	We suggest adding figures in this paragraph on the global spending on disaster risk management and post-disaster humanitarian response respectively, to make the point on the huge potential for saving money clearer. The potential for saving lives (if that has been estimated) should also be added. Both these points are important in order to tie climate change adaption and disaster risk reduction strategies closer together and emphasise the synergies related to the funding for these purposes internationally. (NORWAY)	No longer relevant--this text has been deleted.
810	SPM	8	27	8	27	We suggest replacing "management"with "reduction". (UN-International Strategy for Disaster Reduction (UN/ISDR))	No longer relevant--this text has been deleted.
811	SPM	8	27	8	27	We suggest between 'donors' and 'meeting', add 'having agreed common understanding of priorities between development and humanitarian spending;' (UN-International Strategy for Disaster Reduction (UN/ISDR))	No longer relevant--this text has been deleted.
812	SPM	8	30	8	31	"...synergistic outcomes in resilience" Meaning unclear, consider clarifying. (UNITED STATES OF AMERICA)	No longer relevant--this text has been deleted.
813	SPM	8	33	0	0	This section highlights the need to be more explicit about trends contributing to vulnerability. There is a focus on knowledge about frequency of extreme events, but this does not address our knowledge of other trends contributing to greater vulnerability and disaster potential (e.g., rapid growth of periurban areas). We know more about those trends than I see reflected here. (Dow, Kirstin, University of South Carolina / Carolinas RISA)	Trends contributing to vulnerability have been highlighted in the SPM as supported by the underlying report.
814	SPM	8	33	0	0	delete 'observed and projected' tp shorten statement (Langniss, Ole, Fichtner GmbH &Co KG)	The core writing team believes these terms are important to emphasize the nature of information available.
815	SPM	8	33	8	36	Do not include trivialities and obvious statements in the SPM, like the sentences "Observed and projected trends in exposure, vulnerability, and extreme events can ... implement risk management options." If unavoidable, rephrase sentences, put into context and do not use bold letters. (GERMANY)	This statement has been revised to provide a concise introduction to the table.
816	SPM	8	33	8	54	The discussion is too general. Paragraphs could be replaced with actions/programmes undertaken to reduce risk based on the large variety discussed in chapters 5-7 and 9. A summary of what has worked where to reduce risks would be most useful. (UN-International Strategy for Disaster Reduction (UN/ISDR))	This material has been revised to provide a concise introduction to the table.

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
817	SPM	8	34	8	54	We suggest replacing "management" with "reduction". (UN-International Strategy for Disaster Reduction (UN/ISDR))	Throughout the SPM, usage of these terms is consistent with the glossary.
818	SPM	8	35	8	35	As adaptation is based on the precautional principle (UNFCCC states in Art. 3 "...parties should take precautionary measures to anticipate, prevent or minimize the causes of climate change and mitigate its adverse effects. Where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing such measures...") delete "and degree of certainty". (GERMANY)	This term has not been deleted, as it indicates that such information is relevant to informing such decision-making, rather than implying that certainty is necessary for taking measures.
819	SPM	8	35	8	46	The word "certainty" needs to be changed, in 5 spots, to "confidence"--there are not degrees of certainty whereas there are degrees of confidence (as the IPCC lexicon enshrines and defines). (MacCracken, Michael, Climate Institute)	Usage of such terminology has been very carefully considered, ensuring consistency with the AR5 guidance note on treatment of uncertainties.
1087	SPM	8	42	8	54	Is there any part of this paragraph being bolded. I suggest the first two sentences. (Moreno, Jose, University of Castilla - La Mancha)	This text has been developed into the table caption. Thus, bold font has not been applied.
820	SPM	8	43	8	43	change "can inform" to "shall inform" (GERMANY)	The phrasing was not altered, in order to emphasize that these are examples.
821	SPM	8	44	8	44	add "... in infrastructure design and land use planning." (UN-International Strategy for Disaster Reduction (UN/ISDR))	This phrasing is overly specific given the revision of the paragraph, and thus it has not been included.
822	SPM	8	47	0	0	What about the temporal extent? (Koppe, Christina, Deutscher Wetterdienst)	The simplification of this text makes this comment less relevant. The phrase has not been included.
823	SPM	8	48	8	49	This vague 'some probability' statement concerning downscaling from regional to smaller scales does not appear to have come from anywhere within the underlying SREX chapters. How useful is this statement for the policymakers?. There are most certainly instances where the sign of a trend at the local scale is opposite to what might be projected at the global or regional scales. Suggest deleting the first part of this sentence and rewriting as: 'Because confidence in projected trends at smaller scales is often more limited, using global models and regional trends in extreme events to!' (Stocker, Thomas, IPCC WGI TSU)	Relevant line of sight has been added for the paragraph.
824	SPM	8	48	8	49	We think that this very important point might be highlighted more in the (bold) text. (NORWAY)	The text has not been highlighted, as it is part of the introduction of the table.
825	SPM	8	51	8	51	change "may lead" to "could lead" (GERMANY)	No longer relevant--this phrase has been deleted.
826	SPM	8	51	8	51	The word "may" needs to be changed to accord with the IPCC lexicon--or perhaps to "can" (meaning is able to) instead of "may" (meaning gave permission to). (MacCracken, Michael, Climate Institute)	No longer relevant--this phrase has been deleted.
827	SPM	8	51	8	53	The last sentence is one of the most important message for policy makers to develop strategic adaptation policy; this sentence shall be printed in boldface. (JAPAN)	The text has not been highlighted, as it is part of the introduction of the table.
828	SPM	8	51	8	53	We think that this very important point might be highlighted more in the (bold) text. (NORWAY)	The text has not been highlighted, as it is part of the introduction of the table.

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
829	SPM	8	52	8	52	unclear what "low-regrets" means in this context. Define as necessary. (UNITED STATES OF AMERICA)	The discussion of the low-regrets approaches earlier in this section should <u>provide this needed context</u> .
830	SPM	8	53	0	0	Is it possible to briefly define 'residual risk'. (Goodess, Clare, Climatic Research Unit)	No longer relevant--the term is no longer used.
831	SPM	8	53	8	53	Response preparedness is also a low-regrets risk management option that could be noted (Brooke, Roy, United Nations)	Such examples are no longer provided, given the tightening of this text that has occurred.
832	SPM	8	53	8	53	We suggest adding: "residual risk, such as risk awareness, early warning, building safety and risk transfer." (UN-International Strategy for Disaster Reduction (UN/ISDR))	Such examples are no longer provided, given the tightening of this text that has occurred.
833	SPM	9	0	0	0	Table SPM.1.: The lower box of the table (colored in green) misses a part of the text. E.g. the text in the column named "Global observed (since 1950) and projected (to 2100) trend in extreme event type" ends with "AND" without a following text passage (GERMANY)	We apologize for this error in the initial posting of the table.
1088	SPM	9	3	0	0	Table SPM1: I found this table very, very complicated. My expectation for something of this short was a more telegraphic-type of bullet points, easy to grasp. There are few graphical materials in this SPM, without them it is very hard to disseminate the findings of the assessment. (Moreno, Jose. University of Castilla - La Mancha)	The table has been streamlined and clarified.
834	SPM	9	8	0	0	Given that the history of adaptation efforts is much shorter than that of disaster management, it is not surprising that the evidence of economic efficiency is limited. Can this message be expanded to reflect knowledge of the economic efficiency of disaster management where we have a much longer track record and greater body of evidence? (Dow, Kirstin, University of South Carolina / Carolinas RISA)	No longer relevant--this has been deleted from the SPM
835	SPM	9	8	9	8	add after "fragmented.": "The costs of specific risk management and adaptation approaches should be assessed in context of the impacts of unmitigated climate change which are very likely to increase over time." (AR4, WG II TS.4.7) (GERMANY)	No longer relevant--this has been deleted from the SPM
836	SPM	9	8	9	12	Stating that there is only 'limited' and 'fragmented' evidence is very useful, even at the level of the SPM. Providing additional detail, however, is problematic because it highlights results from few available studies (as indicated by "limited" and "fragmented" in the previous summary statement). We therefore recommend deleting the additional, non-bolded information from this paragraph. (Stocker, Thomas, IPCC WGI TSU)	No longer relevant--this has been deleted from the SPM
837	SPM	9	8	9	12	This is useful information and could use more detail. When is cost-effectiveness evaluation preferable over acceptable-risk level approaches? An example of each case would be helpful. (UN-International Strategy for Disaster Reduction (UN/ISDR))	No longer relevant--this has been deleted from the SPM
838	SPM	9	8	9	12	We recommend including a discussion about the cost-effectiveness of disaster risk reduction. Suggested additions: "Evidence of the economic efficiency of specific adaptation approaches remains limited and fragmented, but it is recognised that preventive measures are often cost-effective. Expenditure on prevention is often lower than relief spending, which rises after a disaster and remains high for several years." Suggested reference: United Nations and World Bank (2010) Natural Hazards, UnNatural Disasters: The Economics of Effective Prevention. Washington, D.C.: World Bank. (World Food Programme (WFP))	No longer relevant--this has been deleted from the SPM

