



**IPCC Synthesis Report
Fourth Assessment Report**

Formal Government and Expert Review of First Order Draft

EXPERT and GOVERNMENT COMMENTS – GENERAL

All Batches (July 27, 2007)

IPCC Synthesis Report - Fourth Assessment Report (All comments – General – July 27, 2007)

Running number	Topic - Comment	Batch	Page	Line	To Page	To Line	Comment	Considerations by the writing team
0-1	E-0-1	A	0				You choose to rely on only one temperature measurement system, the "global surface record" and ignore all the others. This system is statistically and scientifically unreliable, despite the excuses given. I refer to my published paper in "Energy and Environment" 2007 Vol 18 pages 433 to 440, which summarizes the reasons. My recent paper "Temperature Variability: Global, Regional and Local" shows that when the most reliable records are considered, global, regional and local temperature tends to be cyclic, with no overall change for the past 100 years, but cool periods from 1900 to 1930 and 1950 to 1980, and warm periods from 1930 to 1950, and from 2000 to the present day. We are, undoubtedly, in a "warm" period, similar to that in the 1940s, but the temperature is not increasing, and the whole record is incompatible with your "greenhouse gas" theory. There is a high "likelihood" that this period will be followed, as usual, by a cool period, not a hotter one. (Vincent Gray, None)	Rejected. See WGI Chapter 3 for multiple lines of evidence supporting the finding that warming is unequivocal, and for assessment of temperature records. No evidence provided by reviewer for future cooling.
0-2	E-0-2	A	0				When referring to changes in agricultural yield, it should be made clear that the projections apply to potential yield or potential productivity. Actual yield is constrained by additional factors, both external and internal, of which only water is discussed in this report. Constraints by pest and pathogens, air pollutants, soil degradation etc. are not considered, but due to their sensitivity to climate could become even more important in the future. This could be mentioned shortly somewhere in the text, probably best on pg 6. (Führer Jürg, Agroscope Research Station ART)	Noted; wording generally follows the wording approved by governments in the WG SPMs.
0-3	E-0-3	A	0				Uncertainty ranges: The confidence in the 90% uncertainty range from an analysis of data is rather different (and much more reliable) than the 90% range in a forecast. Can this be clarified? (Leonard Allen Smith, London School of Economics)	Discussion in Box "Treatment of uncertainty" has been revised to clarify that expert judgment is involved in all assessments of uncertainties. This takes account of differences in the treatment of uncertainties in data and in model based projections.
0-4	E-0-4	A	0				Uncertainty assessment in its vague structure and application is highly favoring certain underlying assumptions. This is leading to skepticism resulting from the biasness towards specific goals. This is apparent from ascertaining highly contested facts. There are no counter arguments to open the door for more in depth scientific research. (Mohammed Alfehaid, Ministry of Petroleum)	No specific examples are given of bias in treatment of uncertainty so no changes have been made.
0-5	E-0-5	A	0				Topics 4 and 5 have a lot of overlapping information - for example on adaptation. Looking at the substance for the two topics, there is no clear logic for why, for example, the phrase 'there are barriers, limits and costs to adaptation' is in Topic 5 rather than Topic 4. (Lisa Schipper, Southeast Asia START Regional Centre, Chulalongkorn University)	Report follows outline as approved by IPCC Panel. Revisions have aimed to remove duplication as far as possible. Some judgements are necessary where to place material without repetition.

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0-6	E-0-6	A	0				Topics 4 and 5 discuss the inter-relationship of mitigation and adaptation options with sustainable development. But nowhere has sustainable development been defined even once. A couple of lines explaining what is meant by sustainable development is warranted (even though it can be assumed that the reader has some general notion of sustainable development). (Upasna Sharma, Indian Institute of Technology, Bombay)	Sustainable Development is defined in the glossary.
0-7	E-0-7	A	0				This Report is a catechism for the believers in the global warming religion, and has little to do with science. The Topics are the equivalent of the Apostles' Creed. (Vincent Gray, None)	Noted; no evidence provided to substantiate claim nor specific changes requested.
0-8	E-0-8	A	0				This is an excellent review. I really enjoyed reading it. The level of details is appropriate. (Yves Michaud, Geological Survey of Canada)	Thank you.
0-9	E-0-9	A	0				This is an excellent report. (Yola Verhasselt, VUB (Vrije Universiteit Brussel))	Thank you.
0-10	E-0-10	A	0				This is an excellent first Draft of the Synthesis Report of the Fourth Assessment. The balance between the Chapters is about right. (Toufiq Siddiqi, Global Environment and Energy in the 21st Century)	Thank you.
0-11	E-0-11	A	0				This is a very well written and succinct summary of the detailed findings presented in the different Chapters in the IPCC report. In addition, the different writing teams have synthesized the material available to them producing additional insights. The authors of these summaries are to be congratulated on "a job well done". There is some minor repetition between sections but overall this serves to reinforce the important findings and conclusions. I have only a few minor comments. I assume that there will be a glossary of acronyms? (Robert Jefferies, University of Toronto)	Noted, thank you. Yes the final report will include the glossary and a list of acronyms.
0-12	E-0-12	A	0				This IPCC synthesis report is well-written and well-organized. Since this report has synthesized and integrated material contained in the three Working Group contributions to AR4 and addressed a broad range of policy-relevant issues in climate change in non technical style, it provides very synthesis information suitable for policymakers. The report includes six topics, but I feel that the content included in each topic is not very matching, some were written in detail and some are not, for example, in 1.2-Observed effects of climate changes (P4) in Topic 1-Observed changes in climate and their effects, very few descriptions are included related to weather system. All results are from WGII. It gives people an impression that the effects of climate change on weather system were not observed. Some information in P8 in Topic 2 should be included (WGI's results about effect of climate change on weather system). (Xueliang Guo, Institute of Atmospheric Physics, Chinese Academy of Sciences)	Noted; consistent with the plenary approved outline, the report distinguishes climate change, and effects of climate change. Changes in weather systems are part of climate change, not an effect of it. WGI contribution describes changes in weather patterns as far as they can be related to climate change.
0-13	E-0-13	A	0				There's a need to mention the linkages between the presented results with the Millennium Ecosystem Assessment goals.	Not clear what specific change or addition is requested. Impacts on

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							(Germán Poveda, Universidad Nacional de Colombia)	ecosystems are described as far as possible and consistent with the WGII assessment.
0-14	E-0-14	A	0				There seems to be some variation in making references to the full report. In quite a few instances reference is made to WG SPMs, instead of suitable WG Chapters. In some cases reference is made, perhaps a bit redundantly, to both. In others, the convention varies when it comes to WGI and to WGII. As an example, see Topic 3, page 12, lines 6-7. (In some cases it is, of course, very suitable to refer only to the SPMs, such as when a direct citation is made to a formulation in them.) Please revise when relevant. Also, one could choose to point out that the references given are not (always) exhaustive, but rather serve as entry points to relevant parts of the full report. (Markku Rummukainen, Swedish Meteorological and Hydrological Institute (SMHI))	Noted and made consistent in revision. Foreword to the report will clarify use of references.
0-15	E-0-15	A	0				There is quite a bit of repetition in section 4.4 of topic 4 and section 5.3 of topic 5. Kindly avoid this if possible. (Upasna Sharma, Indian Institute of Technology, Bombay)	Noted and addressed in revision.
0-16	E-0-16	A	0				There is not much information for most parts of Asia, except that for the megadeltas. There is decidedly the paucity of data, but having reviewed the chapter on Asia in the IPCC WG II Report, a very serious point raised was regarding validation of what were included in the details regarding changes, particularly in terms of observed rainfall characteristics in areas in SE Asia (in particular, the Philippines). (Lourdes Tibig, Philippine Atmospheric, Geophysical and Astronomical Services Administration)	Noted; information on Asia is consistent with WGI and WGII findings. Only broad patterns and significant aspects of change can be described in SYR.
0-17	E-0-17	A	0				There is no mention of the limitations of conventional and non-conventional oil and natural gas resources (I do mean resources, and not reserves, although I exclude methane hydrates), of which the constraints on conventional oil resources are the most pressing in time-line terms. Presumably, despite reviewer comments seeking that this topic be properly explored, the final version of the relevant WGIII has not done this. The implications of "the peak oil problem", with natural gas following later this century, are profound but not wholly negative provided they are seen as giving added impetus to the need to promote both energy efficiency and non-fossil fuel use more urgently. This subject should surely be a main focus for the 5AR. (Michael Jefferson, World Renewable Energy Network and Congresses)	Noted for possible AR5.
0-18	E-0-18	A	0				There is an unbalanced presentation of the policy summaries of the three groups with the synthesis report heavily skewed towards WGI and WGII summary reports. (Mustafa Babiker, Saudi Aramco)	No evidence or details provided for the claimed bias; therefore no specific changes made in response to this comment.
0-19	E-0-19	A	0				There is an evident intention to avoid the term "renewable energy sources" as one of the most important elements in the mitigation of climate change. "Renewable energy sources" are never mentioned in the SPM. Furthermore, when this term should be mentioned, "new technologies"	Rejected; there is no deliberate attempt to favour or avoid reference to any specific

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							term is often used. (Christian Kjaer, European Wind Energy Association (EWEA))	technology. Space limitations in the SYR require the use of more summary terms rather than listing specific technologies.
0-20	E-0-20	A	0				There is a need to be consistent in the language used to indicate likelihood and confidence used through the report. The use of different types of terms without defining what they mean relative to each other is not helpful and somewhat confusing. (Roger Street, UKCIP-OUCE)	Noted; footnotes pointing to definitions at first use have been added.
0-21	E-0-21	A	0				there is a larger need to communicate and informate layman people on the causes, effects, challenges and alternatives to face adverse effects of climate change, particularly in developing countries (Germán Poveda, Universidad Nacional de Colombia)	Noted; this is what this report is aiming to do, together with the underlying WG reports. No specific change requested.
0-22	E-0-22	A	0				There are many tables and graphs that not need to be in this synthesis. The space is needed more to present the different scientific views and give an unbiased analysis of the subject. Therefore it is recommended to reduce the number of tables and graphs and dedicate the space for more representation of the debate. Some statements also are repeated in from the summary in the report on the estimates of CO2 increases, that could also be removed to save space. (Mohammed Alfehaid, Ministry of Petroleum)	Tables and graphs are essential means to convey scientific information. Uncertainties are addressed in the text where they are relevant to decision-making.
0-23	E-0-23	A	0				There appears to be a tendency to accord more confidence to model results than to empirical studies. It is hard to know whether this is a true reflection of the texts from which this report is drawn or if, perhaps, this reflects an emphasis on general statements, which are more likely to be supported by generalized models than by more specific case studies. I recommend acknowledging this explicitly, with a statement such as, "Higher confidence is generally placed in model results" with a caveat about models' weaknesses and, if the cause for the tendency can be discerned, a "because" statement. (Elizabeth L Malone, Pacific Northwest National Laboratory)	Rejected: The suggested text would not be appropriate as statements on likelihood or confidence do not place higher confidence in model results than in empirical evidence. The basis for such statements and the context in which model results are used is dealt with in detail in the WG reports. In particular, the climate models used in projections and attribution are critically evaluated in Chapter 8 of the WG I report.
0-24	E-0-24	A	0				The text is very carefully and cautiously written and well illustrated. (Yola Verhasselt, VUB (Vrije Universiteit Brussel))	Noted, thank you.
0-25	E-0-25	A	0				The term "Forcing" or "Climate Forcing" should be defined and discussed in the glossary. (Knute Nadelhoffer, University of Michigan)	Included in glossary.

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0-26	E-0-26	A	0				The synthesis report understates the importance, the potential rate of sea level rise, the urgency and the potential for large impacts from sea level rise. (John Church, CSIRO)	Noted; revisions to text have been made in several places to address specific comments related to sea level rise.
0-27	E-0-27	A	0				The synthesis report is superb. I was very impressed with its clarity, rigor, and relevance to policy makers. I congratulate the authors on a fantastic report. (F. Stuart Chapin, III, University of Alaska Fairbanks)	Thank you.
0-28	E-0-28	A	0				The report is well written, the content is sound and should meet the interest of the readership. However, the format, i.e. the structure, is not so clearly made for a not-scientist readership. I believe that the impact of the report within the press world, for example, would increase if the structure of the report would be clearer. For example, the chapters are not numbered, a "Table of content" is missing, a "Conclusions" chapter is missing. I was somehow lost in the pages when reading the report. (Paolo Cherubini, WSL Swiss Federal Research Institute)	Noted, and clearer structure with headings and numbering provided. Conclusions are not within the Panel approved outline.
0-29	E-0-29	A	0				The report is a major achievement and all authors are to be congratulated on the thoroughness and professionalism of the content. (Robert Kay, Coastal Zone Management Pty Ltd)	Thank you.
0-30	E-0-30	A	0				The report greatly underplays the issue of ocean acidification and the threat that is posed to marine life. This issue needs to be addressed throughout the report--every time potential impacts on oceans are discussed. (Michael MacCracken, Climate Institute)	Noted; ocean acidification is mentioned whenever relevant and substantive information is available from underlying WG reports.
0-31	E-0-31	A	0				The report as a whole is inconsistent in describing the urgency of the climate change problem. The SPM seems quite restrained, yet the coverage of the topics in the back indicates a much greater sense of urgency. For example, the bold text on page 1 of Topic 5, lines 25-32 should be placed at the very start of the SPM to give an overall sense of the findings--the situation is more serious than had been thought, especially with regard to impacts and the magnitude of the potential warming. The tone with respect to the potential for significant sea level rise is also much too cautious, given the early signs of deterioration of the Greenland Ice Sheet (and even parts of the Antarctic Ice Sheet) and the very great importance of the omitted term involving ice dynamics, which, over centuries is surely the dominant term based on paleoclimatic understanding. (Michael MacCracken, Climate Institute)	Urgency is a subjective notion that would be inappropriate in an IPCC report. The report presents the findings of the WG reports, within the outline approved by governments. Wording related to sea level rise has been revised for full consistency with relevant parts of the underlying WG reports. A sentence has been included in Topic 5 which reflects the sense of the underlying reports: "There is, nonetheless, a risk that larger sea level contributions from both the Greenland and Antarctic ice sheets could occur on century time scales, because ice

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								dynamical processes not included in current ice sheet models, but seen in recent observations, could increase the rate of ice loss."
0-32	E-0-32	A	0				The proposed changes in SPM, affects the different Topics too. (Cristobal Felix Diaz Morejon, Ministry of Science, Technology and the Environment)	Noted and taken into account where relevant.
0-33	E-0-33	A	0				The projected temperature rise defies logic, given that the USA and global temperatures have risen by (at most) only 1 deg F (.5 C) in 100 years (NOAA, May 2007), during the height of industrial expansion. This is a trivial amount in the natural variation of the Earth, and to suggest the rise would accelerate 5 fold (IPCC best estimate) in this century is incredible. NOAA's new data set, released on May 1, addressed some of the urban heat island issues, dropping the warming well below IPCC 2007, but significant other data issues still remain. Also, the Earth was much warmer in the prior interglacial, just 125,000 years ago. This cries out for comparable treatment with the scare stories. (John Everett, Ocean Associates, Inc.)	Rejected; the projected global warming in the 21st century for specific emission scenarios is explained in the WG I report and the potential for further considerable increase in global GHG emissions is covered in the WG III report. These assessments are fully consistent with historical data on emissions, concentrations and temperatures. The NOAA data set referred to by the reviewer is not the primary temperature data set used in this assessment and urban heat island issues are considered in Chapter 3 of the WG I report. The report explicitly acknowledges that the Earth was warmer in the last interglacial (and that sea level was higher).
0-34	E-0-34	A	0				The issue of negative spillovers resulting from mitigation actions was an integral part of WGIII report. While in the SYR chose to ignore totally this important and crucial issue. Does that mean the IPCC refuse to admit those negative spillovers although the literature support their existence and warn about their consequences? (Mohammed Alfehaid, Ministry of Petroleum)	Accepted; spillovers are now included in topic 4 and SPM.
0-35	E-0-35	A	0				The IPCC Synthesis – Fourth Assessment Report is clear with new information and don't need any other comments. (Ana Ramos-Pereira, University of Lisbon)	Noted, thank you.
0-36	E-0-36	A	0				The IPCC Impact Assessment discounts the benefits that come with a warming climate and accentuates the negatives. Most negatives lie within the unrealistic worst case climate scenarios. Whether a fish in the ocean, a shrimp in a pond, or a bean on a vine, it will grow faster when it is warmer, all things being equal. Humans will be quick to take advantage of a	The report reflects the balance of findings in the WGII report and its SPM. Observed greening of the earth is presented in topic 1.

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							warmer climate. More crops grow where it is warm than in frozen ground, and CO2 is a primary food of plants - basic facts that seem lost. However, the impact is visible to NASA satellites, which have detected a 6% greening of the Earth in the last 2 decades from a warmer, wetter, higher-CO2 Earth (NASA 2003). Findings like this are rarely highlighted in IPCC SPM documents, seemingly displaced by negative interpretations by over zealous contributors. (John Everett, Ocean Associates, Inc.)	However, the positive impacts suggested by the reviewer are by far not the only ones and in many cases are counterbalanced and outweighed by negative ones.
0-37	E-0-37	A	0				The GLOBE is NOT "Warming". Every measurement shows that there has been no significant temperature change for the past eight years. You try to cover this up by talking about the "fifth largest" etc. based on the pretence that the "global surface temperature record" is accurate. The current temperature behaviour is incompatible with the theory that greenhouse gas emissions are changing the climate. The theory is therefore wrong. (Vincent Gray, None)	Rejected; see detailed assessment in WGI chapter 3, 4 and 5 together with 6.
0-38	E-0-38	A	0				The draft synthesis report fairly represents the essence of the full reports, and the summary for policymakers shows encouragingly little, if any, evidence of political manipulation. Compliments to the firmness of the expert group! (Robert Brinkman, Retired)	Noted, thank you.
0-39	E-0-39	A	0				The Draft Synthesis Report captures the essence of the three WG reports: it provides a fair and unambiguous summary of the key findings and robust conclusions these reports and recognises explicitly the continuing areas of scientific uncertainty. The summary for policymakers is also clear, successfully conveying the key findings and conclusions of the whole process in a readily understandable form. Compliments to the clarity of purpose and drafting skills of the expert group! (Edward Clay, Overseas Development Institute)	Noted, thank you.
0-40	E-0-40	A	0				The draft provides a good summary of the three IPCC assessment reports. I fully agree with those parts of the draft that are belonging to my area of expertise. (Thomas Bruckner, Technical University of Berlin)	Noted, thank you.
0-41	E-0-41	A	0				The draft document is clearly and well-written, but the present structure is unsatisfactory. The 21-page PMS covers Topics 1 – 3 in fully adequate detail rendering these three separate topics redundant. In Topic 4 there are elements of pages 6 – 10 that are worth introducing in more detail into an expanded single chapter document (i.e. a slightly expanded PMS). Fig. 4.2, Table 4.2, and some of the text in sections 4.3 and 4.5 are worth including as an expansion of what now appears in the draft PMS. Topic 5 is already covered adequately in the draft PMS. Topic 6 is also already covered adequately in the draft PMS. Thus in my judgement a single chapter Synthesis Report of some 24-pages (the existing 21-page PMS plus three pages of additional material from Topic/Chapter 4) is all that is required. (Michael Jefferson, World Renewable Energy Network and Congresses)	Noted; however, the report must follow the Panel approved outline which specifies a SPM of up to 5 pages of text, and a longer report of up to 30 pages of text including maps and figures.

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0-42	E-0-42	A	0				The documents are well-prepared. My recommendation is that the next Assessment needs to consider the impacts of future climate on marine ecosystems, beyond sea level rise. This will require including oceanographers, marine scientists, and fisheries biologists into the assessment process from the start. The science is sufficiently mature to do this, and the social, economic, and environmental costs and consequences are significant. (Franklin Schwing, US Dept. of Commerce)	Noted for possible AR5.
0-43	E-0-43	A	0				The different topics give a good idea of the content of the full report and cover most of the important information although it is not easy to read, given the fact that there are numerous references. (Jean-Yves Caneill, EDF)	Noted, and wording revised in an attempt to make the report more readable. References are unavoidable and important.
0-44	E-0-44	A	0				The "rate of growth" of methane in the atmosphere has been steadily falling since records began in 1984, and the actual concentration is now falling, at an increasing rate. It can hardly be considered a menace, even if you believe the "greenhouse" theory.. Every one of the "emissions scenarios" is wrong in predicting that methane concentration is increasing. (Vincent Gray, None)	Rejected; The WG I report notes the lack of growth in methane since the 1990s and points out that causes for changes in methane growth rates are poorly understood. Lack of growth in methane is more than compensated by larger decreases in actual sulphur emissions than given in the emission scenarios used so that total observed radiative forcing in 2005 (1.6 W/m ²) is tracking higher than all of the SRES scenarios (cf TAR WG I Appendix II, Table II.3.11).
0-45	E-0-45	A	0				Streamlined and to the point. Format excellent. (Paul Epstein, Harvard Medical School)	Thank you.
0-46	E-0-46	A	0				Specific comments regarding degree of uncertainty in precipitation changes and impacts. SPM pg 9 line 12-28 "higher confidence in ...including...precipitation..." and following, is an example where the careful statements of what specific features are estimated to change with what confidence estimates do an excellent job of succinctly conveying the best estimate. Topic 3, pg 5 line 2-6, however, should convey at least a phrase of caveat on the sobering disagreement among models on precipitation change patterns. Suggestion: pg 5, line3, at start of sentence before "Increases in..." insert: "While many regional aspects of precipitation change patterns remain uncertain, " (and change "while" later in sentence to "and"). Topic 3, pg. 7 lines 25-49 could use a similar caveat, but it might be possible to omit this for brevity if it is included on pg 5. Topic 2, page8, line 15-17 is ok as stands provide the caveat is inserted in Topic 3 and Topic 6. (J. David Neelin, UCLA)	Noted but rejected; models do not disagree with each other everywhere, and the map clearly demonstrates the high degree of agreement among models in some broad regions (but disagreement in others), which is what the text refers to; wording follows approved WGI SPM wording.

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0-47	E-0-47	A	0				Overall: I found this document to provide a very valuable overview. As a reviewer of some chapters from the Working Group 1 report, I found the condensation of that material for the synthesis report to be accurate and reliable. I have not read the Working Group 2 document, but found the condensed material all the more interesting --- it appears to be a valuable way of conveying this information to a broader audience. My congratulations and admiration to the authors on pulling this document together. I do however, have a concern about a particular aspect of the subject in which I have expertise, precipitation processes in the hydrological cycle. While I agree with almost all that is written in each particular sentence, I have a feeling that the document, especially certain parts that appear to arise from Working Group 2, is not fully conveying the degree of uncertainty associated with current simulations of precipitation. My specific comments below attempt to address this. (J. David Neelin, UCLA)	Noted; wording in topic 3 relating to projections of impacts based on WGII has been revised in several places. Remaining wording is consistent with the wording chosen in the approved WGI and WGII SPMs.
0-48	E-0-48	A	0				Overall, I see no problem, and the draft is now ready to be published. (Tetsuya Matsui, Hokkaido Research Centre, Forestry and Forest Products Research Institute (FFPRI))	Noted.
0-49	E-0-49	A	0				Overall I think the synthesis report is well put together and informative, and provides a good summary of the parts of the WG1 assessment I'm familiar with. I think the authors should be commended on it. (Nathan Gillett, University of East Anglia)	Noted, thank you.
0-50	E-0-50	A	0				One important policy-relevant message from AR4 is that uneven distribution of climate impacts combined with uneven capacities to cope with climate related stress means that many poorer countries will be most badly hit by future climate change. This is poorly reflected in the SPM. Information from Topic 5, section 5.9, page 13 lines 44-46 and page 14 lines 7-9 should be reflected in the SPM. (Kenneth Möllersten, Swedish Energy Agency)	This information has been brought up more clearly in the revised SPM, beginning of section 5.
0-51	E-0-51	A	0				Ocean heat and sea level are also cyclic. Measurements of ocean heat only rarely go back to the previous cycle and their accuracy and reliability is currently in question after papers showing they are biased upwards, and that they may not show a current cooling. Recent measurements of sea level in the Pacific, both by tide-gauge and by satellite, show that sea levels are not at present rising. The predictions are all bound to be wrong (Vincent Gray, None)	Rejected: Reviewer provides no evidence or references for assertions made and appears to confuse regional variability of sea level rise with global average sea level rise.
0-52	E-0-52	A	0				No computer model of the climate has ever been VALIDATED", by which I mean, rigorously tested for its ability to predict future climate to an acceptable level of accuracy. As a result, they are mere "projections" but never "predictions". The attempt to pretend otherwise throughout all the reports is completely dishonest. It depends on spurious "levels" of "likelihood" based on the mere opinions of "experts" who have a conflict of interest, as having a financial stake in the outcome of these opinions. None of these claims have any basis for validity.	Rejected; models are increasingly able to reproduce climates of the past, given sufficient information about forcing; see WGI chapters 6, 8 and 9. The word projections is used consistently throughout the report.

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							(Vincent Gray, None)	
0-53	E-0-53	A	0				Net "radiative forcing" involves so many components of doubtful accuracy, that there is a high "likelihood" that it is zero or negative. (Vincent Gray, None)	Rejected; WGI Chapter 2 provides a comprehensive assessment of uncertainties in radiative forcing and how these are combined using published and peer reviewed methods.
0-54	E-0-54	A	0				Monitoring systems in developing world need to be established to assess CC and adaptation & mitigation plans (Germán Poveda, Universidad Nacional de Colombia)	Noted; research needs are not within the scope or mandate of the SYR.
0-55	E-0-55	A	0				message is clear. It is fine with the draft (Hisayoshi Morisugi, Japan Research Institute)	Noted, thank you.
0-56	E-0-56	A	0				Measurments of carbon dioxide are unrepresentative and distorted. They are not disclosed over land, where they are supposed to be important, there is no information on variability, which is needed if "radiative forcing" calculations are to be plausible, and the more than 90,000 carbon dioxide measurements in the atmosphere before 1958 have been ruthlessly suppressed. (see Beck 2007 "Energy and Environment" Vol 18 pages 259-282) (Vincent Gray, None)	Rejected; global average CO ₂ concentrations include data over land and take into account that these concentrations are spatially homogeneous above the surface boundary layer. Data prior to 1958 is drawn from firn and ice core data which are known to be much more precise than early "wet" chemical measurements and this is consistent with published reviews of different measurement techniques.
0-57	E-0-57	A	0				Many WGIII insights need to be better reflected both in the Summary section and in the sections under topics 4 and 5. These insights include policy options related to technologies and mitigation and their effectiveness, distribution of mitigation burdens, spillovers and developing countries impacts related to response measures. (Mohammed Alfehaid, Ministry of Petroleum)	Noted and text revised/expanded where possible and appropriate.
0-58	E-0-58	A	0				It is not always clear which baseline changes-in-temperature are referenced too, often two are given, sometimes (SPM 13 28) none are given. What is the range of relevance of footnote 5 in Topic 5 page 2? Is it the entire report (if so could this footnote be earlier?). Double-check consistency whenever two reference values are stated (on topic 5 pg 11 it is 0.5 degrees; is it always 0.5 (periods 1980-1999 and "pre-industrial"). Then in Topic 5 pg 5 ln 18, the difference between 1990-2000 levels and "preindustrial" levels is 0.6C. Such variation will cause confusion and red-herring argument. Can the same reference period be used throughout? [At	Reference periods have been harmonised and the offset of about half a degree C between preindustrial and 1980-1999 is stated earlier.