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
839	SPM	9	8	9	22	Exchange paras (first address costs, then efficiency) (GERMANY)	No longer relevant--this has been deleted from the SPM
840	SPM	9	10	9	12	These two sentences give policymakers practical views on how to evaluate effectiveness of adaptation options; these sentences shall be printed in boldface. (JAPAN)	No longer relevant--this has been deleted from the SPM
841	SPM	9	14	0	0	On page 9, lines 14-15 show that there are no studies that determine the cost of disaster risk management and climate change adaptation to address changing risks of drought. We need such studies. The report should stress this point. (El Mallah, Fatma, League of Arab States)	Such statements are outside the scope of an IPCC report.
842	SPM	9	14	9	22	it should be mentioned that adaptation costs is different from the damage costs. (morisugi, Hisayoshi, Nihon University)	No longer relevant--this paragraph has been deleted from the SPM
843	SPM	9	14	9	22	this statement is confusing because it is the mixture of adaptation cost and damage costs (morisugi, Hisayoshi, Nihon University)	No longer relevant--this paragraph has been deleted from the SPM
844	SPM	9	14	9	22	It would be important to include some figure or table with disaggregated information on costs. (SPAIN)	No longer relevant--this paragraph has been deleted from the SPM
845	SPM	9	16	0	0	La distinction entre les événements extrêmes et les « changements graduels » est incohérente avec la définition qui inclut les extrêmes progressivement atteints. (BOURRELIER, PAUL-HENRI, AFPCN)	No longer relevant--this paragraph has been deleted from the SPM
846	SPM	9	17	9	19	For comparison it would be helpful to provide also estimates of costs in the absence of adaptation, even though admittedly those ranges are large as well. (FINLAND)	No longer relevant--this paragraph has been deleted from the SPM
847	SPM	9	17	9	19	Please be more specific about the nature of the amounts mentioned. (4 - 100 bln. Dollar). Are these amounts corrected for purchasing power (ppp basis) and/or discounted? (FINLAND)	No longer relevant--this paragraph has been deleted from the SPM
848	SPM	9	17	9	21	The estimate range provided is so large as to provide little information. Given that the "confidence" in this overly large range is "low" it seems curious to then state that the range provided "significantly underestimate" the costs. In addition, the use of "significant" implies a statistical confidence that is neither provided nor seems likely. (Stocker, Thomas, IPCC WGI TSU)	No longer relevant--this paragraph has been deleted from the SPM
849	SPM	9	17	9	21	The estimates of global costs cited here are for adaptation broadly, not for the costs of extreme events specifically. They should be presented in the broader assessment of the AR5, but not here. If there are specific numbers for extreme events, they would be appropriate here. (CANADA)	No longer relevant--this paragraph has been deleted from the SPM
850	SPM	9	18	9	18	To which year do the estimated costs relate? (GERMANY)	No longer relevant--this paragraph has been deleted from the SPM
851	SPM	9	18	9	18	The statement "with a bias towards the higher end" may be subject to interpretation and imply that there is an unwarranted bias. Suggest replacing the phrase with something such as "with most concluding towards the higher end" (CANADA)	No longer relevant--this paragraph has been deleted from the SPM
852	SPM	9	18	9	21	The estimates of adaptation costs are good - it would be good to have a comparison of what is included in the different estimates so they can be compared. What difference does including different categories of extremes make? (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	No longer relevant--this paragraph has been deleted from the SPM
853	SPM	9	21	0	0	Is it possible to briefly define 'residual damages'. (Goodess, Clare, Climatic Research Unit)	No longer relevant--this paragraph has been deleted from the SPM
854	SPM	9	25	0	0	Toute cette partie est la répétition de ce qui a été écrit précédemment. Ne peut-on abrégé ? (BOURRELIER, PAUL-HENRI, AFPCN)	The revision of this section has aimed to reduce repetition.

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
855	SPM	9	25	0	0	Please differ more specifically in developing and developed countries because of different general conditions. The passage is very abstract, and therefore not appropriate to guide political measures. (GERMANY)	We consider many of the principles to be relevant to both developed and developing countries. The challenges for developing countries are highlighted in the chapter text but were discussed in the Executive Summary broadly in terms of sustainable development.
856	SPM	9	25	9	25	We need to define sustainable development or use a term whose meaning is clear to all. (UNITED STATES OF AMERICA)	The term is defined in the glossary and in the underlying chapters. In the SPM, it is used in a context that should make its meaning clear.
857	SPM	9	25	10	33	Consider adding point to SPM from (Ch8, P4, Line 11): "Global risk assessments show that the social and economic losses already associated with climate extremes are disproportionately concentrated in developing countries..." (UNITED STATES OF AMERICA)	We emphasize that vulnerability is concentrated in lower income countries in the SPM (page 10, lines 16-17), as the exact measure of losses is discussed on page 4, lines 26-35.
858	SPM	9	25	10	33	Consider adding point to SPM from (Ch8, P4, Line 11): "Global risk assessments show that the social and economic losses already associated with climate extremes are disproportionately concentrated in developing countries..." (UNITED STATES OF AMERICA)	We emphasize that vulnerability is concentrated in lower income countries in the SPM (page 10, lines 16-17), as the exact measure of losses is discussed on page 4, lines 26-35.
859	SPM	9	25	10	33	Section SPM.F should better highlight in bold the most important policy relevant key findings. Consider to describe ecosystems or groups of people at risk. Consider also to describe the relationship between mitigation and climate change adaptation in the context of sustainability. (NORWAY)	We have added the importance of mitigation on page 10, lines 41-43.
860	SPM	9	27	9	27	The term "socio-ecological" is unfamiliar compared to more familiar "socio-economic". Since this sentence is about human societies, suggest replacing with 'socio-economic.' (CANADA)	This term is used on page 2 line 29 and introduced in the SREX text where resilience is discussed.
861	SPM	9	27	9	27	We suggest adding the conclusion from p. 6, L. 49-51 of chapter 8, that sustainable development is an international goal that can be threatened by CC extremes. P. 5 L. 51-52 from that same chapter would also be helpful. (UNITED STATES OF AMERICA)	This is part of the context for the report discussed on page 1 -- it could be explicitly emphasized that this is an international goal that can be threatened by CC extremes; right now it is implicit.
862	SPM	9	27	9	28	There is little evidence to suggest the definitive statement in the Summary for Policymakers that "Transformational changes in socio-ecological systems can influence the capacity of societies to adapt to changes in extreme weather and climate events (medium agreement, limited evidence). The references provided in Box SPM.2 (which is section 8.6.2) point to examples from learning organizations. It is not (Lee, Arthur, Chevron Services Company)	No longer relevant--this statement has been deleted from the SPM.

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
863	SPM	9	27	9	28	Recall that this is the first sentence (key finding) of Part F. Therefore, I think the first sentence should be one with forceful confidence scale (or scale of confidence) . The indicated sentence has a very low scale of confidence (medium agreement, limited evidence). (Mata, Luis Jose , IMF)	The opening statement of this section has been changed.
864	SPM	9	27	9	28	There is little evidence to suggest the definitive statement in the Summary for Policymakers that "Transformational changes in socio-ecological systems can influence the capacity of societies to adapt to changes in extreme weather and climate events (medium agreement, limited evidence). The references provided in Box SPM.2 (which is section 8.6.2) point to examples from learning organizations. It is not (International Petroleum Industry Environmental Conservation Association (IPIECA))	No longer relevant--this statement has been deleted from the SPM.
865	SPM	9	27	9	28	The attachment of "medium agreement" to this statement could be clearer: does this mean there is also medium agreement that transformational changes CANNOT influence capacity, or does it mean there is only medium agreement that incremental changes can instead, or both? (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	No longer relevant--this statement has been deleted from the SPM.
1089	SPM	9	27	9	28	Could the authors clarify what is transformational changes in socio-ecological systems? From an ecological point of view is difficult to grasp what is meant here and a literal interpretation (fundamental changes in composition and structure) is to be avoided (we do not want to transform ecological systems). (Moreno, Jose, University of Castilla - La Mancha)	This is discussed in the text of Chapter 8, but not in the Executive summary, nor in the SPM.
866	SPM	9	27	9	32	These lines relate to findings in chapter 8. Unfortunately the Excecutive summary of chapter 8 does not address levels of uncertainty. The findings included on page 9, lines 27 to 32 have been qualified with medium agreement, limited evidence). All other findings of part FF of the SPM seem to be more robust. As those findings describe the implications for sustainable development quite well it is suggested to delete the text in lines 27 to 32 which would have the added value to also delete Box SPM.2. This deletion would help to keep the SPM short while adding some more relevant findings (see above). (Radunsky, KLaus, Umweltbundesamt GmbH)	These points have been addressed in the revision of this section. The chapter 8 executive summary now contains calibrated uncertainty language, and this section no longer opens with this statement.
867	SPM	9	27	9	32	This passage should be completed with the tenor of chapter 8 p. 15 l. 32 - 34 (GERMANY)	This material has been substantially revised.
868	SPM	9	27	9	32	- "Transformations". I know that IPCC want substantive rather than textual comments at this stage but I did find that the wording in this Para obscured rather than explained the conceptual points it contains. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	The revision of this section has aimed to enhance clarity.
869	SPM	9	27	9	46	The definition of "transformation" should be given in the BOX, not in the text (if in the text, then define at first usage, not at second as in the current version). (GERMANY)	The box has been removed, with the term used in context within the section text.
870	SPM	9	27	9	46	The discussion of transformations seems weak to me, especially as it is only supported by "limited evidence". What do the paragraph and box add to the summary? Furthermore, the statement on transformation in the summary of chapter 8 seems much more strongly worded ("Adapting...without transformational social change will be difficult") and has no level of agreement/evidence attached to it. I would suggest removing these from the SPM, or at least ensuring more consistent wording between the SPM and chapter 8. (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	This material has been substantially revised. The box has been deleted. Also, the chapter 8 executive summary now uses calibrated uncertainty language.