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							least within the SPM?] (Why the needless complicaition which can lead to confusion?) (Leonard Allen Smith, London School of Economics)	
0-59	E-0-59	A	0				It is assumed that the synthesis report (and perhaps only its SPM) may be the only IPCC document that some people read. Since many will not be familiar with the larger working group reports it is important that statements in the synthesis report and accompanying SPM be clear. This is not always the case and more specific examples are provided for relevant sections of the full report or SPM. (Sharon Smith, Geological Survey of Canada)	Noted.
0-60	E-0-60	A	0				In my opinion Topic 6 would be a better Summary for Policymakers than the document presented under this name. It is succinct, unambiguous, and presents a clear summary of the current consensus on the different aspects of climate change. The current SPM represents a valiant attempt to condense a lot of informative material, but because it is selective it is more open to criticism of political bias by antagonists of the IPCC. (George Walker, Aon Re Asia Pacific)	Noted; however, Topic 6 only contains robust findings, whereas many other findings are also policy relevant despite or even because of their uncertainty.
0-61	E-0-61	A	0				In my opinion Figure 1.1 in the full IPCC Fourth Assessment Report (comparing observed temperature evolution since 1990 with model predictions) is extremely instructive and persuasive. I would have liked to see that figure either in SPM or in Topic 1 (Jon Egill Kristjansson, University of Oslo)	Noted, but rejected for space reasons.
0-62	E-0-62	A	0				In Glossary, In definition of development path or pathway include ENVIRONMENTAL characteristics joint with social, economic, institutional and others. (Cristobal Felix Diaz Morejon, Ministry of Science, Technology and the Environment)	glossary is not open for review but forwarded to glossary editor
0-63	E-0-63	A	0				In Glossary in term deforestation not is so simply "Conversion of forest to non-forest", because includes too the destruction in an area of trees and other vegetation (forest) by cut its or destruction by fire, pests, or others (Cristobal Felix Diaz Morejon, Ministry of Science, Technology and the Environment)	glossary is not open for review but forwarded to glossary editor
0-64	E-0-64	A	0				In general the synthesied and intergrated material, contained in the IPCC assessment reports and special reports, is very well covered and presented throughout with the exceptions listed above. My congratulations to the authors. The Chapter on Frequently asked questions is specially welcomed. (Caroline Leck, Department of Meteorology)	Noted; seems not to refer to SYR?
0-65	E-0-65	A	0				In general, the SYR is a good summary of the findings of AR4. However, one key aspect of the SYR is that it should convey messages in a way and in words that can easily be understood by people who may be experts in other technical, social or economic fields but climate change. It is a good practice to have bold-faced text under each section that summarizes key messages, and such sections can be found in many sections, but not all. Also, these sections should focus on the results of the analyses, rather that on repeating, many times, how much more confident we are in the findings. This latter is of course important, however, more specific	Bold headings have been revised and streamlined in many places; however, we do not wish to provide headlines for the sake of it, but only where they can meaningfully condense key findings

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							information with data or expected consequences on ecosystems/societies/sectors/regions etc. would be better. Example: for Topic 2, section 6, rows 1-24, a summary sentence with concrete information could be: "The global average surface warming following a doubling of CO ₂ concentrations is likely to stabilize as a temperature change from now in the range of 2 to 4.5°C with a best estimate of about 3°C, and with a very unlikely event to be less than 1.5°C". (Zoltán Somogyi, Hungarian Forest Research Institute)	
0-66	E-0-66	A	0				In general, I found the document clear and concise. Some parts and remarks are repetitive but I think that this makes sense to allow the understanding of the sections independently. However I noticed that there are quite few references to food security along the document what I think is an important issue for developing countries especially under the increasing pressure for biofuels. Regarding the functioning of natural ecosystems it is important to mention that little is know about critical thresholds that can induce an earlier collapse of these systems. (Mercedes Bustamante, University of Brasilia)	Issue of biofuels is addressed in topic 4.4. Ecosystem thresholds are not expanded on because lack of knowledge goes in both directions, hence emphasis of potential earlier collapse would be biased.
0-67	E-0-67	A	0				In a significant number of places the overall document reads like a document put together by cutting and pasting miscellaneous independent observations with little attempt to maintain consistency of style and content, resulting in a an uneven document with some very good parts and some rather mediocre parts, with a number of apparent inconsistencies and a failure to capture some of the synergy between different topics. There also seems to have been a bias in the the selection of information to be included, with greater weight being given to information on negative impacts. In my opinion it is a document that can easily criticised by those who are antogonistic to the idea of anthropomorphic climate change, which seems to defeat its purpose. These comments particularly relate to the material concerned with Topic 3. (George Walker, Aon Re Asia Pacific)	Text has been revised extensively to provide for a more consistent appearance. The selection of impacts follows the balance of staements in the underlying WG reports and their SPMs.
0-68	E-0-68	A	0				I was surprised by the different language used in the SPM and in the various topics that surrounded impacts and the science of climate change. Eg the language of uncertainty is "very likely", versus "high agreement" and "much evidence". So is "high agreement" and "much evidence" a calibrated language, and if so should it be described in the uncertainty box?. Apologies I found the definition of high agreement and much evidence in the introduction. (Nathaniel Bindoff, CSIRO MAR and University of Tasmania)	As reviewer notes the terminology of high agreement much evidence etc is standardized language defined in the IPCC uncertainty guidance note.
0-69	E-0-69	A	0				I think the report is of high standard and I do not detect any errors or omissions. (David Shearman, University of Adelaide)	Noted, thank you.
0-70	E-0-70	A	0				I suggest adding in the section on Topic 6 the statements describing the methodologies used to assess uncertainty in the report. (Mohammed Alfehaid, Ministry of Petroleum)	The requested level of detail can only be included in the WG reports due to the Panel's set length constraints on the SYR.

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								Overview of uncertainty language is found in introduction to the longer report.
0-71	E-0-71	A	0				I have read the IPCC synthesis report and have no detailed comments to make on it. My only comment is that, while it captures the key issues, it is not an easy read. Given that it is aimed at policy makers this may be a problem. (Merik Srokosz, National Oceanography Centre)	Noted; wording revised for easier readability.
0-72	E-0-72	A	0				I have read the IPCC 4th Assessment Synthesis documents, and I find them to be well written with good content. I have no critical comments or corrections. (Gregg Brunskill, Australian Institute of Marine Science)	Noted, thank you.
0-73	E-0-73	A	0				I have read the draft synthesis report, and I did not find any problems with it. (Bruce Kimball, USDA, Agricultural Research Service)	Noted, thank you.
0-74	E-0-74	A	0				I have no special comments to make to the Synthesis Report. I found it consistent, well organized and complete (Luciana das Neves, University of Porto)	Noted, thank you.
0-75	E-0-75	A	0				I find the document to be of good, useful and comprehensive quality. The only issue that perhaps should be more emphasised in the text is that assessment of responses to climate change in human altered systems (historically and ongoing) are extremely difficult, because of multiple non-climate driving forces nested with direct and indirect climate driving forces. (Annika Hofgaard, Norwegian Institute for Nature Research - NINA)	Difficulty of detection of effects in human systems is referred to in headline statements both in SPM and topic 1.
0-76	E-0-76	A	0				I do not have any specific comments to this document because of the high quality in the preparation and scientific rigour shown during the review in the elaboration stage. (Nadia Rosa Gamboa Fuentes, Pontificia Universidad Catolica Del Peru)	Noted, thank you.
0-77	E-0-77	A	0				I did not like the expressions "high agreement" that is used throughout the Synt. Rep. but mostly without stating "between what" there is agreement. Presumably what is meant is "in the scientific community" Perhaps one could add a footnote explaining details ... (Rolf Mueller, Research Centre Juelich)	Taken into account; the calibrated uncertainty language is explained in the introduction to the longer report; with footnotes in the SPM.
0-78	E-0-78	A	0				I can't go on like this. When will this monumental idiocy and exercise in science fiction cease? It has now got completely out of control, and violates every principle of common sense, decency, science, reason, and sanity. I propose to summarize the reasons why this Report, and indeed the entire IPCC process is misconceived, fundamentally flawed, and dangerously misguided. The following items are a list of the reasons why almost everything in this report should be rejected. For a suitable fee, I am prepared to submit an alternative series of "Topics" (Vincent Gray, None)	No specific revision suggested.
0-79	E-0-79	A	0				I believe we are on the wrong path. The worst-case impacts, from worst-case scenarios, that have been run through an under-achieving model are insufficiently discounted in the IPCC	Rejected; the assessment is not based on worst case scenarios as

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							reports vis-à-vis better analyses. The result is a gross exaggeration of impacts in the press. We do not hear about minor impacts and benefits, only the “newsworthy” elements. To do realistic impact assessments, I have to sort through the science and projections. (John Everett, Ocean Associates, Inc.)	can be seen from the full range of such scenarios in the literature summarized in the WG III report, Similarly the full range of uncertainties in climate change projections, climate sensitivity, and corresponding impacts, is carried through the report consistently. The reviewer provides no evidence or literature to justify the statement that climate models are underachieving.
0-80	E-0-80	A	0				I believe the SR is very well done, but I would recommend the authors to revise it trying to make sure that repetitions are kept to a minimum. (Marco Mazzotti, ETH Zurich)	Noted, thank you; wording revised to address repetitions.
0-81	E-0-81	A	0				Having glanced through the material, I really have only one comment. That relates to the lack information about the effects of climate change on biodiversity, especially in the summary for policy makers. This surprised me because of the UN's Convention on Biological Diversity, and the focus in that Convention on the effects of climate change on the many known and unknown species on this planet. In the summary for policy makers, 'biodiversity' is mentioned only once, on line 22 of page 17 (unless I missed some other references). It records loss of biodiversity. In the Topic 3 paper, Australia and New Zealand are credited with 'significant loss of biodiversity' (line 8, page 9). In the topic 5 paper, there is reference to 'predominantly negative effects on biodiversity' (line 19, page 2) and 'adaptation will be ineffective ... as for biodiversity' (line 24, page 5). If I have searched correctly, I think that these are the only mentions of biodiversity in the collection of papers. I suggest that rather more is made about the effects of climate change on biodiversity in the summary for policy makers. Climate change will mean that the biodiversity of all areas of the planet will change (and I think that there is high confidence in that statement). In some ecosystems, as the example for Australia and New Zealand, this will result in a loss of biodiversity. In others situations, species will move into new areas, such as the beech tree (<i>Fagus sylvatica</i>) possibly reaching the shores of the Arctic Ocean (see details in the ACIA - the Arctic Climate Impacts Assessment - published a couple of years ago). So there may be both losses and gains in biodiversity, some aspects might be maintained by appropriate adaptation mechanisms, and there will be the threat of invasive, non-native species causing declines or even extinctions of native species as the climate changes. (Michael Usher, University of Stirling)	Noted; the condensed nature does not allow discussion of any specific subject matter in great detail; revised topic 3 includes discussion of impacts on ecosystems in general, and in several regional aspects.

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0-82	E-0-82	A	0				Great job overall! (Brian Amiro, University of Manitoba)	Thank you.
0-83	E-0-83	A	0				Good coverage of topics and good use of graphical elements. (Elizabeth L Malone, Pacific Northwest National Laboratory)	Thank you.
0-84	E-0-84	A	0				Glossary: "Climate Change" "refers to". Why can you not actually DEFINE it instead of "REFERRING it to something ? (Vincent Gray, None)	glossary is not open for review, but forwarded to glossary editor
0-85	E-0-85	A	0				Glossary. "Climate Sensitivity " "Refers to" but what is it? (Vincent Gray, None)	glossary is not open for review, but forwarded to glossary editor
0-86	E-0-86	A	0				Given the constraints that prevent reference to any new primary literature, I think that this document is a lucid and useful summary of the AR4 and there is not too much I can say. Of course I would like to see some more acknowledgment of the very recent literature on the major uncertainties and (perhaps) conservative nature of the AR4 scenarios and predictions, but I realise that this is not possible (in particular, literature relating to stability of ice sheets and on positive feedbacks related to trace gases)! (James Crampton, GNS Science)	Noted
0-87	E-0-87	A	0				Generally, I think this is a very good summary. It would be great if the summary provide a very brief concluding remarks with one or two paragraphs which are summary of the summary. (Tieju Ma, International Institute for Applied Systems Analysis)	Noted; a summary of the summary is not possible because of the inevitable bias such a condensation would introduce.
0-88	E-0-88	A	0				General comments: 1. My impression is that more thought needs to be given to who the report is aimed at - ie politicians or government civil servants or international bodies. In general the report is MUCH too technical for these groups and is not really a 'synthesis'. For me a synthesis is a relatively short document in which the absolute main points are presented and is not simply a 'cut and paste' of text and figures from the individual reports . Presentation of the topics is redundant to the synthesis report - my argument being that the SPM points to references to the three main reports and thus i do not see the need to repeat this information in the topics. I have thus restricted my comments to the SPM 2. There needs to be a one page summary as the start of the SPM in which the statements in bold type within the SPM are presented first - my argument being that this may be all that some policy makers will read.3. The grammatical style of the report is much too 'laid back' and wordy. It needs to be much more snappy, professional and active. I know that grammatical issues will be taken care of later but this is not a small task and for me this issue is as much about style as grammar etc.4. The feeling of the SPM is that it has been crafted more to satisfy the need for inclusiveness of participants than to be a useful document for policy people - this is seen by the very high level of detail presented in the SPM. The SPM needs to be an 'external' document and not an 'internal' IPCC document. 5. The report would be much more readable if written in the active voice - currently it reads like a scientific review paper and using the active voice would shorten	Wording has been revised to make report more accessible, but generally follows the wording used in the WG SPMs approved by governments. A summary of the summary is not possible because of the inevitable bias in such a condensation.

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							it and make it more reader friendly. (John R. Porter, University of Copenhagen)	
0-89	E-0-89	A	0				General Comment: I find the organisation of the AR4 SYR far better than the TAR SYR, as it is more accessible. (Lisa Schipper, Southeast Asia START Regional Centre, Chulalongkorn University)	Noted.
0-90	E-0-90	A	0				General comment - For the most part comprehensive and readable, if somewhat turgid for non-scientific readers. Good on historical data but at times a little too reluctant to speculate what is going to happen over the next decade; e.g. target audience particularly interested in likely rate of sea level change (from 1.5 to 3.1 mm pa between IPCC 2001 and IPCC 2007 to ...). Tendency for a northern hemisphere bias in the report despite southern continents and countries being particularly exposed to climate variability and climate change. (David White, ASIT Consulting)	Noted; wording revised to make it less turgid. Speculation about future trends based on past observations only would be unscientific. Northern hemisphere bias reflects availability of data (see e.g. topic 1).
0-91	E-0-91	A	0				From the decision makers view point, "increased confidence" "more evidence" "greater confidence in the projected ..." and the like are of little value without concrete statements of quality. Are the results much improved but still horribly unrealistic? Or is the information already reliable to the extent to be of value in quantitative risk analysis. Please state the spatial scales and time average values of model output that are currently of quantitative relevance to risk analysis? Once this is done, then those in decision-support and policy follow the model improvement over the years as quantitative information moves from global-annual average scales to scales of value to their particular tasks. Can we have a clear statement of where the cutoff in quantitatively reliable information is today? Is it a function of lead-time or other unexpected variables? (Leonard Allen Smith, London School of Economics)	Wording reflects generally the wording that governments decided was most appropriate in the approved SPMs of the WG reports. Absolute measures of quality of projections do not exist, we can only report on, e.g., greater agreement between models compared to the TAR, as is done e.g. in topic 3, or agreement between model simulations and past observations (e.g. topic 2).
0-92	E-0-92	A	0				Errata in the glossary (braket in ozone definition) (Pedro Ribera, Universidad Pablo de Olavide)	glossary not open for review, but forwarded to glossary editor
0-93	E-0-93	A	0				Energy security on the other hand was exceedingly emphasized as a benefit of mitigation policies, especially energy importation which is particular to oil and gas, was addressed and its curtailment recommended. [e.g. see table 4.3] (Mohammed Alfehaid, Ministry of Petroleum)	Comment not clear; no specific change requested.
0-94	E-0-94	A	0				El Nino seems to be mentioned only once, and then in the context of the 1976 Pacific mode shift. Why is there no discussion anywhere of future changes in El Nino, including both the model-mean view and the range of model outcomes and other views? Chapter 10 of WGI provides an ample basis. (Michael Oppenheimer, Princeton University)	Detailed discussion of El Niño is not possible within space constraints of SYR; findings on projections for El Niño are essentially unchanged since the TAR. Models remain inconsistent with regard to future evolution of