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
871	SPM	9	27	9	46	The current phrasing of the text patch and the following text box is so utterly generic that is better left out from SPM. It affects more like a disgrace to social sciences, which is obviously unfair given the important contribution of social sciences to this special report. Instead it would recommendable what processes and tools are needed in practice, i.e. more could be said about adaptive management needed to guide and facilitate long term encompassing change processes of which the contours are presently even not exactly known (hence adaptive management) (FINLAND)	This material has been substantially revised. The box has been deleted.
872	SPM	9	27	9	46	It is difficult to understand the discussion of transformations, is it possible to include specific examples to illustrate here? (UNITED STATES OF AMERICA)	The revision of this section has aimed to enhance clarity.
873	SPM	9	27	9	48	Clarify to which type of systems we are referring concerning transformations changes. It is not clear at all. In the chapeau (line 27) appear socio-ecological systems and in Box SPM.2 (line 46) appear socio-technical systems. However, the socio-economic systems are not mentioned (SPAIN)	This material has been substantially revised, and the revision of this section has aimed to enhance clarity. The specific terms mentioned in this comment are no longer included.
874	SPM	9	27	10	33	Section SPM.F It should also be included illustration on ways of integrating disaster risk reduction, climate change adaptation and poverty-reduction or development policy. There are various attempts to do so, including McGray, H., A. Hammill and R. Bradley, 2007. Weathering the Storm: Options for Framing Adaptation and Development. World Resources Institute, Washington, DC, USA, 57 pp; Klein, R., 2008. Mainstreaming climate adaptation into development. A Stockholm Environment Institute briefing note for the European Parliament Temporary Committee on Climate Change; Schipper, L. and M. Pelling. 2006. Disaster risk, climate change and international development: Scope for and challenges to, integration. Disasters, Volume 30, pp. 19-38; Roger Few, Henny Osbahr, Laurens M. Bouwer, David Viner, Frank Sperling, 2006. Linking climate change adaptation and disaster management for sustainable poverty reduction. Synthesis Report for Vulnerability and Adaptation Resource Group (VARG). Eriksen, S., R. Klein, K. Ulsrud, L.O. Næss, and K. O'Brien. 2007. Climate Change Adaptation and Poverty Reduction: Key interactions and critical measures. Report prepared for the Norwegian Agency for Development Cooperation (more on the overlap between vulnerability reduction and poverty reduction nexus). (NORWAY)	This is discussed on page 10, lines 19-22, where we point out that the underlying causes of poverty need to be addressed through social and economic policies in combination with risk management. However, we were not able to illustrate this in a figure.
875	SPM	9	29	9	30	Please explain what is meant by "anticipatory action" (as opposed to simply adaptation) (NEW ZEALAND)	No longer relevant--this term has been deleted.
876	SPM	9	30	0	0	souligner que la transformation répond tout autant à l'objectif de mitigation de l'effet de serre et à la raréfaction des ressources. (BOURRELIER, PAUL-HENRI, AFPCN)	This text has been substantially revised
877	SPM	9	32	9	32	What is the agreement here? is it high or low? (Mata, Luis Jose , IMF)	No longer relevant--this text has been deleted.
878	SPM	9	34	0	0	Box SPM.2: suggest to delete this box. Transformation should be defined in the Glossary as any other term. (Stocker, Thomas, IPCC WGI TSU)	No longer relevant--the box has been deleted.
879	SPM	9	36	9	36	Change the title of the box: Transformations in socio-ecological systems (FINLAND)	No longer relevant--the box has been deleted.
880	SPM	9	36	9	46	This box would benefit from some examples to illustrate the concept on transformations. Consider also a longer explanatory title. (NORWAY)	No longer relevant--the box has been deleted.

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
881	SPM	9	36	9	48	The information in this box is highly conceptual. Additional diagrams and/or examples which illustrate concrete contents of this concept is helpful to capture what the concept "transformations" really means. (JAPAN)	No longer relevant--the box has been deleted.
882	SPM	9	37	9	47	Text in Box should be streamlined. At the moment the title of the box is not really linked to its content, as many topics are touched upon. (GERMANY)	No longer relevant--the box has been deleted.
1090	SPM	9	38	9	40	Minor changes in wording: Disaster risk... and climate "change" adaptation...strategies in the context of changing climate extremes and risks will be... I deleted the word "landscape" since it might be confusing, particularly when I consider that this text needs to be translated. (Moreno, Jose. University of Castilla - La Mancha)	No longer relevant--the box has been deleted.
883	SPM	9	38	9	46	The definition seems quite academic and would benefit from real-life examples to illustrate. Also we suggest replacing "management" with "reduction". (UN-International Strategy for Disaster Reduction (UN/ISDR))	No longer relevant--the box has been deleted.
884	SPM	9	41	9	42	We suggest this addition: "... beliefs, priorities and loyalties. An ethical or principles-based approach is required as a starting point, including participatory and democratic governance as well as transparency and accountability. These need to be prerequisites to changes..." (UN-International Strategy for Disaster Reduction (UN/ISDR))	No longer relevant--the box has been deleted.
885	SPM	9	42	9	42	We suggest between 'and structures' and 'Adaptive management', add sentence: "Building resilience can only be effective as a component of the wider set of sustainability principles." (UN-International Strategy for Disaster Reduction (UN/ISDR))	No longer relevant--the box has been deleted.
886	SPM	9	50	0	0	This message highlights to me the problem of not specifying that disaster risk management is more valuable when it takes into account climate adaptation (see pg.6, ln 43). This summary continues to distinguish disaster risk reduction from adaptation at the same time it calls for greater integration. This message is an example of the unevenness in that effort. Addressing the underlying causes of vulnerability should be important goals in both disaster risk reduction and adaptation. There are many adaptive strategies and it is possible to make choices that are more effective in addressing the underlying causes of vulnerability. It is frustrating to read this important document and see the tension between the disaster risk and adaptation communities reflected in key policy messages. At some points, it seems that our internal divisions and politics impinge the ability to articulate the best advice. (Dow, Kirstin, University of South Carolina / Carolinas RISA)	The SPM now includes a statement (in section C) that vulnerability reduction is a core common element of adaptation and disaster risk management. We emphasize the importance of addressing the underlying causes of vulnerability on page 10 lines 19-22.
887	SPM	9	50	9	51	I trust there is some reference in the main report of Chapter 20 from the WGII contribution to the AR4. (Stone, John M R, Carleton University)	Material from the AR4 is extensively considered throughout report.
888	SPM	9	50	9	53	UNISDR is pleased to see this point highlighted in the SPM. (UN-International Strategy for Disaster Reduction (UN/ISDR))	Noted
889	SPM	9	50	9	53	We think that the bold text should focus on extreme events and disaster risk reduction, so a swap of bold text and the other text might be appropriate. (NORWAY)	We decided to emphasize the importance of addressing underlying vulnerability, and the second statement refers to how to do it.

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
890	SPM	9	50	9	54	There is a lot of emphasis on how disasters affect sustainable development but not much on how lack of opportunities for sustainable development leads to increases in vulnerability to natural hazards. One of the main impediments of resilience is the chronic issue of lack of economic development. Sustainable development and disaster risk reductions are intricately related. (UNITED STATES OF AMERICA)	This is addressed in the statement about prerequisite for sustainability (page 10, lines 19-122)
891	SPM	10	1	0	0	It would be clearer to use the language of thresholds and non-linear responses included in the discussion of the physical system on Page 3 line 51 ff , than to talk about surprise. (Dow, Kirstin, University of South Carolina / Carolinas RISA)	No longer relevant--this text has been deleted from the SPM.
892	SPM	10	1	10	1	Resilience-based approaches should be defined. (FINLAND)	No longer relevant--this text has been deleted from the SPM.
1091	SPM	10	1	10	1	Disturbance has not been defined in the glossary. To keep consistency, perhaps it is best to refer this to extreme events, extreme impacts or disasters, as appropriate. (Moreno, Jose, University of Castilla - La Mancha)	No longer relevant--this text has been deleted.
893	SPM	10	1	10	5	Please add in line 5 or earlier: Enhancement of resilience requires also adequate insurance systems and public financing which plans for the possibility of disaster occurrence and stresses prevention. (FINLAND)	No longer relevant--this text has been deleted from the SPM.
894	SPM	10	1	10	5	Many resilience-based approaches are not mentioned here nor in the rest of the SPM but are in the underlying chapters, such as, education and training. This might be a good place to discuss such approaches. (UN-International Strategy for Disaster Reduction (UN/ISDR))	No longer relevant--this text has been deleted from the SPM.
895	SPM	10	1	10	5	We think that the bold text is a bit too general and a highlighting of parts of the rest of the text might provide more interesting information to the reader. Furthermore, it would be useful to highlight the inter-connectedness between stressors as contained in chapter 8, page 19, lines 12-13 ("Responses to one stressor alone may inadvertently undermine the capacity to address other stressors, both in the present and future") and 17-19 ("Thus dealing with specific risks without a full accounting of the nature of system resilience can lead to responses that can potentially undermine long-term resilience."). (NORWAY)	We have included the importance of addressing multiple stressors on page 10, lines 36 and 44.
1092	SPM	10	1	10	5	I suggest a rewording of this sentence: "...humanitarian sector, and facilitating ecosystems responses to extreme events by reducing non-climatic stresses upon them, thereby increasing their ability to buffer impacts of climate change. Reasons: It is not only coral reefs and rainforest, is many other ecosystems that may benefit (reducing ignition sources in some areas decreases the chance of fire in an environment of much increased danger). (Moreno, Jose, University of Castilla - La Mancha)	No longer relevant--this text has been deleted.
896	SPM	10	2	10	3	We suggest deleting 'such as in hospitals' and replacing it with "in particular in the health, education and humanitarian sectors..." (UN-International Strategy for Disaster Reduction (UN/ISDR))	No longer relevant--this text has been deleted from the SPM.
897	SPM	10	3	10	5	The role of functional ecosystems in the context of resilience should be given much more emphasis. What does "enhancing the range and diversity of ecosystem responses" mean? The justification of the importance of functional ecosystems is well described in ch 6, however, as this is not immediately understood by policymakers, it needs to be elaborated more here. (NORWAY)	No longer relevant--this text has been deleted from the SPM.
898	SPM	10	4	10	4	When talking about coral reefs and rainforest, consider to include wetland in general. (NORWAY)	No longer relevant--this text has been deleted from the SPM.