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								the strength El Niño oscillation.
0-95	E-0-95	A	0				Editorial: There are many uses of a hyphen instead of a proper minus sign. (Rolf Mueller, Research Centre Juelich)	Addressed; editorial check will be done before publication
0-96	E-0-96	A	0				Definition(s) of “regional” is required, what length-scales should decision makers have in mind when they read “regional” or “regional-scale”? (Leonard Allen Smith, London School of Economics)	Wording revised where relevant to make scale clearer; there is no universal scale to the word “regional”
0-97	E-0-97	A	0				contents page is missing (Marcel Marchand, Delft Hydraulics)	Added to final government draft
0-98	E-0-98	A	0				Comments on the Glossary. Your definition of "Biofuel" applies to coal, oil and natural gas, does it not? (Vincent Gray, None)	glossary not open for review, but forwarded to glossary editor
0-99	E-0-99	A	0				Comments 3, 4, and 5 refer flaws imported from WGII [TSU note: Comments "3, 4, and 5" refer to comments 3-474, 5-149, 5-152 respectively]. (Georg Kaser, Geography)	Noted and addressed in relevant topics.
0-100	E-0-100	A	0				Comments 2 [TSU note: See Comment SPM-163] ,3 [TSU note: See Comment SPM-313],4 [TSU note: See Comment SPM-661] above also apply to equivalent sections in Topics 1 and 2. (Joanna Haigh, Imperial College)	Noted and addressed in relevant place.
0-101	E-0-101	A	0				Comment: This draft fulfills its goals by being highly accessible, written in a non-technical style suitable for policymakers as well as the educated public. Structure is excellent & content is very clear and readable. (Kim Knowlton, Columbia University)	Thank you.
0-102	E-0-102	A	0				Clarification of levels of evidence: How reliable is model evidence? Are the statements like “current models suggest”, “current model simulations” “current model studies” and the like intended as disclaimers? Clarify, for example, if the “likely range” quoted for model results is the 90% range for additional runs of current models or an objective range for the probable temperature of the planet. (Leonard Allen Smith, London School of Economics)	Point noted but given length constraints further detail has to be left to the WG reports. As per Introduction, 90% or other likelihood language expresses the assessed probability of occurrence based on numbers of model simulations or similar evidence. Phrases such as “current models suggest” are used where fewer comparable simulations are available and are intended to mean just what the

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								words state.
0-103	E-0-103	A	0				Carbon dioxide measurements in the atmosphere are unrepresentative and distorted. They are not disclosed over land where they are supposed to be important. There is no information on variability, which is essential for a plausible calculation of radiative forcing, since this depends on the logarithm of concentration, so that variations below the average are far more important than variations above the average. More than 90,000 published measurements of atmospheric carbon dioxide concentration in the peer reviewed literature before 1958 have been ruthlessly suppressed (see Beck 2007 "Energy and Environment" Vol 18 pages 259-282), (Vincent Gray, None)	See comment 0-56.
0-104	E-0-104	A	0				Attempts to squeeze too much information into tight space in the summary section have resulted in some statements and sentences being less meaningful especially when crucial qualifications in the original text of SPM1, SPM2, and SPM3 are dropped in the process. (Mustafa Babiker, Saudi Aramco)	Noted, however, no details provided and authors see no obvious point for change.
0-105	E-0-105	A	0				Attempts to simulate the unreliable surface record by adjustment of the poorly characterised parameters of climate models, and incorporating the also poorly known "natural" climate influences of volcanoes and the sun, is fraudulent, since it deliberately omits the most important natural influence in the climate, the El Niño ocean oscillation. (Vincent Gray, None)	Rejected; We do not accept that the surface temperature record is unreliable over the last 150 years. AOGCMs have included forcing due to volcanic eruptions and correctly reproduced the corresponding short term coolings. Chapters 8 and 9 of the WG I report show that AOGCMs also correctly reproduce observed levels of natural variability in climate and they certainly do not omit El Niño.
0-106	E-0-106	A	0				As a reality check we need to consider that the Earth has been much warmer before, almost all the present species were present then, people live in the warmest places on the Earth and biodiversity is higher there also, and that human societies have done better when the Earth has been warmer and wetter, rather than cooler. Plants grow poorly in frozen grounds or when there are summer frosts. They need CO2 and it is in short supply. (John Everett, Ocean Associates, Inc.)	Rejected; generalisation as provided by reviewer is not correct, e.g. weeds tend to grow better than crops under elevated CO ₂ . Landscape fragmentation and human society was fundamentally different during earlier warm periods, as were rates of change, hence the past state of ecosystems during earlier warm periods is not a sufficient

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								and reliable guide to future impacts.
0-107	E-0-107	A	0				As a general comment, I found that there are many sentences repeated in different topics. Terms like heavy precipitation events, tropical cyclones intensity, etc are always used to justify vulnerabilities, impacts, risks, etc. But overall the Synthesis Report is clear and it gives a good idea from what can be found in the full report. (Tercio Ambrizzi, University of São Paulo)	Wording revised to address repetition; some repetition of terms is unavoidable due to the different angles under which the SYR is required to present climate change information.
0-108	E-0-108	A	0				As a general comment I want to say that the SYR does synthesize and integrate the material contained within the IPCC Assessment Reports and Special Reports. The summary for Policymakers is clearly written in an accessible language. The only question I would mention is related to page 5, lines 21 to 32. There, the report does explain that significant anthropogenic warming has been detected over each continent except Antarctica. No more explanation is given. I would suggest to include a sentence explaining what has happened over Antarctica. Otherwise, readers will not know if no trend/warming has occurred over Antarctica or if it is just that not enough data are available to make a continent scale assessment (the explanation is given in topic 2, page 7, line 16) (Pedro Ribera, Universidad Pablo de Olavide)	Footnote added that explains that insufficient observational coverage does not permit a continental-scale assessment.
0-109	E-0-109	A	0				Any mentioning of the Stern Report's results and implications for these findings? (Germán Poveda, Universidad Nacional de Colombia)	Reference to a single study is not generally appropriate for a high-level document such as the SYR.
0-110	E-0-110	A	0				A summary should be included for each topic at the end or beginning of the respective topic. (Ben Muirheid, International Fertilizer Trade Association (IFA))	Rejected; impossible due to space constraints. See SPM.
0-111	E-0-111	A	0				A major failing of the SYR is its lack of any discussion whatsoever of the West Antarctic ice sheet (WAIS). I believe that WAIS has been discussed in every, or almost every, major assessment for the past 25 years, going back long before the First Assessment of IPCC. WAIS was discussed extensively in the TAR SYR. It was discussed at length in the WGII SPM of AR4 and in Chapter 10 of WGI and Chapter 19 of WGII (the omission of WAIS from the WGI SPM is puzzling but does not justify its omissions from the SYR). It would be terribly puzzling to many scientists and some astute policy makers if WAIS were not mentioned in the SYR. I can think of only two rationalization for its absence here, and both are flawed. It could be argued that WAIS is not discussed because (in the language of Ch 10 of WGI and Ch 19 of WGII) there is "no consensus" on its future behavior. A lack of consensus is all the more reason to take note of the divergence of views on WAIS, as do Chapter 10, WGI and Chapter 19, WGII. Communication of that divergence could be as important to policy makers as would be report of a consensus, given that the range of views includes a substantial risk of high, and perhaps catastrophic, rates of sea level rise. A large range of views was report at the time of the TAR as well and was found to be worth reporting at some length in the TAR SYR. For example, the Vaughan and Spouge reference, cited in both the TAR (in pre-publication form)	The behaviour of the Antarctic ice sheet as a whole, including the lack of consensus on its future behaviour due to uncertain ice dynamical processes, is included in Topics 3 and 5 as well as the SPM. The risk that larger sea level rise contributions from Antarctica as a whole could occur on century time scales because of ice dynamical processes not included in current ice sheet models but seen in recent observations is specifically mentioned in Topic 5. The revised Topic 5 text goes into details as far as possible while

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							<p>and AR4 (in published version) summarizes the then-current range of views. Even then, before many of the recent observations in the Amudnsen Sea embayment, and before the collapse of Larsen B and accompanying rapid response of grounded ice, a substantial body of opinion supported rapid ice loss; if anything, we have more information that we did then, and the view that rapid ice loss from WAIS and resulting sea level rise is possible has gained strength due to the recent observations, as discussed in Chapters 10 and 19. Do these new observations mean we understand less than we did then? Perhaps, in the sense that they may have widened the range of uncertainty; all the more reason to discuss these findings at length. In light of these new observations, the lack of mention of WAIS is a spectacular omission. A second rationalization for omitting WAIS is that somehow it is thought to be subsumed under the statements about the Antarctic ice sheet. But this reasoning is similarly faulty. WAIS is distinctly different from the rest of Antarctica in its geologic origin, its past behavior, and its recent dynamics; it is treated quite distinctly in the "future risk" literature including the discussions in Chapter 10 and 19. Even the existing, flawed continental-scale ice sheet models show a markedly different behavior for WAIS than the rest of Antarctica: its mass balance turns negative at much lower levels of warming, even in these models. Much literature, and much discussion in AR4 chapters, links WAIS with the possibility of rapid ice loss. Although there are parts of the East Antarctic ice sheet where similar processes may operate, we know much less about those regions due to sparse observations, and discussions of them are either much shorter or entirely absent in Ch10 of WGI, Ch 19 of WGII, and earlier assessments. In summary, I can imagine no cogent reason for omitting mention of WAIS. Among the components of such text should be: mention of the risk of a sea level rise of ~5m if all of WAIS should disintegrate; mention of the range of views embodied in WGI Ch 10, and WGII Ch 19 which envision, at the extremes, the possibility of either very gradual loss of ice over millennia once the ice sheet warms >5 degrees or rapid loss at lower warming accompanied by sea level rise as fast as 1meter/century. A summary statement similar to that found in the WGII SPM that ties together the findings about ice loss in Greenland and West Antarctica with the paleoclimate evidence on sea level rise, would be most helpful. A discussion of WAIS in the SYR, sensitive to the recent observations of fast processes, the new evaluations of paleoclimate data and modeling, and the older (1999) evidence from models (which was cited in the TAR SYR as allowing rates of sea level rise from WAIS of up to 3m in one thousand years, a hefty addition to the AR4 rate from other sources) would greatly improve the widely-criticized AR4 presentation of the ice sheet/sea level rise issue. (Michael Oppenheimer, Princeton University)</p>	<p>remaining consistent with the assessments of both WGI and WGII on the issues surrounding the WAIS response to warming on centennial time scales. Further, Antarctica is appropriately considered as a whole, including both the East Antarctic Ice Sheet (EAIS, and possible increased snowfall and mass accumulation there) along with the West Antarctic Ice Sheet (WAIS).</p>
0-112	E-0-112	A	0				<p>4. Ocean acidification. There needs to be greater emphasis and description within the Synthesis Report on ocean acidification, given the developing scientific understanding of acidification and the attendant risk to marine food webs and coral ecosystems. (Magdalena Muir, Environmental and Legal Services Ltd.)</p>	<p>The SYR reports the effects of ocean acidification to the extent the underlying WG assessments provide a basis for such a discussion.</p>

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0-113	E-0-113	A	0				3. Contaminants and climate change. Recognition of increasing interactions between contaminants and with climate change. There is the specific issue of nutrients and eutrophication, where nutrients originate from land based sources. There is the broader issue of contaminants, whether heavy metals or hydrocarbons, which is already pertinent in the Arctic. The pathways of transport may change and increase with flooding, changes in sea ice and snow, and other changes of precipitation. Increased sea temperatures can result in greater uptake of contaminants in shellfish, fish, and marine mammals, with correlated impacts on human health. This situation with contaminants may be exacerbated when historically contaminated terrestrial and coastal lands have not been remediated, or where contamination is ongoing. For example, there are existing and high levels of contaminants in and around the Baltic, Black and Mediterranean Seas (including the Middle East and northern Africa). However, the same concerns could be applicable to the Gulf of Mexico, the Arabian and Caribbean Seas, and the Indian Ocean. (Magdalena Muir, Environmental and Legal Services Ltd.)	Too much detail that is not adequately supported by the underlying WG assessments.
0-114	E-0-114	A	0				2. Impacts on biodiversity, coasts and oceans, and vulnerable coastal and marine ecosystems. There is the need for greater recognition of impacts on biodiversity, coasts and oceans, and vulnerable coastal and marine ecosystems, particularly bays, estuaries, deltas, lagunas, and watersheds. Some of these regions are located within Europe, such as the laguna of Venice in Italy, and Aveiro in Portugal. These sensitivities of coast and marine ecosystems may heightened by interactions between human activity and climate change, such as over fishing (such as documented interactions between overfishing of tuna and turtles, increased jellyfish populations, algal blooms, and warmer sea temperatures), contaminants and climate change, and the loss of coastal wetlands and increased vulnerability to erosion and extreme weather events. (Magdalena Muir, Environmental and Legal Services Ltd.)	Impacts on coasts and ecosystems are included to the extent feasible within the space constraints of the SYR and the material available in the underlying assessments.
0-115	E-0-115	A	0				1. Need for recognition in the IPCC Synthesis Report of the impacts of climate change on Europe, and the EU Green Paper on Adapting to Climate Change in Europe. Global warming and the regional forecasts in the IPCC Fourth Assessment Report describe significant impacts of climate change for Europe, and in particular warming and drying in the Mediterranean and south Atlantic regions of Europe. The Mediterranean region can be viewed as a “climate change hotspot”, in a similar, though the changes are not as longstanding or advanced as those observed in the Arctic (as documented in the Arctic Climate Impact Assessment Scientific Report) and the Antarctica. The south Atlantic region of Europe and the greater Mediterranean region, including the Middle East and northern Africa, is quite vulnerable to social, cultural and economic impacts of climate change. For example, the region is largely dependent on agriculture, fisheries and tourism, and at different stages of economic and political development. The region may also require adaptive measures to support appropriate governance, the formation of necessary institutions, and for full communication to and participation of all members of the public and society. Throughout this region, there is already the need for adaptive measures in the present, near and longer term, even if mitigation efforts	Climate change impacts on Europe are discussed with all other regions in topic 3.3. Additional detail is not appropriate for the restricted space of the SYR.

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							are eventually successful. For example, researchers on heat stress in the Mediterranean region found warming and reduced precipitation contribute to preferential warming of the hottest days of the year for this region. The hottest days of the year, or the 'hot tail,' warm more, due in large part to a surface moisture feedback. The surface gets dryer as it gets hotter and the dry soil leads to less moisture in the area and less evaporative cooling. The locations of intensified warming on hottest days of the year matched the locations where surface drying occurred. With the projected shift to more severe temperatures, the daily temperatures currently found in the hottest two weeks of the summer could instead be found in the coldest two weeks of the summer under future climate scenarios. The areas most likely to face substantial increases in the dangerous heat index are concentrated in the coasts, which are more affected than inland regions. Coastal regions are also particularly vulnerable because they are affected by other climate change related stresses, such as a rising sea level. Also the larger cities in the Mediterranean and south Atlantic, and increasingly in the developing world, are located on coasts. On June 29, 2007, the EU Green Paper on Adapting to Climate Change in Europe-Options for EU Action was issued. This green paper is the culmination of extensive scientific research, expert review and consultation, and agreement across all EU governmental departments. It is an integrated document and approach that confirms the significant impacts of climate change, and that recommends integrative adaptive and mitigative measures. Given the timeliness and important of this information, it is requested that it be referred to and incorporated within the IPCC Synthesis Report. It is also important to note that though the scientific research in the green paper is limited to the political boundaries of Europe, the same observations can be extended to adjacent areas in the Baltic, Black and Mediterranean Seas. For example, the greater impacts noted for the south Atlantic and Mediterranean regions of Europe are also applicable to the Middle East and northern Africa (i.e., countries like Morocco which is adjacent to Spain and Portugal, and bounded by the Atlantic Ocean and the Mediterranean Sea). (Magdalena Muir, Environmental and Legal Services Ltd.)	
0-116	E-0-116	A	0				[TSU note: comment on glossary]: GLOSSARY: This may not be changeable now, but the adaptation definition does not reflect the 'process' of adaptation sufficiently. I think it should be defined as "A process of adjusting to changes in climate". I also disagree that adaptation is about reducing vulnerability; to me vulnerability reduction is about facilitating an adaptation process. (Lisa Schipper, Southeast Asia START Regional Centre, Chulalongkorn University)	glossary not open for review, but forwarded to glossary editor
0-117	E-0-117	A	0				[TSU note: comment on glossary] SEA-ICE BIOME - Correction: remove last parenthesis (Maria Rosa Paiva , Universidade Nova de Lisboa [New University of Lisbon])	glossary not open for review, but forwarded to glossary editor
0-118	E-0-118	A	0				[TSU note: comment on glossary] PLANKTON - Correction: THE (Maria Rosa Paiva , Universidade Nova de Lisboa [New University of Lisbon])	glossary not open for review, but forwarded to glossary editor
0-119	E-0-119	A	0				[TSU note: comment on glossary] PHOTOSYNTHESIS - Proposed: "The process by which GREEN plants take".	glossary not open for review, but forwarded to glossary editor

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							(Maria Rosa Paiva , Universidade Nova de Lisboa [New University of Lisbon])	
0-120	E-0-120	A	0				[TSU note: comment on glossary] MALARIA - Proposed: " Endemic or epidemic parasitic disease caused by protozoa of the genus Plasmodium and transmitted TO HUMANS by mosquitos MAINLY of the genus Anopheles; produces high fever attacks and systemic disorders and kills approximately 2 million people worldwide every year." Comment: Mosquitos of the genus Culex transmit malaria to animals, humans can also get infected as a "side line" of this infectious chain. (Maria Rosa Paiva , Universidade Nova de Lisboa [New University of Lisbon])	glossary not open for review, but forwarded to glossary editor
0-121	E-0-121	A	0				[TSU note: comment on glossary] INFECTIOUS DISEASE - Comment: can also be transmitted from one animal to a person, e.g SARS (avian influenza). (Maria Rosa Paiva , Universidade Nova de Lisboa [New University of Lisbon])	glossary not open for review, but forwarded to glossary editor
0-122	E-0-122	A	0				[TSU note: comment on glossary] IMPLEMENTATION - Comment: other actions that do not derive from treaties are not contemplated? (Maria Rosa Paiva , Universidade Nova de Lisboa [New University of Lisbon])	glossary not open for review, but forwarded to glossary editor
0-123	E-0-123	A	0				[TSU note: comment on glossary] I realize that the Glossary is not open to review, but the definition of "Carbon Capture and Storage" should be consistent with that of the IPCC SRCCS, which is termed "Carbon Dioxide Capture and Storage" (Veronica Brieno Rankin, GeoSeq International LLC)	glossary not open for review, but forwarded to glossary editor
0-124	E-0-124	A	0				[TSU note: comment on glossary] GROSS DOMESTIC PRODUCT - Comment: depletion is generally understood as a reduction in quantity, or numbers, which is not always the case when an externality is used. USE instead of depletion could be more general. (Maria Rosa Paiva , Universidade Nova de Lisboa [New University of Lisbon])	glossary not open for review, but forwarded to glossary editor
0-125	E-0-125	A	0				[TSU note: comment on glossary] Glossary, Pag 3, lines 1 and 2: definition of Arid Lands not consistent with UN Convention of Combat Desertification; my suggestion is to use the concept adopted by the UNCCD. (Silvio Sant'Ana, Fundação Grupo Esquel Brasil)	glossary not open for review, but forwarded to glossary editor
0-126	E-0-126	A	0				[TSU note: comment on glossary] GLOBAL WARMING- Comment: The difinition should indicate a period, or time scale, over which the global average temperature is calculated, otherwise is of little value. (Maria Rosa Paiva , Universidade Nova de Lisboa [New University of Lisbon])	glossary not open for review, but forwarded to glossary editor
0-127	E-0-127	A	0				[TSU note: comment on glossary] EXTINCTION - Comments: 1- Extinction can take place at taxonomic levels bellow, or above, species (e.g.: bellow: a divergent population; above: genus, if one, or a few species species only make up this genus). 2- Disappearance is by definition complete. Proposed definition: "The disappearance of a group of organisms which shared specific, unique, genetic and or ecological characteristics, often a species".	glossary not open for review, but forwarded to glossary editor

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							(Maria Rosa Paiva , Universidade Nova de Lisboa [New University of Lisbon])	
0-128	E-0-128	A	0				[TSU note: comment on glossary] ECOSYSTEM - Proposed: " A system of communities of living organisms, interacting with each other and their physical environment. Ecosystem boundaries are somewhat arbitrary, depending on the focus of interest and thus on the spatial scale adopted." (Maria Rosa Paiva , Universidade Nova de Lisboa [New University of Lisbon])	glossary not open for review, but forwarded to glossary editor
0-129	E-0-129	A	0				[TSU note: comment on glossary] CLIMATE VARIABILITY - Comment: The definition proposed is too general /vague and lacks some form of quantification, particularly the sentence "on all temporal and spatial scales beyond that of individual weather events" (Maria Rosa Paiva , Universidade Nova de Lisboa [New University of Lisbon])	glossary not open for review, but forwarded to glossary editor
0-130	E-0-130	A	0				[TSU note: comment on glossary] CARBON CYCLE - Proposed: "The flow of Carbon (in various forms, e.g. carbon dioxide) through the atmosphere, biosphere and lithosphere." (Maria Rosa Paiva , Universidade Nova de Lisboa [New University of Lisbon])	glossary not open for review, but forwarded to glossary editor
0-131	E-0-131	A	0				[TSU note: comment on glossary] BOTTOM-UP MODELS - Proposed: "Bottom-up models represent reality by aggregating GROUPS OF ORGANISMS, or specific activities and processes IN CHARTS, considering ENERGETIC FLOWS, technological, engineering and cost details." (Maria Rosa Paiva , Universidade Nova de Lisboa [New University of Lisbon])	glossary not open for review, but forwarded to glossary editor
0-132	E-0-132	A	0				[TSU note: comment on glossary] BIOSPHERE - Proposed : "The part of the Earth system comprising all ecosystems and living organisms in the atmosphere, on land, or in FRESHWATER BODIES, or in the oceans, including derived dead organic matter, such as litter, soil organic matter and oceanic detritus." (Maria Rosa Paiva , Universidade Nova de Lisboa [New University of Lisbon])	glossary not open for review, but forwarded to glossary editor
0-133	E-0-133	A	0				[TSU note: comment on glossary] BIODIVERSITY - Proposed: "The total diversity of all organisms and ecosystems at various TAXONOMIC LEVELS AND scales (from genes to entire biomes)." (Maria Rosa Paiva , Universidade Nova de Lisboa [New University of Lisbon])	glossary not open for review, but forwarded to glossary editor
0-134	E-0-134	A	0				[TSU note: comment on glossary] ADAPTATION - Comment : The definition proposed is reductionist, it does not contemplate reactive non-human type of adaptation: changes/ alterations occurring naturally in individuals (populations, communities...) between generations. (Maria Rosa Paiva , Universidade Nova de Lisboa [New University of Lisbon])	glossary not open for review, but forwarded to glossary editor
0-135	E-0-135	A	0				"The draft of Synthesis Report is well synthesized based on AR4 three reports, and I accept contents of the draft of Synthesis Reports." (Noriyuki Kobayashi, Nihon University (Law School))	Noted, thank you

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0-136	E-0-136	A	0				"emissions trajectories" should be 'emission trajectories' (Jon Egill Kristjansson, University of Oslo)	changed
0-137	E-0-137	A	0				"emissions trading" should be 'emission trading' (Jon Egill Kristjansson, University of Oslo)	changed
0-138	E-0-138	A	0				"emissions reductions" should be 'emission reductions' (Jon Egill Kristjansson, University of Oslo)	changed
0-139	E-0-139	A	0				"emissions ranges" should be 'emission ranges' (Jon Egill Kristjansson, University of Oslo)	changed
0-140	E-0-140	A	0				"emissions projections" should be 'emission projections' (Jon Egill Kristjansson, University of Oslo)	changed
0-141	E-0-141	A	0				"emissions pathways" should be 'emission pathways'. Also is really "pathways" a good term to use? (Jon Egill Kristjansson, University of Oslo)	changed; pathways is a commonly used term in the relevant literature.
0-142	E-0-142	A	0				"emissions levels" should be 'emission levels' (Jon Egill Kristjansson, University of Oslo)	changed
0-143	E-0-143	A	0				"emissions baselines" should be 'emission baselines' (Jon Egill Kristjansson, University of Oslo)	changed
0-144	E-0-144	A	0				— Comment: In my view the IPCC Synthesis Report has a very unbalanced structure. — Explanation: • The part describing the evidence (temperature, emissions), the models and the results of those (probable and conceivable effects) is clear and thorough. That part of the SYR is scientifically robust. • However, the part describing options how to cope with the effects and future problems, e.g. the mitigation options and the recommendations for policy makers, is remarkably vague and non-physical/chemical/biological. This second part has a one-sided economic approach and suggests an unjustified trust in the market mechanism and in technological developments and solutions. A "portfolio of technologies" is a unscientifically vague designation. Moreover, in the second part (how to cope with the effects) are missing the handles for policy makers, they need to formulate a long-term policy, which does not depend on time-dependent conceptions and short-term circumstances. (Jan Willem Storm van Leeuwen, Ceedata Consultancy)	Noted, but report reflects assessment of the underlying WG reports. Assessment by WGIII makes clear that sequential decision-making is needed, not a single policy with time-independent conceptions as suggested by the reviewer.
0-145	G-0-1	A	0				When referring to information in this document, it is not enough to have numerical refs such as 1.1; it needs to say that it is in the Synthesis Report itself. Nomenclature of the bracketed internal IPCC citations should be more self-evident. Refer to style used in the TAR Synthesis Report. (Government of United States)	This additional information will be provided in the foreword to the report.

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0-146	G-0-2	A	0				When a statement does not contain an uncertainty descriptor (such as “Mid-latitude westerly winds have strengthened in both hemispheres since the 1960s”), are we to assume that this is virtually certain (probability >99 %)? Be precise. (Government of United States)	Where no uncertainty qualifier is used with a statement this indicates that the authors regard it as a statement of fact.
0-147	G-0-3	A	0				We suggest that Topic 6 should be one focus of the authors' work on making the SYR more useful to decision-makers. In particular, Topic 6 should provide decision makers with the tools to interpret the uncertainties contained in the key findings of the SYR. For example at present, there is very little information in the SYR findings on the costs of mitigation action, which alerts policy makers to the fact that the modelling of the costs is based on an idealised situation with a perfectly functioning global market. Topic 6 could also be used to grade the findings of the SYR from those that have a relatively low level of certainty to those with high certainty, and pair this assessment with the discussion of key risks. Transparency in the findings of the SYR will be improved by better communicating assumptions and confidence. Therefore, Topic 6 should tabulate the key findings, uncertainties and implications for policy makers in the SYR under the following categories: the science; impacts (environmental, economic, human development); responses - including costs and benefits (adaptation, mitigation). This should be presented in the context of robust risk management principles. (Government of Australia)	SYR content has been revised to more readily align with decision-making problems, and more information on costs in topic 5. Grading of findings in Topic 6 by level of certainty is contradictory to the notion of ‘robust’ finding and ‘key’ uncertainty; grading by ‘importance to decision-making’ would very likely be subjective and therefore policy-prescriptive.
0-148	G-0-4	A	0				We have not any comments to this draft of AR4 SYR (Government of Republic of Uzbekistan)	Noted.
0-149	G-0-5	A	0				We appreciate high the enormous amount of work, carried out by the authors in preparing the Synthesis Report of the IPCC Fourth Assessment Report (AR4 SYR). We think that, this SYR is an excellent, thorough and very useful summary of information and findings in most of key issues, related with the climate change. We do believe that the Report ensures a high quality scientific base for establishment and carry out of a more effective policy against climate change. (Government of Bulgaria)	Noted, thank you.
0-150	G-0-6	A	0				Uncertainty assessment in its vague structure and application is highly favoring certain underlying assumptions. This is leading to skepticism resulting from the biasness towards specific goals. This is apparent from ascertaining highly contested facts. There are no counter arguments to open the door for more in depth scientific research. (Government of Kingdom of Saudi Arabia)	No specific examples are given of bias in treatment of uncertainty so no changes have been made.
0-151	G-0-7	A	0				Topics: The clarity of expression differs across topics and sometimes some paragraphs might be perceived as vague by policy makers who do not know the detailed background documents. Given the fact the some text is directly copied from the SPM, the language of the topics is condensed and abstract. If the ambition of the SYR is to reach a broader public of policy makers not used to reading scientific reports on climate change, the text should be more concrete, for instance by presenting examples.	Text has been revised to ensure better flow and readability; however, consistency in wording with WG SPMs is important to ensure consistency in meaning between different IPCC reports.