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
899	SPM	10	4	10	5	We suggest "...reducing non-climatic stresses on all ecosystems (coral reefs, forests, mangroves, wetlands, etc.) to increase their ability (drop the parenthesis). (UN-International Strategy for Disaster Reduction (UN/ISDR))	No longer relevant--this text has been deleted from the SPM.
900	SPM	10	7	10	8	this statement is rather unclear and the following text does not increase the clarity. Maybe a concrete example would help here. Moreover, the statement is somewhat contradictory to the statement on p.10, 31-33, (Wehrli, Andre, European Environment Agency)	We have clarified the text on page 10, lines 26-27, but the examples are in the main chapter text.
901	SPM	10	7	10	12	This point could be turned into a more constructive positive statement by starting with the phrase "Resilience thinking offers tools for reconciling short-term and long-term perspectives on DRR and CCA" as the bolded statement. (CANADA)	The mentioned text has been deleted.
902	SPM	10	9	10	9	A box on resilience thinking could be helpful here. (UNITED STATES OF AMERICA)	The mentioned text has been deleted.
903	SPM	10	11	10	12	We suggest replacing last sentence "However, there is..." with the following: "The combined policies and measures contained in the Hyogo Framework for Action represent the most comprehensive pathway for managing the risks of extreme events." (UN-International Strategy for Disaster Reduction (UN/ISDR))	We do not mention the Hyogo Framework in the Executive Summary of chapter 8 (it is discussed in 8.4.4 of the main text).
904	SPM	10	12	10	12	The citation of the sections is not complete. Add 8.2.5 to the cited subsections (GERMANY)	Further relevant sections have been cited, following from the underlying chapter's conclusions.
905	SPM	10	14	0	0	this message does not need to be qualified with "long-term." Climate-related disasters currently have applications for human security, e.g. flooding in Pakistan. (Dow, Kirstin, University of South Carolina / Carolinas RISA)	No longer relevant--this text has been deleted from the SPM.
906	SPM	10	14	10	14	Are both winners and losers generated equally? Or is there evidence that more losers are generated? (Stocker, Thomas, IPCC WGI TSU)	No longer relevant--this text has been deleted from the SPM.
907	SPM	10	14	10	14	In the light of the principles of the UNFCCC (Art. 3: The specific needs and special circumstances of developing country Parties, especially those that are particularly vulnerable to the adverse effects of climate change, and of those Parties, especially developing country Parties, that would have to bear a disproportionate or abnormal burden under the Convention, should be given full consideration.) an argumentation about "losers and winners of disasters" is absolutely unacceptable in the IPCC SREX. In accordance with the mentioned principle the IPCC decided in former assessment periods to put the most vulnerable in the focus of the assessment. Please specify the statement from this viewpoint. (GERMANY)	No longer relevant--this text has been deleted from the SPM.
908	SPM	10	14	10	14	To avoid confusion and potential wrong messages, substitute the wording "both losers and winners" by "inequalities" (SPAIN)	No longer relevant--this text has been deleted from the SPM.
909	SPM	10	14	10	15	how can disasters generate winners? Might need some explanation here. (Wehrli, Andre, European Environment Agency)	No longer relevant--this text has been deleted from the SPM.
910	SPM	10	14	10	15	Examples here would be helpful in explaining what is meant by human security and what is meant by "the outcomes." (UNITED STATES OF AMERICA)	No longer relevant--this text has been deleted from the SPM.
911	SPM	10	14	10	15	"Climate-related disasters generate both losers and winners, with long-term implications for human security (medium agreement, robust evidence)." This text illustrates the need for improved explanation of agreement vs. evidence in Box SPM.3. (NORWAY)	No longer relevant--this text has been deleted from the SPM.

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912	SPM	10	14	10	17	The text does not follow the headline finding. (Stone, John M R, Carleton University)	No longer relevant--this text has been deleted from the SPM.
913	SPM	10	14	10	17	Terms "losers and winners" shall be used carefully in order to avoid any misunderstandings. This short paragraph is insufficient to explain what is the definition of "losers and winners" and what is the implications of these terms, therefore this paragraph shall be deleted. (JAPAN)	No longer relevant--this text has been deleted from the SPM.
914	SPM	10	14	10	17	This paragraph should be changed. We think it is rather misleading to speak of "winners" of a disaster. The paragraph should rather focus on the implications on human security. Where conflict-prone regions are hit by natural disasters, there are major risks that conflicts will escalate further. Disaster risk reduction and adaptation to climate change need to take into account security-related impacts of climate change. Disaster risk reduction should be used as a lever for good governance. Targeted conflict resolution should be used in conflict-prone regions after natural disasters. (GERMANY)	No longer relevant--this text has been deleted from the SPM.
915	SPM	10	14	10	17	The significance of this paragraph is not clear, particularly with respect to decision making. If retained, then an appropriate alternative or an explanation for the word "winners" in the bolded statement is needed, as the context provided in Chapter 8 is missing here. Suggest considering the phrase "while some will see economic gains in the aftermath of climate-related disasters". (CANADA)	No longer relevant--this text has been deleted from the SPM.
916	SPM	10	14	10	17	Please add further explanation. Who are the 'winners' in disasters? This is a dangerous assertion if it refers to winners and losers of disasters. If it refers to climate change, it's a different thing. (UN-International Strategy for Disaster Reduction (UN/ISDR))	No longer relevant--this text has been deleted from the SPM.
917	SPM	10	16	10	17	what do you mean by tipping points? (Wehrli, Andre, European Environment Agency)	No longer relevant--this text has been deleted from the SPM.
918	SPM	10	16	10	17	Providing a statement in an SPM that is assessed as both "low agreement" and "limited evidence" is inappropriate. Delete sentence. (Stocker, Thomas, IPCC WGI TSU)	No longer relevant--this text has been deleted from the SPM.
919	SPM	10	19	10	19	leadership that questions mindsets' - this reads like a political statement. Is this statement the result of a scientific assessment? (Stocker, Thomas, IPCC WGI TSU)	This phrase no longer appears in the SPM.
920	SPM	10	19	10	20	The word "leadership" may be misleading. It should be replaced with a more explicit word or phrase such as "local leadership" (8.2.5), "governance" (8.7) according to the intentions of the authors. (JAPAN)	This phrase no longer appears in the SPM.
921	SPM	10	19	10	23	We think that the bold text should focus on extreme events and disaster risk reduction, so a swap of bold text and the other text might be appropriate. (NORWAY)	We felt that both ways were equally effective, but that the leadership component was worthy of emphasis here.
922	SPM	10	23	10	23	We suggest at the end to add new sentences: "Building resilience involves developing a culture of prevention as part of sustainable development. An ethical perspective with a rights-based approach, including transparency, accountability and participation in governance, are pre-conditions to disaster risk reduction and climate change adaptation." (UN-International Strategy for Disaster Reduction (UN/ISDR))	The revision of the paragraph reflects the underlying chapter executive summary. Thus, this addition cannot be made.
923	SPM	10	24	10	24	The passage in chapter 8 p. 25 l. 24-29 about the contributions of biodiversity to cope with the impacts of climate change is very important and should be integrated into the SPM (GERMANY)	Biodiversity conservation is mentioned on page 9, line 5 (it is not discussed in the Executive Summary of Chapter 8)

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924	SPM	10	25	0	0	l'alinéa Technical innovations relève de la partie D (p6 ligne 20 et suivantes) avec laquelle il gagnerait à être regroupé. (BOURRELIER, PAUL-HENRI, AFPCN)	No longer relevant--this text has been deleted from the SPM.
925	SPM	10	25	10	25	Expression "risk enhancement" is should be correct as "adaptive capacity". It would be simple mistake. (JAPAN)	No longer relevant--this text has been deleted from the SPM.
926	SPM	10	25	10	26	why should one explore technological innovations to facilitate risk enhancement? (Wehrli, Andre, European Environment Agency)	No longer relevant--this text has been deleted from the SPM.
927	SPM	10	25	10	29	We believe it is of less interest whether the technological innovations are being explored or not. Is it possible to say something about the availability of tools and technological innovations? Furthermore, consider to include some examples of innovations. (NORWAY)	No longer relevant--this text has been deleted from the SPM.
928	SPM	10	27	10	29	This points seems to oversimplify the challenges of planning and decision making in the face of uncertainty, so strongly present with long time perspectives such as those considered when we are dealing with climate change adaptation. This sentence at first might be seen to reflect the long return period of any investment to climate change adaptation, meaning that we still wouldn't have evidence of the positive impacts of the adaptive measures so far realized, which are a few to start with. Based on the text however it seems that the real problem is the uncertainty of socio-economic development and our different mindsets and worldviews which make it very hard to derive possible futures for the basis of planning - we don't really know what kind of future society we are planning for and what values or assets might be threatened by the impacts of climate change. This means that our resilience will inevitably change over time, into a direction partly unknown to us. Actual changes in climatic conditions at times actually seem easier to anticipate. Trade-offs are inevitably part of any planning process, but based on Chapter 8 of SREX it seems that these are negotiated with only a limited understanding on our future standpoints. (FINLAND)	No longer relevant--this text has been deleted from the SPM.
929	SPM	10	27	10	29	Based on the previous comment, I think the human component in our vulnerability to climate change impacts can not be highlighted enough in the SMP of SREX. (FINLAND)	No longer relevant--this text has been deleted from the SPM.
930	SPM	10	31	0	0	there is no statement on confidence and evidence for this message. (Dow, Kirstin, University of South Carolina / Carolinas RISA)	No longer relevant--this text has been deleted from the SPM.
931	SPM	10	31	10	31	We suggest replacing "management" with "reduction". (UN-International Strategy for Disaster Reduction (UN/ISDR))	No longer relevant--this text has been deleted from the SPM.
932	SPM	10	31	10	33	This correctly cites the importance of integrated disaster risk management and climate change adaptation, but should note that the community lacks scientifically-based knowledge quantifying how the extreme environments to be used for risk management are affected by climate change. Research is needed! (Wright, Richard, American Society of Civil Engineers)	No longer relevant--this text has been deleted from the SPM.
933	SPM	10	31	10	33	None of the cited chapter sections here provide evidence for 'significantly reduced impacts'. Chapter 4 is the only chapter that has it within their scope to assess such trends. However, there is no reference here to Chapter 4, so it is not clear what evidence provides the basis for 'high confidence' that a reduction of exposure and vulnerability significantly reduces impacts from extreme events. (Stocker, Thomas, IPCC WGI TSII)	No longer relevant--this text has been deleted from the SPM.
934	SPM	10	31	10	33	supprimer integrated comme proposé OG1. En outre tout l'alinéa peut se lire en sens inverse et pourrait être placé dans la partie E. (BOURRELIER, PAUL-HENRI, AFPCN)	No longer relevant--this text has been deleted from the SPM.
935	SPM	10	31	10	33	This is a good general final point to make, but is it specifically relevant to sustainability? (Goodess, Clare, Climatic Research Unit)	No longer relevant--this text has been deleted from the SPM.