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							(Government of European Community)	
0-152	G-0-8	A	0				Topic 6 - 'Robust findings, key uncertainties' has not been included in the SPM of the Synthesis Report. It may be covered there. (Government of Pakistan)	Accepted, now included to the extent possible in the SPM.
0-153	G-0-9	A	0				Throughout the SYR at different times both CO ₂ and CO ₂ -e are used. For policy readers this can be confusing. We would suggest that CO ₂ -e be used as far as possible as the standard metric, unless the authors are referring specifically to CO ₂ . (Government of Australia)	Taken into account, CO ₂ -eq is used whenever feasible.
0-154	G-0-10	A	0				Throughout the SYR a number of different years are used as reference points for observed changes in the climate system. For general readers it is not clear why the different years have been chosen and the authors should explain in footnotes why each year has been chosen. (Government of Australia)	The years reflect the time when different observations or model studies are available. This should be obvious in most places.
0-155	G-0-11	A	0				This Synthesis Report would be of significantly more value if it were to include an updated version of the Reasons for Concern Figure from the TAR. The Government of Canada was led to believe, from discussions during the WGII Plenary in Brussels, that such a Figure would be included in the Synthesis Report and its SPM. We are very disappointed to see that this is not yet the case. We understand that such a Figure has already been prepared by a team of authors based largely on the results of Chapter 19 of the WGII report and we would encourage the Synthesis Report TSU to contact the CLAs of this chapter to discuss inclusion of this updated Figure. (Government of Canada)	The Reasons for Concern figure was considered but not supported by the author team at large.
0-156	G-0-12	A	0				This synthesis report is an extremely important element of the overall 4th IPCC assessment, since the presentation and integration across working groups achieved here is crucial for effective communication across and beyond science sectors and ultimately to guide policy actions -- so much that I think this synthesis report can serve as a model to structure the next IPCC assessment. (Government of Switzerland)	Noted, thank you.
0-157	G-0-13	A	0				This represents an incredible effort. Kudos to all of those who have worked so hard to make the uncertainties of science—and such a complicated, extensive set of data—more comprehensible to the public. (Government of United States)	Noted, thank you.
0-158	G-0-14	A	0				This report reflects the state of the science. (Government of United States)	Noted.
0-159	G-0-15	A	0				This report is imbalanced in the emphasis it gives to material from WG2 Chapter 19. Far more page space is dedicated in this report to findings from that chapter than to any other. For	Presentation of detailed information on reasons for

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							example, three pages are dedicated to the 'reasons for concern' – more than is contained in the chapter itself! Is this a synthesis? In addition, much of the language on Chapter 19 concepts is entirely new (i.e., not found in the chapter) or has not previously been approved by governments because it was not contained in the WG2 SPM. Taken together, this may make eventual approval in the SYR negotiations a long process. We recommend drawing from agreed language where possible and paring back on the detail. (Government of United States)	concern has been condensed and revised, ensuring consistency with findings in all relevant WGs and drawing on existing language where possible. Authors regard this section an essential part of the SYR, which is mandated by the topic title and its guiding bullets.
0-160	G-0-16	A	0				This is useful report which is an important component of the AR4 which also contributes to its aims to communicate issues, challenges and solutions (Government of Ireland)	Noted, thank you.
0-161	G-0-17	A	0				There needs to be a clear explanation, probably in the Introduction, about the significance of the bolded bits of text. Some sections have bolded conclusions, and others don't, and it is certainly not always clear why this is the case. Explain in the introduction if it's just a carry over from the WG SPMs or whether it means something different in the context of this Synthesis Report. (Government of Canada)	We regard the meaning of bold text as headline to be self-evident. Where no bold heading exists, authors felt that no appropriate heading was possible to summarise the underlying information.
0-162	G-0-18	A	0				There is room to streamline the text and add to its clarity. The comments provided aim to assist in this process. (Government of Ireland)	Noted, text has been streamlined.
0-163	G-0-19	A	0				There is nothing in the report on demography. How do variable projections of population size, distribution, structure, and consumption change these scenarios? (Government of United States)	This information is implicit in the emission scenarios used, and also referred to in that impacts depend on development pathway. Additional details are not possible due to space restrictions.
0-164	G-0-20	A	0				There is no consistency to the formatting in the Synthesis Report; some sections jump right in with a bolded finding, others have non-bolded findings to begin with, while still others have a paragraph of 'introductory type' text (context setting information). (Government of Canada)	The placement of bold headlines reflects authors' judgements regarding the need or feasibility of explanatory or introductory statements depending on the subject matter covered in different topics.
0-165	G-0-21	A	0				There is an unbalanced presentation of the policy summaries of the three groups. (Government of Kingdom of Saudi Arabia)	Rejected; no evidence provided to substantiate the claim or to suggest specific changes.

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0-166	G-0-22	A	0				There are about 13 tables and figures which appear both in the summary section and in the related topics sections. Removing these figures and tables from the summary section will avail more space that can be use to handle the issues mentioned in 1 and 2 above. Some statements also are repeated in both on the estimates of CO2 increases; those also could also be removed to save space. (Government of Kingdom of Saudi Arabia)	Material in the SPM needs to be based on longer report; since the agreed space constraints for the SPM pertain to text only, removing figures and tables from the SPM would not save space.
0-167	G-0-23	A	0				The two Boxes in Topics 1 and 2 are a useful addition to the Synthesis Report. There may be other concepts that could be equally usefully defined to help readers of the Synthesis Report. One that comes to mind would be a Box for Topic 3 on the concept of Vulnerability. See specific comment regarding topic 3 page 13. (Government of Canada)	Explanation of vulnerability has been added as a footnote in topic 3. Longer box on key terms was not included due to space constraints.
0-168	G-0-24	A	0				The term “sustainable development” is used throughout, but is never clearly explained. There are several places where the report suggests that climate change can impede the achievement of sustainable development goals or that sustainable development can enhance the ability to mitigate and adapt, without ever clearly articulating what sustainable development is (with relevant examples provided). (Government of United States)	Sustainable Development is explained in the glossary.
0-169	G-0-25	A	0				The SYR needs to reduce duplication where possible i.e. avoid repetition of concepts/ impacts across sections. More tables outlining key impacts/ risks and certainty indicators would be most useful for policy makers and better enable us to look across and assess the range of information outlined in the SYR. (Government of Australia)	Wording and structure revised to reduce duplication. Additional tables have not been produced since the report is already table and figure-heavy, especially the SPM.
0-170	G-0-26	A	0				The SYR has not much information over the individual WG SPMs and TSs. This is not a problem and is better than the fully restructured and complicated SYR of TAR. But, if the structure of the present SYR remains as it is now, then there is no reason to keep SYR in full text and in ITS Summary for Policymakers. The optimum would be to prepare a single material with a content and volume between the present SYR (topics 1.6) and of ITS SPM. If it is acceptable, then the present text for the Topic 6 is recommended to retain for that final singe material. (Government of Hungary)	Noted, but authors are bound by the Panel's guidance that requests a SPM and a longer report.
0-171	G-0-27	A	0				The SYR as it currently stands is drawn heavily from the SPMs of the Working Group reports. While this may lead to an uncontroversial (if not incontestable product) the authors should consider the key purpose of the SYR: namely communicating the results of the Fourth Assessment in a way that is useful to policy makers, (i.e. providing some support for decision-making). Often the knowledge gained is not sufficiently developed across the different working groups to adequately support decision-making. Merely pasting together what is in the SPMs and Technical Summaries so far, will not achieve significant added value. The SYR should	Wording has been revised for readability and clarity, and to align with policymakers interests. At the same time, authors must represent the views and findings of the larger community of authors that contributed to the WG

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							also take the opportunity to re-examine conclusions of individual Working Group Reports that can be improved by information in the other two Working Group Reports. (Government of Australia)	reports, and hence consistency with approved WG language is essential.
0-172	G-0-28	A	0				The synthesis report provides an opportunity to integrate the finding from the AR4 and thereby to provide added value for the target community of decision makers. The document should therefore act to provide information in a clear, logical and consistent manner. In addition to reiterating material in the main report it should highlight key links and options with respect to these i.e. in synthesising information on the drivers of climate, linked thresholds and timelines for critical events, the options to avoid critical irreversible impacts and costs for these costs should be evident (Government of Ireland)	The SYR has aimed to do this as far as possible and consistent with the underlying assessments. No specific changes requested in this comment.
0-173	G-0-29	A	0				The Synthesis Report includes many new and updated findings in key areas, fact assessments, some of them compared to previous ones, figures, tables, etc. We think that in order to avoid some mistrust and doubts among the readers of the Report, more explanation on the base sources of information, have to be given still in chapter Introduction or in a separate annex. Seems to us, that the mentioned phrase “.....based on scientific advances.....” in chapter Introduction or, after each of the statements (or key conclusions) in another chapters to be mentioned from which of the three Working Group contributions to the AR4, this statement is taken, is not enough. We hope that this proposal is not in contradiction with adopted in New Delhi, 9-11, Nov. 2004 scope and content of the AR4 SYR (Report of the 22nd Session of the IPCC, Annex 3). (Government of Bulgaria)	The proposal could lead to a much longer report; the revised draft emphasises new knowledge wherever it is most significant.
0-174	G-0-30	A	0				The SPM of SYR is quite long if compared with the whole SYR. If it were shorter, it would have more readers. Sometimes some relatively complicated and long text could be replaced by figures in order to improve readability of the SPM. (Government of Finland)	Text revised to ensure greater readability; it is already figure-heavy so no additional figures have been introduced.
0-175	G-0-31	A	0				The report is concise, well written and coherent. It encompasses all major aspects of climate change, viz. observed changes and future projections, impacts of climate change, adaptation and mitigation options in the short- and long-term perspective, and the major robust findings. (Government of Pakistan)	Noted, thank you.
0-176	G-0-32	A	0				The issue of negative spillovers resulting from mitigation actions was an integral part of WGIII report. While in the SYR chose to ignore totally this important and crucial issue. Does that mean the IPCC refuse to admit those negative spillovers although the literature support their existence and warn about their consequences? (Government of Kingdom of Saudi Arabia)	Spillovers are now included in topic 4 and the SPM.
0-177	G-0-33	A	0				The IPCC Synthesis Report to the AR4 adds little value to the SPMs of WG I, II and III in comparison with the TAR. The reason is that most of the material included in the SYR are citations from the SPMs. However, there are a few exceptions, like a modifications of figure	Revised SYR more closely compares social cost of carbon with mitigation costs.

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							SPM-8. It is the understanding that the reason for that major shortcoming are time constraints of the authors and the tight schedule. It is the strong expectation that the next draft of the SYR will add much more value compared to the individual SPMs. Such expected additional insights relate e.g. to a comparison of social costs of carbon (an issue of WGII) and the costs of abatement (marginal abatement costs, an issue under WG III). (Government of Austria)	
0-178	G-0-34	A	0				The IPCC 2007 Synthesis Report (SYR) is a well arranged and properly structured document, which is easy to survey. It contains clear and objective facts and arguments, as well as, the facts on insufficient evidences, i.e. uncertainties. (Government of Hungary)	Noted, thank you.
0-179	G-0-35	A	0				The figures and tables in the whole report contain very important information for the policymakers but it would be beneficial if you could make some of the figures/tables easier to understand and only include the key information in each figure. There is also room for improvement of the graphic design. Furthermore all figures/tables should have titles. (Government of Norway)	Titles have been added to all figures, and their design improved.
0-180	G-0-36	A	0				The authors need to review the entire SYR and rephrase many of the sections in the report to improve the clarity of the findings presented and to remove jargon. We have attempted to highlight in our comments specific areas of concern, however, in the preparation of the next draft of the SYR the authors need to keep in mind that distinct from the WG SPMs, the SYR readership is much broader and as such the authors cannot assume the same level of background knowledge or understanding of climate change jargon. (Government of Australia)	Wording has been revised to ensure clarity and readability.
0-181	G-0-37	A	0				The authors need to highlight more clearly the advances in the science that have occurred between the TAR and the AR4, in particular that significant progress has been made in understanding past and recent climate change and in projecting future changes - is a very important message that needs to be conveyed strongly. (Government of Australia)	Space limitations in the SYR make this difficult; advances since the TAR are highlighted where they are particularly striking or relevant.
0-182	G-0-38	A	0				Take on board the specific comments on the Summary section as they relate to the specific topic section. (Government of Kingdom of Saudi Arabia)	Noted and taken into account.
0-183	G-0-39	A	0				Section 4.4.1 of the IPCC Rules and Procedures—titled “The Synthesis Report”—states that the Report “is composed of two sections as follows: (a) a “Summary for Policymakers” and (b) a “longer report”; that the IPCC “approval and adoption procedure” provides that the SPM is “approved” line-by-line by the IPCC Panel to ensure consistency between the SPM and the longer report, which is reviewed and “adopted” by the IPCC, section-by-section; and that the entire draft report “is consistent with the underlying Assessment Reports.” The Procedures state that the longer report is to be “30-50 pages” and the SPM “5-10 pages.”	Noted. The report is very close to the Panel guidance on length. We use a standard IPCC page as measure, which in printed form contains 900 words. The draft as distributed contains far fewer