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
936	SPM	10	31	10	33	This is an important key finding, and it might be moved to earlier in section F. After the finding in bold, please consider adding figures on potential for reduction of economic losses, morbidity and mortality. (NORWAY)	No longer relevant--this text has been deleted from the SPM.
937	SPM	10	32	10	32	Change to "can significantly" (MacCracken, Michael, Climate Institute)	No longer relevant--this text has been deleted from the SPM.
938	SPM	10	33	10	33	Why is an introductory section to a chapter cited (1.1)? Section 1.1 provides the outline and scope for SREX, so can not possibly contain robust, assessed new information that should be raised to the level of the SPM. (Stocker, Thomas, IPCC WGI TSU)	No longer relevant--this text has been deleted from the SPM.
939	SPM	10	33	10	33	Add at the end of the paragraph:and morbidity, contributing to a major sustainable development." (SPAIN)	No longer relevant--this text has been deleted from the SPM.
940	SPM	10	37	0	0	Box SPM.3 must be referred to upfront, either with a line of text or a footnote at first occurrence of uncertainty language on page 2. (Stocker, Thomas, IPCC WGI TSU)	Such reference is now included.
941	SPM	10	37	10	37	It is a wonderful idea to present this "Treatment of Uncertainty". However, maybe, it includes too many different qualifiers. Therefore, it should be written with explanatory phrases (line 5 to 8 page 11) that would make easier to understand the underlying uncertainties. make easier to understand the underlying uncertainties. Perhaps, one important information must be to better explain the confidence scale that appears in Box SPM.3 Figure 1 in page 16. (Mata, Luis Jose , IMF)	Further explanation is now provided.
942	SPM	10	37	11	28	This material should be placed at the beginning of the SPM has has been done in nprevious IPCC Reports. (Stone, John M R, Carleton University)	Reference to this box is now included at the beginning of the SPM.
943	SPM	10	37	11	28	Move this box to page 2 where the terminology starts to be applied. Is the subtle differences in the terminology is important to interpret the key findings then it is critical for the policy maker to understand how to interpret the terminology before reading the statements. I find the use of 'about as likely as not' to characterize the uncertainty of a decrease/increase/no change to be an uninformative statement. Why assess reduction versus increase or versus no change since there is an equal chance for any of the three. Suggest you do not ever use "about as likely as not" and instead use the informative language from Chapter 3, page 3, line 27 "The magnitude and even the sign of any anthropogenic influence on XXX are uncertain (Webb, Robert, NOAA)	Reference to this box is now included at the beginning of the SPM.
944	SPM	10	37	11	28	Box SPM.3 would be more useful if situated near the beginning of the report. (CANADA)	Reference to this box is now included at the beginning of the SPM.
945	SPM	11	0	0	0	Fig 1. The list of the likelihood of the outcome should be clearly defined in the text, in section B. (GREECE)	Reference to this box is now included at the beginning of the SPM.
946	SPM	11	0	11	0	The case studies from chapter 9 are missing. (GERMANY)	Further reference to the case studies is now included.

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
947	SPM	11	1	11	1	The "and agreement" seems like an orphan phrase. For the US National Assessment, the National Assessment Synthesis Team (NAST) explained how likelihood was determined in this way: "To integrate a wide variety of information and differentiate more likely from less likely outcomes, the NAST developed a common language to express the team's considered judgment about the likelihood of results. The NAST developed its collective judgments through discussion and consideration of the supporting information. Historical data, model projections, published scientific literature, and other available information all provided input to these deliberations, except where specifically stated that the result comes from a particular model scenario. In developing these judgments, there were often several lines of supporting evidence (e.g., drawn from observed trends, analytic studies, model simulations). Many of these judgments were based on broad scientific consensus as stated by well-recognized authorities including the IPCC and the National Research Council. In many cases, groups outside the NAST reviewed the use of terms to provide input from a broader set of experts in a particular field." In my view, this provides a better description of how the process is conducted than the present SPM text, and a suitable adaptation of such an explanation for the SPM would be helpful. (MacCracken, Michael, Climate Institute)	Evaluation of both evidence and agreement is a central component of the IPCC uncertainties guidance. Further explanation has been added.
948	SPM	11	1	11	3	In general the box provides a useful quick summary of the guidance. However, it doesn't really explain how it has been applied in this report (or SPM). And why the level of terminology used (in most cases understandably because of the different types of evidence/statements etc) varies between different sections. I think that Likelihoods are only given for 'High confidence' statements coming from Chapter 3. In some other parts of the SPM, the overall confidence is given, sometimes statements on both agreement and evidence are given (sometimes only on one aspect). In other parts of the SPM, no confidence statements are given. This is the case in D and E, for example. But then, do the types of statements in these sections, differ in nature/type from the first one in Section F, for example. A little more commentary on these issues would be helpful. (Goodness, Clare, Climatic Research Unit)	Further explanation of the relationship between evidence and agreement, confidence, and likelihood is now provided.
949	SPM	11	3	11	3	It should be stated explicitly here that likelihood statements are only possible for results with high confidence (consistent with the new IPCC guidance paper on uncertainty). (CANADA)	Further explanation of the relationship between evidence and agreement, confidence, and likelihood is now provided. Also, please note that the reviewer's description of the Guidance Note is not completely correct.
950	SPM	11	6	11	28	Consider to define "Agreement" better in the report and the SPM. It might be described better how "agreement" is operated independent of the term "evidence". (NORWAY)	Further explanation of the relationship between evidence and agreement, confidence, and likelihood is now provided.

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
951	SPM	11	17	11	24	This is a different presentation of likelihood terms than was used in the AR4. It would be helpful to readers if some text were added to explain in words the reason for being very explicit this time that the probabilities extend to 100% for the top three likelihood categories and to 0% for the bottom three (.e.g. by explaining that 'likely' means that the probability of an event being true cannot be narrowed down any further than being somewhere between 66 and 100%.) In addition, the asterisk statement should be deleted as it does not apply to the SREX SPM. (CANADA)	Further explanation of the relationship between evidence and agreement, confidence, and likelihood is now provided.
952	SPM	11	29	11	29	"End Box" command is missing (Rock, Joachim, Johann Heinrich von Thuenen-Institute)	Now inserted.
953	SPM	12	0	0	0	Table SPM.1. The text "High confidence in likely increase in heatwave duration in Europe" combines a confidence and a likelihood statement. However, these two uncertainty metrics are meant to be used as alternatives (based on the amount of evidence available) rather than in combination. (Fuessel, Hans-Martin, European Environment Agency)	Further explanation of the relationship between evidence and agreement, confidence, and likelihood is now provided in Box SPM.2. Usage in the table is consistent with the AR5 guidance on uncertainties.
954	SPM	12	0	0	0	Table SPM.1. The row "Flash floods in Nairobi's informal settlements" combines local and global statements in a confusing way. The title suggests a focus on local conditions in Nairobi but some statements refer to changes anywhere in the world (e.g., "likely statistically significant increases in the number of heavy precipitation events in more regions than there have been statistically significant decreases"). (Fuessel, Hans-Martin, European Environment Agency)	Each example in the table provides information across scales, in order to demonstrate the ways in which information on weather and climate events can vary across these scales.
955	SPM	12	0	0	0	Fig. SPM.2. The "stippling" referred to in the legend of Fig. SPM.2 cannot be seen in the figure (most likely due to insufficient size and/or resolution of the figure in the PDF file available for review). (Fuessel, Hans-Martin, European Environment Agency)	Figure is clearer in final version.
956	SPM	12	0	0	0	the table is a bit unclear and it might help to provide more concise headings. More specific comments in the following (Wehrli, Andre, European Environment Agency)	Headings, as well as the table caption, have been revised with the aim of enhancing clarity.
957	SPM	12	0	0	0	Table 1: Column 2: do you mix (aggregate) vulnerability and exposure on purpose? (Wehrli, Andre, European Environment Agency)	We want to distinguish these from changes in hazard and have thus placed them together in a single column.
958	SPM	12	0	0	0	Table 1: Column 3:the "global" trend is often very different from the trend in the region and at the scale of risk management, thus I do not think that there is an added value to include it in this table (Wehrli, Andre, European Environment Agency)	We think it is useful to show the bigger picture--global trends--which are often referred to, and where sometimes precise statements cannot be made, and contrast this with more regionalized information, which is more relevant for actions and decisions on DRM.
959	SPM	12	0	0	0	Table 1: Column 3, line 3: which definition of heatwave do you use? And why do you use different levels of "accuracy" to describe heat waves/warm spells for observed (only "increase in ...") and projected ("increase in length, frequency and/or intensity") events? (Wehrli, Andre, European Environment Agency)	Definition of heatwaves is consistent with that used by Chapter 3. Level of detail provided in the SPM is consistent with the Chapter 3 assessment.

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
960	SPM	12	0	0	0	Table 1: Column 6, line 3: use of social networks to reach vulnerable elderly: are elderly = more vulnerable? Are only elder people who are vulnerable using social networks? Are elder people really using social networks? Unclear... (Wehrli, Andre, European Environment Agency)	Replaced "social networks" by "social care networks" to clarify that in this context, the term "social networks" was meant to refer to networks intended to provide care and/or social contacts to elderly. Not all elderly are vulnerable, but social networks can be particularly effective to reach vulnerable elderly (with vulnerability characterized, among others, by social isolation, as mentioned in column 2)
961	SPM	12	0	0	0	Table 1: Column 6, line 3: no reference to Heat Action Plans (which have been developed in many countries in the wake of the 2003 event) is made... (Wehrli, Andre, European Environment Agency)	The Heat Action Plans actually contain several of the risk management options mentioned in the table. The Heat Action Plans are the policy containing the specific options mentioned in the table.
962	SPM	12	0	0	0	Table 1: Column 6, line 4: maybe you could add to the list of low-regret options "local protection measures" which can be taken at the household level at rather low cost. (Wehrli, Andre, European Environment Agency)	"Local protection options" is rather general - the table aims to be more specific.
963	SPM	12	0	0	0	Table 1: Column 6, line 5: what about hazard/risk maps? (Wehrli, Andre, European Environment Agency)	Vulnerability mapping has been added to this example.
964	SPM	12	0	0	0	Line 5: is there some text missing? (Wehrli, Andre, European Environment Agency)	We apologize for the error in the initial posting of the table.
965	SPM	12	0	0	0	The SPM table 1 shows 3 cases from Europe, Africa, and North America as examples. In order to enhance completeness of the SPM and to deepen understanding of policy makers to the SPM, regional balance as well as the consistency with the context of the text in line 27-32 of page 3 should be taking into account. In this regard, Asian cases such as floods in coastal regions described in the section 9.2.8 (line 20-27, page 48) should be added to this table. In addition, if possible, it would be better to add cases in the islands countries. Such consideration would greatly enrich the content of the SPM. (JAPAN)	Further examples have been added to improve balance somewhat, including an example on SIDS, as could be supported by information available in the report.
966	SPM	12	0	0	0	Table SPM.1 - Heat waves in Europe: Why do you differentiate between an "early warning system" (last column, bullet point no. 1) and a "warning system" (bullet point no. 3)? (Rock, Joachim, Johann Heinrich von Thuenen-Institute)	Removed "warning system" (there are some subtle issues regarding warning systems that cover the "last mile" to end users, but the comment is correct that in this table it is simply confusing)
967	SPM	12	0	0	0	Table SPM.1, column on risk management/adaptation options: It is suggested to add "Hospitals" in addressing "installation of air conditioning" (Radunsky, KLaus, Umweltbundesamt GmbH)	Although this is a good suggestion, limitations of space and requirements for traceability to underlying chapters led us to not include it.

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
968	SPM	12	0	0	0	Table SPM.1: Trends in vulnerability - heat: Trends in factors affecting vulnerability and exposure may -especially in Western European Countries- also lead to a decrease in vulnerability and / or exposure (e.g. if access and use of cooling will increase or if a greater percentage of the population lives in better insulated rooms ...) (Koppe, Christina, Deutscher Wetterdienst)	Correct, the current wording allows for both positive and negative influences on vulnerability due to the various factors. Both cooling and urban infrastructure are already mentioned.
969	SPM	12	0	0	0	The factors that have the greatest impact on vulnerability to extreme heat are age (extremes of age); pre-existing health status; population adaptation (the individuals' physiological adaptation to heat, as well as behavioral adaptation); infrastructure (the 'urban heat island' effect); and social deprivation. It may be useful to list these first and foremost for maximum impact on the reader. "Clothing choice" listed here is simply one example of behavioural adaptation (or maladaptation). Similarly outdoor activities, not only outdoor work, can increase exposure to heat, especially if not well adapted to ongoing weather conditions. (Grynszpan, Delphine, UK Health Protection Agency)	Changed order of factors, and wording: inserted population adaptation and subsumed "clothing choice under that category; changed "health conditions" to "health status"; replaced "outdoor work" by outdoor activity. "Socioeconomic factors including poverty and social isolation" includes social deprivation.
970	SPM	12	0	0	0	It may be worth mentioning the heat adaptation dilemma here: one of the most effective (if expensive) ways to reduce heat exposure is to increase the use of air conditioning, but this also has an impact on carbon emissions and increases the urban heat island effect. (Grynszpan, Delphine, UK Health Protection Agency)	For reasons of space and clarity we do not address these issues in this table (but some of these dilemmas are covered in chapter 8)
971	SPM	12	0	0	0	In Table SPM.1, column 1, second paragraph, I would change "Trends" to "Trends and historic choices" and to also later in the paragraph make clear that existing building stocks tend to increase the potential vulnerability. Also, the word "may" should be replaced, per IPCC lexicon. Then in column 6, second set of bullets, the second bullet becomes more obvious (and important) (MacCracken, Michael, Climate Institute)	Now use only "factors affecting (also as per comment 978). The paragraph does not cover historic choices. Similarly, the issue of the existing building stocks is covered under the first (now only) paragraph.
972	SPM	12	0	0	0	Table SPM.1 Public health concerns... this section could mention associated air quality concerns. (UNITED STATES OF AMERICA)	In the end, the public health concern is about mortality and morbidity. It is correct that air quality is one of the factors leading to increased morbidity and mortality during heatwaves, but for reasons of space we have chosen not to cover it explicitly as a separate factor in this table.
973	SPM	12	0	12	0	Table SPM.1 : the last row is too narrow and thus some text is missing in the columns 3 (tropical ...) and 4 (long- ...) (International Petroleum Industry Environmental Conservation Association (IPIECA))	Repaired
974	SPM	12	0	12	0	Table SPM: Third row, last column: the bullet point "installation of air conditioning, for instance in elderly homes and schools" is a little ambiguous with respect to "elderly homes". Replace "elderly homes" with "homes for the elderly". (NEW ZEALAND)	Phrase removed
975	SPM	12	0	12	0	Table SPM.1 This table contains very relevant and specific information and we propose that additional examples are included if available (if necessary by reducing the level of detail included for each example). Relevant areas might, for example, be issues related to runoff from Himalayan rivers and landslides in South America. (NORWAY)	The table has been revised accordingly to provide additional examples.

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
976	SPM	12	0	12	0	Table SPM.1 The heading for column 5 should be simplified (why is trend and event type included here?) (NORWAY)	The headings of columns 3, 4, and 5 reflect the hazard and information/trend therein at global scale, regional scale (in SREX chapter 3 terms), and at the scale of the issue at hand. The labels for these columns have been revised to enhance clarity.
977	SPM	12	0	12	0	Table SPM.1 Referring to column 1, the geographical areas should be highlighted (bold) for each example. (NORWAY)	The labels for each example have been clarified.
978	SPM	12	0	12	0	Table SPM.1 First example, column 2, last paragraph - "Trends in these factors may increase vulnerability": We question whether "influence" would be a more appropriate word, since we suppose that some of the trends might actually decrease vulnerability. (NORWAY)	Changed In the spirit of this comment.
979	SPM	12	0	13	0	Table SPM.1 makes statements in the rightmost column that need to be qualified by "high", "medium", or "low" confidence because the authors need to express an assessment view about whether any of the potential risk management or adoption options would actually work. Not having such an assessment can mis-lead the reader that all the authors agree that the cited action should be undertaken or that all the authors believe that the action described would actually work. (Lee, Arthur, Chevron Services Company)	Confidence has not been assigned in this column, based on the information available in the underlying chapters. In addition, such qualifiers would be highly dependent on very specific local circumstances.
980	SPM	12	0	13	0	The table shows key structure on how to develop risk management/adaptation options. Drought shall be included in issue of concern and other informations items for drought such as trend and options shall be provided in this table. (JAPAN)	An additional example has been added for drought.
981	SPM	12	0	13	0	Table SPM.1 makes statements in the rightmost column that need to be qualified by "high", "medium", or "low" confidence because the authors need to express an assessment view about whether any of the potential risk management or adoption options would actually work. Not having such an assessment can mis-lead the reader that all the authors agree that the cited action should be undertaken or that all the authors believe that the action described would actually work. (International Petroleum Industry Environmental Conservation Association (IPIECA))	Confidence has not been assigned in this column, based on the information available in the underlying chapters. In addition, such qualifiers would be highly dependent on very specific local circumstances.
982	SPM	12	0	13	0	Table SPM 1. Sixth column-Hurricanes in the USA. Low regrets options are repeated. (GREECE)	We are not sure what this review comment is referring to, but repetition has been checked.
983	SPM	12	0	13	0	Table SPM.1: Streamline texts in table (GERMANY)	Done
984	SPM	12	0	13	0	Table SPM.1: move column 2 to the right of the three columns on physical trends (GERMANY)	We begin with vulnerability and exposure to reflect the emphasis of the report. We then feel that the current order, from global to regional to specific, is appropriate. See response to comment 976 regarding the clarity of the headers of these three columns.
985	SPM	12	0	13	0	Table SPM.1: Modify header in column 5: "Quality of available information" (GERMANY)	Good suggestion -- the heading of this column has been revised in the spirit of this comment.