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							<p>The “Report of the 22nd Session of the IPCC”—held in New Delhi, India from November 9-11, 2004—includes an item 4, titled “Scope, Content and Process for an AR4 Synthesis Report” (pp. 2-3), which refers to a presentation of a proposal by the chairman on guidance for the AR4 Synthesis Report (SYR) regarding its “content,” “length,” and “timing”. The chairman’s presentation resulted in a “revised document” approved by the IPCC Plenary, which is identified as “Annex 3” to the November 2004 IPCC Report. Under the heading “Scope,” the Annex sets forth details for the AR4 SYR as follows (p. 1):</p> <p>“As defined in the IPCC Procedures the SYR would “synthesize and integrate material contained within IPCC Assessment Reports and Special Reports”. Its scope would include material contained in the three Working Group contributions to the AR4, and it would draw on information contained in other IPCC Reports as required. It would be written in an accessible, “non-technical style suitable for policymakers and address a broad range of policy-relevant, but policy-neutral questions”. The SYR should be largely self-contained, but guide readers to the underlying material if they wish to look further. The primary audience for the SYR would be policymakers, in particular from governments, advisors to policymakers, and experts. However, it is recognized that others will also make use of the report. The proposed SYR would consist of two parts:</p> <ol style="list-style-type: none"> 1. SPM: up to 5 pages of text. 2. Longer Report: up to 30 pages of text including maps and figures. <p>The SYR publication would also contain annexes such as glossary, and index. The AR4 SYR would be self contained and published as a stand-alone publication in the six official UN languages. It would be accompanied by a CD ROM, which contains the SYR (SPM and longer report), the contributions of the three IPCC Working Groups to the AR4 in English, and the summaries of these reports (SPM and Technical Summary) in all official UN languages. [TSU note: This comment continues in Comment 0-208]</p> <p>(Government of United States)</p>	<p>words per page and hence cannot be used as yardstick for the length of the report.</p> <p>The SPM as sent for review contains 4,680 words and is therefore only slightly over length; the revised SPM contains 4,444 words of text and is therefore within the length requirements. For the longer report, the same metric has been applied of 900 words of text per page, and estimated equivalent page requirements for tables and figures. Based on reasonable space estimates for figures and tables and using this metric of 900 words per page, the revised longer report has a length of 29.5 pages.</p>
0-184	G-0-40	A	0				<p>Overall, this draft report seems well structured, but confusing and redundant in places. One questions whether a true “synthesis” of the problem has been achieved (i.e., are there new results that appear from the synthesis of the WG contributions to the 4AR?). That said, the SPM flows moderately well and thankfully is not a completely rote cut and paste. The illustrations and tables seem to repeat the existing SPMs without extracting the most important elements.</p> <p>(Government of United States)</p>	<p>Text has been revised to further improve flow and reduce redundancies and duplication. Some figures have been further modified from the WG SPM figures where appropriate.</p>
0-185	G-0-41	A	0				<p>New Zealand congratulates the Synthesis Report TSU and authors for the production of this draft report. We appreciate that they were set a difficult task and believe they have produced a generally excellent draft. The topic papers are well written and do an great job of covering the diverse and complex material in a compact yet clear way.</p>	<p>Noted, thank you.</p>

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							(Government of New Zealand)	
0-186	G-0-42	A	0				Need to note somehow more clearly what is inherited from TAR and what is added or substantiated by new evidence at least in the summary section. (Government of Kingdom of Saudi Arabia)	By default and unless noted otherwise, everything that is stated in the AR4 is an AR4 finding.
0-187	G-0-43	A	0				Need to include an annex of scientific terms and units, and a list of acronyms used in the text, figures, and tables. (Government of United States)	This will be included in the final published report.
0-188	G-0-44	A	0				It may be useful to introduce some additional tables to link data that are provided in slightly different basis and structures in different parts of the report e.g. temperature increases over last 100 year, temperature increase relative to pre-industrial period, relative to numbers in the TAR. Similarly time periods should be linked to a specific date e.g. past 50 years (1955-2005 or 1950-2000) (Government of Ireland)	Comparison with TAR is not always possible or appropriate (see discussion in WGI SPM regarding projections). Time periods have to follow availability of data or model runs.
0-189	G-0-45	A	0				It is suggested to indicate in an introduction the cut-off date of the literature assessed (this might differ slightly across the science, vulnerabilities plus adaptation and mitigation). (Government of Austria)	This will be mentioned in the foreword.
0-190	G-0-46	A	0				It is suggested to include in the SPM only references to the Technical Summary of the Synthesis Report but no references to the SPM, TS or full reports of the Working Groups I, II and III in order to be more user-friendly. That information might also be included in the introduction to the SPM. (Government of Austria)	This will be mentioned in the foreword. SPM only refers to the longer report of the SYR.
0-191	G-0-47	A	0				It is strongly recommended to further improve the readability of the SPM and the SYR. There seems to be room for improvement by using the same units for the same information (e.g. provide all emissions data in terms of Gt CO ₂ e and do not confuse the reader with Gt C in some other figures/other text or use either mm or cm or m to describe sea level rise but not different units in different parts of the report!). (Government of Austria)	Efforts have been made to improve readability and harmonise use of units as far as possible.
0-192	G-0-48	A	0				It is noted that there are some findings of the SYR that are linked to a level of confidence, some are linked to a level of likelihood, some are linked to numerical ranges of 90% uncertainty intervals and some may not have been linked to either of them. It is suggested to include also in the SPM a box that explains the various concepts to describe the treatment of uncertainties in a holistic approach. It is also suggested to link every statement to one of the concepts describing its uncertainty. Last but not least the same concept should be used throughout the SPM to describe the same level of uncertainty (e.g. figure SPM-5 and table SPM-2, upper part).	Panel's length limits on SPM preclude elaboration of uncertainty terminology – reference to Box 1.1 in the Introduction to the longer report is now added. Table SPM-2 has been simplified to provide better consistency in uncertainties with

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							(Government of Austria)	Fig SPM-5.
0-193	G-0-49	A	0				<p>It is noted that the treatment of uncertainties did not consider in the past the uncertainty of a finding that can be based on the independent assessment of more than one finding of specified uncertainty. This is a quite important issue based on the experience of recent discussions. It is suggested that the authors expand the existing concept of the treatment of uncertainties to handle also such independent findings. This may be of particular relevance for a report with the goal to synthesize findings.</p> <p>(Government of Austria)</p>	The number of independent studies is taken into account when determining assessed confidence or likelihood levels. As noted in Box 1.1 on uncertainty where findings in the SYR are synthesized from components in different underlying WG assessments the overall uncertainty treatment is consistent with that in the WG reports.
0-194	G-0-50	A	0				<p>It is noted that the emission scenarios assessed by the IPCC to not reflect the actual trend of GHG emissions for the time period 2000 to 2005. Figure SPM-8 might indicate that fact, however, no explanation is provided. It is the understanding of a Synthesis Report that such report has to put into context assumptions of one part with findings of another part. Such explanations should a) inform the reader about that fact, b) guide the reader what this means in qualitative terms, c) informs about gaps in knowledge/further research needed in order to provide more up-to date information.</p> <p>(Government of Austria)</p>	<p>1) The emissions projections of the scenarios shown in SPM-8 are per definition deviating from actual trends, since they assume the tightening of global climate policies for achieving long-term stabilization.</p> <p>2) There is no assessment of the very short-term scenario trends up to 2005 in the WGIII. Neither SRES nor stabilisation scenarios should be interpreted as forecasts and they are not intended to capture short- and near-term fluctuations in emission trends. These scenarios thus do not provide a basis for such a discussion as requested by the reviewer in the SYR.</p> <p>3) The need for future updates of the scenarios is noted. This is however not a specific gap of knowledge concerning scenarios, but generally true for any information presented in the SYR, which will need to be updated in the future as new information</p>

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								becomes available. No discussion added due to space limitation.
0-195	G-0-51	A	0				It is also noted that the SYR does not include any additional, new and synthesizing figure but copies and paste already existing ones. This is insofar surprising as some more integrated figures (that have also been included in the TAR) have been prepared by authors and even been discussed during meetings but have been omitted in the end due to their integrating character. It is strongly recommended to make use of such material that would add significant value to the SYR. (Government of Austria)	A range of additional figures have been discussed but were rejected by the author team as a whole. Existing figures are fully supported by the underlying WG reports.
0-196	G-0-52	A	0				In general, the SYR is a good summary of the findings of AR4. One key aspect of the SYR is that it should convey messages in a way to be easily understood by people who may be experts in other technical, social or economic fields but climate change. It is a good practice to have bold-faced text under each section that summarizes key messages, and such text pieces can be found in many sections, but not in all. Also, these could focus on the main results of the analyses, rather than on repeating, many times, how much more confident we are in the findings. This latter is of course important, however, more specific information with data or expected consequences on ecosystems/societies/sectors/regions etc. would be better. Example: for Topic 2, section 6, rows 1-24, a summary sentence with concrete information could be: "The global average surface warming following a doubling of CO ₂ concentrations is likely to stabilize as a temperature change from now in the range of 2 to 4.5°C with a best estimate of about 3°C, and with a very unlikely event to be less than 1.5°C". (Government of Hungary)	Bold headings have been revised and streamlined in many places; however, we do not wish to provide headlines for the sake of it, but only where they can meaningfully condense key findings
0-197	G-0-53	A	0				In general, the synthetic character of the Synthesis Report needs to be strengthened. Overall, it is too much based on putting together quotes from the SPM from the WG reports, rather than trying to write a real synthesis of the whole AR4 report, focussing on the agreed topics. In particular, different to the WG reports the Synthesis Report should give a focused assessment of risks and problem solving under uncertainty, as this is what policymakers are dealing with. This holds in particular for the presentation of the relationship between projected impacts and projected emissions for non-mitigation and mitigation scenarios. In general, topics 1 and 2 as well as 4 can be shortened considerably, as they mostly are based on copying and pasting text from the SPMs from the WG reports, which are already available and accessible to the policymakers. This would allow expanding topics 3 and 5, which are the ones with more elements of a real synthesis, but which can be strengthened. The same holds accordingly for the respective sections in the SPM. This would also strengthen the cross-cutting issues agreed for the AR4. (Government of Germany)	Taken into account; topics 3 and 5 are the longest topics of the report. However, the report as a whole has to follow the approved outline with its topic headings. Findings that come directly from WG reports are not necessarily less relevant to policymakers than findings that span across WG groups. The SYR presents the balance between those aspects that authors felt was feasible and appropriate. Readers of the SYR cannot be expected to have read and know by heart the content of the WG SPMs, the SYR has to be a stand-alone report.

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0-198	G-0-54	A	0				In general, the projected impacts of climate change on sectors and regions have been give rather little space in the SYR. This is particularly true for the SPM, in which Table SPM-2 is the main source of this information whereas little is given in the text. The table (SPM-2 and Table 3.2 in the longer report) will certainly be a very important figure in the SYR, presenting results not found elsewhere in the SYR. Hence efforts need to be made to make this easily readable and understandable. Furthermore we suggest that a new Table/figure illustrating the regional differences in impacts is included. (Government of Norway)	Figure with sectoral impacts has been further improved. Figure with regional impacts was attempted but rejected because there is too diverse information to be robustly summarised into a figure.
0-199	G-0-55	A	0				General comment: The consideration of how certain emission scenarios (both baseline and mitigation) link to impacts (GHG concentrations, temperature changes, other impacts) is clearly insufficient. Often reference is made to the emission scenario's from the SRES but at no point the policy maker gets an insight in what these emission scenarios really represent as emission profiles over the coming century. Furthermore no visual representation is given between these emissions profiles and the impacts both on temperature and variables such as represented in table SPM-2. The TAR SYR had a much better consideration of the link between emission mitigation scenarios and the impacts (e.g., TAR SYR Fig. SPM-3 made the link with baseline scenarios and Figure SPM-6 made the link with stabilisation scenarios). A similar exercise needs to be included in the 4th AR in order to facilitate interpretation by policy makers of the overall findings). (Government of European Community)	Taken into account; revised impacts figure provides link different levels of warming under SRES and stabilisation scenarios. Topic 3 now includes a graphic showing SRES emission profiles.
0-200	G-0-56	A	0				General and most important comment: There is insufficient integration of information from different Working Groups, compared with the TAR SYR. Most of the text has been taken from the very condensed SPMs of the individual working groups. The SYR should make more use of the totality of information available in the underlying reports to answer the questions formulated by the IPCC plenary. The use of new figures for synthesize information should be considerably expanded (see also remark above and other specific comments suggesting new figures or updates of TAR SYR figures below). (Government of European Community)	Space constraints as agreed by governments prevent expansion of the SYR, either with text or figures. The WG SPMs represent the most significant findings from the WGs, which therefore warrants their inclusion in the SYR.
0-201	G-0-57	A	0				From communication point of view it is hardly understandable that the there are two sets of expressions that intend to reflect uncertainties (agreement/evidence vs. likely/confidence). It is recommended to use just one such set. Having checked the number of expressions just in the Summary for Policymakers (of SYR) there were 36 cases when "(un)likely" was used to reflect uncertainty. The same numbers for "confidence" were 15 cases for "confidence", 8 cases for "agreement" and 14 for "evidence". It is relevant for Topics 1-6. (Government of Hungary)	The SYR has to follow the uncertainty terminology used in the WG assessments; it does not represent a new assessment of the literature. The basis for this is explained in the introduction.
0-202	G-0-58	A	0				Energy security on the other hand was exceedingly emphasized as a benefit of mitigation policies, especially energy importation which is particular to oil and gas was addressed and its curtailment recommended. [e.g. see table 4.3] (Government of Kingdom of Saudi Arabia)	Comment not clear; no specific change requested.