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
986	SPM	12	0	13	0	Table SPM.1: Extremely useful table providing information for a given problem along the chain "extreme event's observation and projection on different spatial scales" - "trends in vulnerability/exposure" - "potential actions". This table should be expanded to address other important issues of concern (e.g. droughts). Would it be possible to provide information on the degree the examples given and lessons learned can be transferred to other regions, other scales? (GERMANY)	Further examples have been added, including on drought. While we appreciate the suggestion of adding information on transferability of examples to other regions/scales, this would be difficult space-wise, and would run into complications in terms of ability to generalize from these examples.
987	SPM	12	0	13	0	(1) Table SPM.1 is of limited value. It is not clear that the examples provided are "illustrative examples of how adaptation and risk management decisions can be informed by information on trends in exposure, vulnerability and extreme weather and climate events", because they do not conclude with specific examples of what has been implemented. To achieve its goal the table should contrast what measures have been implemented given observed trends, and how these decisions differ from what would have been implemented in the absence of such trends. Also, providing a list of risk management / adaptation options that are mostly specific single measures (a finite set of actions) confuses the important point made previously that effective adaptation / risk management is an ongoing process. (2) The table seems to be truncated (AND in final line of column 3 on p. 13). (CANADA)	(1) The table and the text that introduces it have been modified to address some of the concerns highlighted in the comment. Specifically, we have highlighted the fact that the table should not be seen as prescriptive towards a single set of interventions, but simply as illustrations of the sort of management options that arise out of an ongoing process (which, as the comment correctly emphasizes, is key to effective adaptation). However, it is very difficult to find literature that provides the specific examples the comment requests (how would decisions have been different from what would have been implemented in the absence of these trends) -- the best we can do is to provide illustrative examples that illustrate options available in general, and specifically in light of trend information (in real-life risk management situations there is always such a range of factors at play that the literature fails to provide hard comparative evidence of which changes in decisions were based on which trend information) (2) Repaired
988	SPM	12	0	13	0	SPM Table 1. We recommend including an example in the context of food security (see attachment). (World Food Programme (WFP))	Food security: We have included an example.
989	SPM	12	0	13	0	I do like the idea behind the table, but I think there should be at least a column indicating the tendency of the knowledge and the last column should give concrete examples (NETHERLANDS)	The last column is indeed intended to provide concrete examples, but rather than limiting it to individual cases we have collected a range of information pertaining to the example at hand.

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
990	SPM	12	1	12	1	In first line we suggest replacing "management" with "reduction". (UN-International Strategy for Disaster Reduction (UN/ISDR))	We have chosen to use "management" to emphasize that it covers the full range of risk management options (including more traditional disaster risk management components such as disaster response)
991	SPM	13	0	0	0	End of Table SPM.1 is missing (Chambers, Lynda, Australian Bureau of Meteorology)	Repaired
992	SPM	13	0	0	0	Table SPM.1. I illustrate by example why it is necessary to include an assessment of "high" "medium" "low" confidence in the actions in the right-most column. In the "Flash floods in Nairobi's informal settlements," the statement that "More specific climate-related disaster risk reduction measures include the involvement of poor people in decision-making processes with the potential of developing 'cash-for-work' programs to install riparian buffers, canals, drainage channels, and trenches between structures" needs to be examined much more closely. Is there any evidence that such 'cash-for-work' programs to do these projects have resulted in better buffers, canals, and trenches, adding resilience. In other words, can the authors say this with "high" "medium" or "low" confidence? (Lee, Arthur, Chevron Services Company)	Confidence has not been assigned in this column, based on the information available in the underlying chapters. In addition, such qualifiers would be highly dependent on very specific local circumstances. Finally, the cited sentence has been revised.
993	SPM	13	0	0	0	Table SPM.1 - table is incomplete! (Rock, Joachim, Johann Heinrich von Thuenen-Institute)	Repaired
994	SPM	13	0	0	0	Table SPM.1. I illustrate by example why it is necessary to include an assessment of "high" "medium" "low" confidence in the actions in the right-most column. In the "Flash floods in Nairobi's informal settlements," the statement that "More specific climate-related disaster risk reduction measures include the involvement of poor people in decision-making processes with the potential of developing 'cash-for-work' programs to install riparian buffers, canals, drainage channels, and trenches between structures" needs to be examined much more closely. Is there any evidence that such 'cash-for-work' programs to do these projects have resulted in better buffers, canals, and trenches, adding resilience. In other words, can the authors say this with "high" "medium" or "low" confidence? (International Petroleum Industry Environmental Conservation Association (IPIECA))	Confidence has not been assigned in this column, based on the information available in the underlying chapters. In addition, such qualifiers would be highly dependent on very specific local circumstances. Finally, the cited sentence has been revised.
995	SPM	13	0	0	0	Table SPM 1. Third column-Flash Floods in Nairobi. In the projected trends there is an AND without text. (GREECE)	Repaired
996	SPM	13	0	0	0	Table SPM.1, column on global trend: delete "AND" (last word in this column). (Radunsky, Klaus, Umweltbundesamt GmbH)	Repaired
997	SPM	13	0	0	0	Table SPM.1. In the last case, I do not share the fact that examples might be 'no or low regrets' measures. I understand that those measures might be taken even if it is not certified that CC will have impacts on flood in the given region because they cannot have bad consequences, but to be 'no or low regrets' it should be first shown that those measures are efficient in the current situation (for example by a cost-benefit analysis). This is particularly true if financial means are limited in this region. (FRANCE)	The term "low regrets" is intended to refer specifically to measures that can provide benefits across a range of climate outcomes. This can include consideration of their financial implications. See discussion in chapter 6.
998	SPM	13	0	0	0	3rd column: 'possibly not in all basins' implies that increases are more widespread than I think intended by the chapter text, I would rather say 'but may not occur in all basins' (Goodess, Clare, Climatic Research Unit)	Agree - Revised text from Chapter 3 ES has been used.

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
999	SPM	13	0	0	0	3rd column: I can't trace the statement about projected sea level rise likely to further compound tropical cyclone surge impacts in Table 3.1 or Section 3.4.4. (Goodess, Clare, Climatic Research Unit)	Agree - Statement has been removed.
1000	SPM	13	0	0	0	4th column: Table 3.3 doesn't say that an increase in heavy precipitation is very likely in East Africa. This first sentence should be deleted. The second one is the correct one with respect to East Africa. (Goodess, Clare, Climatic Research Unit)	The text has been harmonized with the content of tables 3.2 and 3.3.
1001	SPM	13	0	0	0	In continuation of Table SPM.1, fourth column, top paragraph: While there may be low confidence in upward trends, in the SPM, the question is whether the trends are more likely up than down (or not changing). Does the phrasing here mean that there is an appearance of an upward trend, but it is just not robust (in tests of statistical significance)? Can one rule out downward trends? (MacCracken, Michael, Climate Institute)	Text is the assessment from Chapter 3 LAs. Note that details of trends are not mentioned anymore in final version of the table given the low confidence.
1002	SPM	13	0	0	0	Table SPM.1. Text at bottom of third column ends with a hanging "AND." (UNITED STATES OF AMERICA)	repaired
1003	SPM	13	0	0	0	In the 4th column for Nairobi floods, the projected very likely increase in heavy precipitation in East Africa seems odd juxtaposed with the statement above it of medium confidence of an observed decrease in heavy precipitation in East Africa. How can one have such high likelihood for a projection with the observed trend is in the opposite direction? (UNITED STATES OF AMERICA)	Statement has been revised based on updated Chapter 3 assessment regarding trends in observed heavy precipitation in East Africa.
1004	SPM	13	0	13	0	Table SPM.1 : the last row is too narrow and thus some text is missing in the columns 3 (AND ...) and 6 (choice ...) (International Petroleum Industry Environmental Conservation Association (IPIECA))	Repaired
1005	SPM	13	0	13	0	Table SPM: Third row, 4th column: How are the two statements reconciled? The first states that there is medium confidence of an observed decrease in heavy precipitation (i.e. current trends are downwards) whereas the second states the projections are for very likely increased heavy precipitation (NEW ZEALAND)	Statement has been revised based on updated Chapter 3 assessment regarding trends in observed heavy precipitation in East Africa.
1006	SPM	13	0	13	0	Some text from the bottom of the table seems missing, especially in the 2nd and 5th columns (UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND)	Repaired
1007	SPM	13	0	13	0	Table SPM.1 Third example, column 2, - "High confidence of increases as Nairobi experienced high impact flooding in last decade": We think that this argument, as it now stands, is somewhat weak. Is (one?) recent incident enough predict the trend with high confidence? (NORWAY)	The text has been revised and now addresses this point.
1008	SPM	13	0	13	0	Table SPM.1 Third example, column 4: The reason for observed decrease on heavy precipitation in East Africa and projected increase for the same parameter might be explained. (NORWAY)	Statement has been revised based on updated Chapter 3 assessment regarding trends in observed heavy precipitation in East Africa.
1009	SPM	14	0	0	0	Figure SPM.1a has a lot of information in one figure and therefore the graphs and the font used is quite small and a bit difficult to read. One possibility would be to have regional graphs (larger ones) and to present the global information on maps with possibly changing colors colors (Kankaanpää, Susanna, HSY Helsinki Region Environmental Services Authority)	Figure has been revised
1010	SPM	14	0	0	0	Figure SPM.1a: This figure is misleading because it includes ambiguous explanation for "projected changes (in degrees C)" and "projected return period (in years)". There should be two separate figures showing the details, one in yellow and one in blue. (Radunsky, Klaus, Umweltbundesamt GmbH)	Figure has been revised

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
1011	SPM	14	0	0	0	Figure SPM.1a: illegible, much too small. Figure is too difficult, too much information, figure capture does not sufficiently explain the tiny little icons. Figure is therefore not useful. (GERMANY)	Figure has been revised
1012	SPM	14	0	14	0	Figure SPM.1a This figure contain a lot of important information, but we think it could be improved. We would propose a presentation in the direction of a colour coded map related to the severity of the change - possible with additional simplified information related to uncertainty. Or maybe split the figure to show it region by region? (NORWAY)	See #1010.
1013	SPM	14	0	15	0	Figures SPM1a and 1b seem interesting but are definitely very difficult to understand and even see as the size of the graphs is very small (Castellanos, Edwin, Universidad del Valle de Guatemala)	See #1010.
1014	SPM	14	0	15	0	Figure SPM: I struggle to understand the information in both these figures. There is a lot of highly technical data, and concepts crammed into the figures and their captions - I think that most of the audience will be lost. I don't have any concise suggestions for improvements, but perhaps the IPCC could think of a presentation format that is more suited for the average policymaker. (NEW ZEALAND)	See #1010.
1015	SPM	14	0	15	0	I don't particularly like the yellow/blue shading behind the plots - but can see that something is needed to distinguish the different panels. (Goodess, Clare, Climatic Research Unit)	See #1010.
1016	SPM	14	0	15	0	These two Figures must be simplified. A suggestion would be to do two things: 1. Choose only one of either the yellow or blue plots to present, and 2a). choose only one of the two time periods (with the mid-century time period being, arguably, that most relevant to policy-makers), or 2b) choose a single emission scenario and present results for both time periods. (CANADA)	See #1010.
1017	SPM	14	0	15	0	These figures have a lot of information on them. To be useful, it appears to me they will need to be spread over two pages (perhaps putting Western Hemisphere on one page and Eastern Hemisphere on the other. (MacCracken, Michael, Climate Institute)	See #1010.
1018	SPM	14	0	15	0	The Box and Wisker graphs are difficult to see and interpret. If these are to be included they need to be in high resolution. (AUSTRALIA)	See #1010.
1019	SPM	14	0	15	0	Figure SPM 1a and 1b. Very hard to read/interpret. Consider dividing into two or three pages (The Americas, Africa and western Europe, and Asia/Australia). Here and other similar illustrations that are difficult to read in report. Also true for many other illustrations of this type in the report. (UNITED STATES OF AMERICA)	See #1010.
1020	SPM	14	0	16	0	The figures are too complicated for policy makers. Some captions raise questions or are not clear enough. The alternative figures that have been discussed are much better suited to serve policy makers. (NETHERLANDS)	See #1010.
1021	SPM	14	1	0	0	It is indicated that figure is 'Modified from Figures 3.6 and 3.8', but this figure is only from Figure 3.6. (JAPAN)	Agree - corrected.
1022	SPM	15	0	0	0	Figure SPM.1b is also a bit difficult to read due to the small font and graphs and the amount of information it contains. One possibility could be to prepare different and more simple figures for the SPM and to keep these figures as they are in the chapters. (Kankaanpää, Susanna, HSY Helsinki Region Environmental Services Authority)	See #1010.

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
1023	SPM	15	0	0	0	Figure SPM.1b: This figure is also misleading because: it includes graphics with different scales for the projected changes (relative %; 40, 60, 80 and 100%); it includes ambiguous explanation for "projected changes (relative %)" and "projected return period (in years)"; there should be two separate figures showing the details, one in yellow and one in blue. (Radunsky, KLaus, Umweltbundesamt GmbH)	See #1010.
1024	SPM	15	0	0	0	Figure SPM.1b: same as Figure 1a (GERMANY)	See #1010.
1025	SPM	15	0	15	0	Figure SPM.1b This figure contain a lot of important information, but we think it could be improved. We would propose a presentation in the direction of a colour coded map related to the severity of the change - possible with additional simplified information related to uncertainty. Or maybe split the figure to show it region by region? (NORWAY)	See #1010.
1026	SPM	15	1	0	0	It is indicated that figure is 'Modified from Figures 3.6 and 3.8', but this figure is only from Figure 3.8. (JAPAN)	Agree - corrected.
1027	SPM	16	0	0	0	Figure SPM.2: the left column graphs contain large areas of grey colour, a colour which I cannot find on the given colour scale bar below. What does grey colour mean? The right column graphs should contain stippled areas according to the figure caption, but no such areas are visible in the graphs (possibly a question of resolution?). (Neu, Urs, Swiss Academy of Sciences)	Grey indicates where there is little agreement between models. Caption indicates that shading is only applied for areas where at least 66% of the models agree.
1028	SPM	16	0	0	0	Figure SPM.2: it is suggested to delete the degrees of latitude and longitude along the maps. The only relevant scales are those below the two columns. (Radunsky, KLaus, Umweltbundesamt GmbH)	Agree -done.
1029	SPM	16	0	0	0	Figure SPM2 should include in its caption more clearly the year to which the projections are estimated, e.g. "Projected seasonal changes to year 2080 (I think)..." (Castellanos, Edwin, Universidad del Valle de Guatemala)	Figure and caption revised.
1030	SPM	16	0	0	0	Fig. SPM.2: The arrangement of the two legends for this figure seems to me inconsistent. While the left legend starts from the wetter to the dryer condition, the legend on the right side is arranged in the opposite order. It is suggested that the right legend is turned around and starts with the blue colour, ending with red and dry. (Bohle, Hans-Georg, University of Bonn)	Captions are consistent. Warm colours represent increased dryness - this point is now noted in the caption.
1031	SPM	16	0	0	0	Figure SPM.2: Useful figure. Stippling is not visible, the statement on shading does not make sense because white is part of the colorscales. Do you mean that gray shading indicates <66% agreement on the sign of change? (GERMANY)	Colour has been revised. Caption indicates that shading is only applied for areas where at least 66% of the models agree. [WGI comment: See also #1027. For the final draft we need to consider updating the figure caption to address this concern regarding grey shading.]
1032	SPM	16	0	0	0	Figure SPM.2: Probably the caption describes right and left hand plots, and then gives general information on the models used. It is not entirely clear, when the description of the right plots ends and the general description starts, and does it also pertain to the left plots? (GERMANY)	Caption has been revised.

#	Ch	From Page	From Line	To Page	To Line	Comment	Response
1033	SPM	16	0	0	0	Box SPM.3 Figure 1. There is no clear definition of the definition of the levels of confidence in the text. At first, I thought those might have been defined in this figure, but there is only a gray scale with no indication. Couldn't it be possible to have a relation between the 9 couples of agreement and evidence, and the five levels of confidence? At this point, the lector can only makes the assumption that the 5 levels are linked to the 5 diagonals in the chart. (FRANCE)	As described in AR5 uncertainties guidance, the relationship between confidence and summary terms for evidence and agreement is flexible. This figure is intended to illustrate this flexible relationship.
1034	SPM	16	0	0	0	Figure SPM.2 - Recommend replacing or enhancing the figure caption in order to explain the shading scales (particularly standard deviation of change in CDD, which will not be understood by most decision makers). Also caution is recommended in using these types of figures because of the tendency for decision-makers to try and interpret inappropriately (national scale). Recall that there were difficulties associated with the projected changes in the annual runoff figure for the AR4 WGII, which was eventually modified and included only in the technical summary (Figure TS.5) (CANADA)	Noted - Caption and figure have been revised.
1035	SPM	16	0	0	0	Figure SPM.3 - Suggest adding descriptors "very low, low, medium, high, very high" to the bar that depicts the confidence scale. (CANADA)	These descriptors have not been added, to ensure that the figure is consistent with that in the AR5 uncertainties guidance.
1036	SPM	16	0	0	0	We appreciate the work done to update the Figures from Tebaldi et al., 2006 but given that the cited reference for this Figure (Orlowsky and Seneviratne, 2011) has not yet been accepted for publication, we would like to ensure that this Figure in the SPM is robust. We would suggest that the author team for Chapter 3, from which this figure is drawn, engage an additional expert to be a contributing author who would be willing to reproduce this figure using the methods documented in the referenced paper. (CANADA)	Noted. Paper has been accepted in time. Supplementary material provided in Chapter 3 includes comprehensive details needed to reproduce this figure.
1037	SPM	16	0	0	0	Fig. SPM.2 Shading and stippling are not just illegible but invisible in printed form. Suggest adding DJF and JJA labels to the figures so that when this is used in presentations they will be obvious. Also, why use physical units (kg/m ²) for soil moisture change but normalized units for consecutive dry days? We suggest using physical units for both if possible. (UNITED STATES OF AMERICA)	Figure has been revised. Showing standard deviation provides more information than showing the physical quantity.
1038	SPM	16	0	16	0	Figure SPM: Compared with the format used for Figs SPM.1a and 1b, Fig SPM.2 is much easier to understand. However, again a lot of information is being conveyed and the figure could be greatly improved by reproducing it in a larger format. If the maps were larger it would be easier to see where the "stippling" is - otherwise it could just be confused with a geographic feature. (NEW ZEALAND)	Figure has been revised.
1039	SPM	30	0	0	0	Change 'Legislation' to "Legal mandates" since some countries do not have legislation (Webb, Robert, NOAA)	It is not clear what this comment refers to.