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0-203	G-0-59	A	0				Crucial policy insights from WGIII need to be better reflected both in the Summary section and in the sections under topics 4 and 5. These insights include policy options related to technologies and mitigation and their effectiveness, distribution of mitigation burdens, spillovers and developing countries impacts related to response measures. (Government of Kingdom of Saudi Arabia)	Noted and text revised/expanded where possible and appropriate.
0-204	G-0-60	A	0				Consider the suggestion to reiterate in the section on Topic 6 the statements describing the methodologies used to assess uncertainty in the report. (Government of Kingdom of Saudi Arabia)	The requested level of detail can only be included in the WG reports due to the Panel's set length constraints on the SYR. Overview of uncertainty language is found in introduction to the longer report.
0-205	G-0-61	A	0				Clarify someplace what the numbers in {} mean. (Government of United States)	This will be done in the foreword to the report.
0-206	G-0-62	A	0				Changing all references to "the previous assessment" to "the TAR" and "this assessment" to "the current assessment" is suggested. As it stands, the current usage is somewhat unclear. (Government of Japan)	Accepted.
0-207	G-0-63	A	0				Attempts to squeeze too much information into tight space in the summary section have resulted in some statements and sentences being less meaningful especially when crucial qualifications in the original text of SPM1, SPM2, and SPM3 are dropped in the process. (Government of Kingdom of Saudi Arabia)	Noted, but no details provided and authors see no obvious point for change.
0-208	G-0-64	A	0				[TSU note: Continues from Comment 0-183]: As to the "structure" of the SYR, the Annex states that the structure "contains agreed topic headings," which are the ones contained in the draft, and a "list of bullets that are intended as guidance to the authors". Despite the very specific provisions of the IPCC Procedures and the IPCC's Annex, this draft SPM for AR4 SYR, as prepared by the writing team, is more than double the maximum length specified by those Procedures and more than quadruple the IPCC "agreed" length established in the November 2004 Annex. Similarly, the writing team's "Longer Report" is nearly double the length agreed by the IPCC in New Delhi and eight pages longer than the maximum length allowed by the IPCC's own Procedures. Yet both documents represent only the draft results of the "writing team" before the "simultaneous expert/government review," the revision by the Lead Authors, a further "Government" review and then "discussion in the Session of the Panel" for ultimate approval of the SPM line-by-line and adoption of the Longer Report section-by-section by the IPCC. In addition, while the "Longer Report" contains six "Topics," the SPM only covers five topics. In short, the SYR is likely to grow even longer by the time of final approval/adoption by the IPCC Panel.	[see response to 0-183]

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							The U.S. Government insists on closer compliance to the guidance (page counts) provided in said plenary-approved documents, "while ensuring a high quality report that is based on the approved working group contributions to the AR4." (Government of United States)	
0-209	E-0-1	B	0				The Synthesis Report would be much more useful to decision-makers if it adopted more of a risk management focus. In particular, risk assessments should utilise information of low confidence in its deliberations, especially if an event is high consequence (note: low probability is not mentioned in this context sometimes when the likelihood of low confidence events is unknown, it may turn out to be substantial). In such circumstances, all information is used and can be graded from very high confidence to low confidence. Transparency is maintained by communicating assumptions and confidence. If some of the risks could be expressed in this manner it would be very useful. Such a treatment could also point to how future assessments can be carried out. (Roger Jones, CSIRO)	Taken into account in discussion of sea level rise; in other areas there is insufficient information in underlying reports to consistently support such an approach without introducing bias
0-210	E-0-2	B	0				The role of technologies seems to be weak comparing with the TAR, even if the variety of "mitigation options" are stressed. (Shunsuke Mori, Tokyo University of Science)	Noted; reflects information brought forward in the WG reports
0-211	E-0-3	B	0				Overall it is a very comprehensive report and the main points are covered. (Jane Hupe, ICAO)	Noted
0-212	E-0-4	B	0				Graduated levels of confidence for contributing influences on key changes would be very useful in a range of situations. For example, sea level rise estimates comprise of quantitative model results of higher confidence, dynamic ice sheet contributions of uncertain magnitude and lesser confidence, and some smaller contributions (increased surface and groundwater water use resulting in a lower land contribution; dynamic ice model interactions) that appear to not be included at all in the estimates. Likewise, the global warming estimates are comprised of quantified estimates from GCMs and expert judgement of carbon cycle uncertainties (based on limited models runs and theory). Surely, given the underlying science, these two components of the one range would have different levels of confidence. (Roger Jones, CSIRO)	While this point may be generally applicable, the reviewer appears to have missed the fact that uncertainties in SLR and in carbon cycle feedback associated with very different confidence levels have deliberately not been combined. Thus climate - carbon cycle feedbacks on temperature are quantified on the basis of a careful assessment of an extensive hierarchy of model results in Chapter 10 of the WG I report. However, the report notes that the uncertainty in SLR associated with this feedback is specifically excluded due to a lack of comparable model results. Similarly the effect of increasing

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								ice sheet discharge on SLR is specifically noted as something that can not be quantified at this time.
0-213	E-0-5	B	0				Framing in the Synthesis Report is an especially important issue. The synthesis needs to be clear on whether it is merely communicating the results of the Fourth Assessment or is providing information that provides some support for decision-making. Straightforward science communication is subtly but importantly different to decision support – IPCC assessments do get used for the latter, but often the knowledge gained is not sufficiently developed across the different working groups to adequately support this. For example, some forms of communication often hold implicit assumptions about the type of decision-making that will be made - for example, framing climate projections in a "most likely to occur" context provides different information (in a quasi predictive mode) than does framing the same information in "likelihood of exceedance" context which frames the same information in the context of risk. (Roger Jones, CSIRO)	Noted and a good point; however, the SYR can only provide information that is developed and assessed in the underlying WG reports, it cannot re-assess the literature to make new statements that are not supported by the WG reports directly.
0-214	G-0-1	B	0				We would like to thank the IPCC SYR team for preparing this draft. The UK regards the SYR as the key document for communication of the assessment to policymakers and we feel that it is worth putting in the effort to make it as relevant to policymakers as possible. Most of our comments relate to the communication aspect and the need to present a coherent "story" which addresses the key policy issues related to the nature of climate change, the adaptation and mitigation responses and the need to inform the objective of the Climate Convention. (Government of United Kingdom)	Noted
0-215	G-0-2	B	0				We suggest that more attention needs to be paid to the suite of diagrams which we find particularly lacking in terms of understanding, comprehensiveness and balance. We would note that in presentational terms the AR4 is not as effective as the TAR and that much could be learned from looking at the range of material presented therein. We therefore make a number of general suggestions regarding presentation, content and structure of the SPM, which we think would make it much more accessible to a non-technical audience and bring out some of the key conclusions which we find are rather buried in the SPM and in the underlying sections. (Government of United Kingdom)	Noted; some diagrams have been revised, others are maintained consistent with their presentation in the underlying WG reports.
0-216	G-0-3	B	0				We feel it is important to make the point that the SYR should be more than a cut and paste of the 3 working group reports. It needs to draw on all three but also deal effectively with cross-cutting issues such as stabilisation. Whilst clearly the SYR should be based on the findings of the working group reports the IPCC should make the most of its flexibility to present material in new ways, including the use of new diagrams, as was done in the TAR.	Noted, and presentation of issues related to stabilisation has been improved. The space limitations of the AR4 SYR mean that scope for additional diagrams is very limited.

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Running number	Topic - Comment	Batch	Page	Line	To Page	To Line	Comment	Considerations by the writing team
							(Government of United Kingdom)	
0-217	G-0-4	B	0				This draft lacks a discussion on the link between stabilisation of atmospheric concentrations of GHGs and impacts of climate change. The old question Q6 of the TAR SYR – how does the extent and timing of the introduction of a range of emissions reduction actions determine and affect the rate, magnitude and impacts of climate change and affect the global and regional economy ... - still remains the most important question that policy-makers face (Government of United Kingdom)	This has been addressed by revision of the impacts table, which now provides warming ranges for the full set of stabilisation scenarios. However, transient warming under stabilisation scenarios is not available in the AR4.
0-218	G-0-5	B	0				It would be helpful to indicate in the introduction what is new and important since the publication of TAR. We make some suggestions for the introduction of the main report which could also be refelected here. (Government of United Kingdom)	It is not appropriate to provide a summary of the summary in the introduction. Also, the areas of advance across all three WG reports are so manifold that it appears infeasible to summarise them within the space constraints of the SYR.
0-219	G-0-6	B	0				It is difficult to draw out the key messages from this SPM, particularly messages across working groups. The implications for policy, also do not come through clearly – the readers are left to work this out for themselves. We'd like to see more emphasis in the SPM on the direct comparison between costs and benefits - this comes out in WG2 SPM (which also covers the social cost of carbon) but there is no comparison given in the SYR. (Government of United Kingdom)	The comparison of costs has been enhanced and clarified both in the SPM and topic 5.
0-220	G-0-7	B	0				There seems to be no coverage of the estimated damage costs of unmitigated climate change in the report. This was a topic covered in WG2 in detail, and covered in WG3 underlying chapters also. In covering the damage costs, it would be important to restate here that estimates for aggregate global damage costs are negative, and actually quantify them also - whether in terms of a range of annual GDP loss (1-5% was in WG2), or in terms of a range of social cost of carbon estimates. It would be important to caveat these quantifications, noting why they vary, as well as the high likelihood that they are underestimated because it is difficult to quantify non-market impacts. Aggregation also hides the fact that costs are likely to be higher in some developing countries/regions. (Government of United Kingdom)	Presentation of the social cost of carbon is now given in topic 5 and in the SPM, including key caveats.
0-221	G-0-8	B	0				Any detail on damage costs of unmitigated climate change should ideally be incorporated in a separate section on the economics of climate change alongside costs of mitigation, but if not, should certainly be covered in the current section entitled "climate change and its impacts in the near and long term under different scenarios" - perhaps somewhere on p.12 (see detailed comments).	Restructuring of topic 5 and SPM now brings the costs of mitigation and social cost of carbon in sequence to facilitate this comparison.

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Running number	Topic - Comment	Batch	Page	Line	To Page	To Line	Comment	Considerations by the writing team
							(Government of United Kingdom)	
0-222	G-0-9	B	0				The discussion of mitigation costs currently appears in the section on the long-term perspective - but it could be more useful to merge this information with that on economic potentials which is in the section on adaptation and mitigation options, as it has relevance to the discussion in that section on national and international instruments for mitigation. (Government of United Kingdom)	On balance we feel that mitigation costs are better placed in topic 5, because they are 1) derived directly from top-down and long-term stabilization scenarios discussed there, and 2) it is important to discuss the required emissions reductions, adaptation and technology needs jointly with the imputed mitigation costs (of stabilization).
0-223	G-0-10	B	0				There is also very little in the report regarding the potential risks of delaying a mitigation response. This was a topic very important in the WG3 and should be covered here. (Government of United Kingdom)	Statements regarding the consequences of delay have been revised and are now more clearly visible.
0-224	G-0-11	B	0				<p>We would like to suggest some structural changes. We suggest that it would be helpful to introduce more clearly the idea of assessing the future risks associated with climate change and how such risks can be managed. This would help clarify the treatment of adaptation and mitigation which at present is rather confusing. We therefore suggest the following structure for the SPM, together with a summary of additional diagrams which might assist the presentation of the report:</p> <p>Introduction Include an overview of the main findings and note what progress has been made since the TAR</p> <p>Observed changes in climate and their effects Largely as now Causes of Climate Change Largely as now but also show observed GHG concentrations – perhaps as CO₂ equ.</p> <p>Assessing the Risks of Climate Change Introduction on emission scenarios and climate change and sea level rise predictions with associated diagrams. Show future emissions/concentrations and temperatures and sea level rise for all SRES scenarios. This may need the use of simple models tuned to GCMs to give the full set. We find Figure 5 (left) to be misleading and too limited. The impacts of Climate</p>	Rejected; the SPM follows the approved outline of topics for the SYR. Some of the suggestions have been taken into account, e.g. showing stabilisation scenarios in the context of impacts, and separating out a section on long-term changes.

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Running number	Topic - Comment	Batch	Page	Line	To Page	To Line	Comment	Considerations by the writing team
							<p>Change during the 21st Century - We find the addition to Table SPM-2 a useful attempt to relate impacts to timing through temperature, but as in the case of Figure 5 we would like to see all the marker SRES scenarios represented. We would also ask that consideration be given to the addition of a few stabilisation scenarios as was attempted in earlier drafts of the WG2 report. Longer term risks of Climate Change and Sea Level Rise – such a section would bring together the less quantifiable but high risk aspects of future climate change and sea level rise – see separate comments on ice sheet loss.. It is important not to give the impression that everything stops at 2100.</p> <p>Managing the risks of climate change Introduction to adaptation and mitigation and a brief discussion on the different ways in which they can be used to reduce risks. Reducing the rate and level of climate change and its impacts through Mitigation Managing the effects of climate change through Adaptation</p> <p>Avoiding dangerous climate change through stabilisation of Greenhouse Gas Concentrations This is a very important section as it provides the opportunity to draw together a true synthesis of the WG reports and deal with cross-cutting issues. We suggest that additional diagrams showing stabilisation temperatures and sea level rise would be a useful addition if they can be provided and that a table or diagram relating stabilisation concentrations and risks, building on earlier sections would compliment Table SPM3. Clearly it is not appropriate for IPCC to suggest a stabilisation level but it would be failing the international community to omit the means to make some judgement of the risks associated with different levels.</p> <p>The economic costs of climate change It may be helpful to bring together all aspects of the costs of damage, of adaptation and mitigation together in one section. In general, such information seems to be limited within the report – especially compared to the content of WGII and III, so aggregating may help to identify where expansion and clearer explanation may be needed. The report should provide quantitative information and comparison where possible, discuss the limitations of the data and highlight where gaps exist. Otherwise the current sections should be expanded as suggested within our detailed comments below.</p> <p>Climate change in the context of Sustainable Development We suggest that it may be easier to have one discussion on climate change in the wider context of sustainable development – putting together subsections from Pages 12, 15, and 21 on the topic. it would simplify the discussion on mitigation and adaptation and show that climate change can be a threat to sustainable development but sustainable development itself can help contribute to the solution of climate change. (Government of United Kingdom)</p>	

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0-225	G-0-12	B	0				It is not clear why topics 4 and 5 are separated – they both discuss the interplay between adaptation and mitigation. They should be incorporated into one topic to avoid confusion. (Government of United Kingdom)	Topics 4 and 5 are as approved by IPCC-22 and the author team is not in a position to change this.
0-226	G-0-13	B	0				GENERAL COMMENTS ON THE TOPIC SECTIONS These are presented much better than the SPM (e.g. narrative text rather than statements), however there is still a danger of the key messages being lost. The text should also discuss what the conclusions actually mean for policy and the climate change debate, rather than just stating findings from the underlying report. e.g. topic 3, section 3.2.3 – some more general sentences discussing why we will see changes beyond the 21st century, discussing the implications for temperature and sea level, and using the findings to illustrate key messages rather than just using them alone. (Government of United Kingdom)	Space limitations make this difficult, but revisions to the flow of text overall should address at least some aspects of this comment.
0-227	G-0-1	C	0				Thank you for the preparation of this interesting document. (Government of Belgium)	Noted, thank you
0-228	G-0-2	C	0				general: please highlight the improvements since TAR by using e.g. a “burning embers plot”, to illustrate changes TAR-AR4. Such a plot was already proposed for the WG2 SPM draft, however its color scheme was rather subjective, real quantitative information on impacts would convey a stronger message. So we should not see this as a substitute for reviving the WG2 tables in the SYR (Government of Belgium)	An updated “burning embers” figure was considered but not supported by the author team at large.
0-229	E-0-1	D	0				[TSU note: comment on glossary] Top-down models this term also has an ecological meaning where top-down control is driven by predation and grazing by species from the higher levels of the food chain. (Stephen Hawkins, Marine Biological Association of the UK)	glossary comment; glossary is not open for review , but forwarded to glossary editor
0-230	E-0-2	D	0				[TSU note: comment on glossary] Salination add “ due to evaporation and concentration of groundwater”. (Stephen Hawkins, Marine Biological Association of the UK)	glossary comment; glossary is not open for review , but forwarded to glossary editor
0-231	E-0-3	D	0				[TSU note: comment on glossary] Ppm ppm is not always reported for dry air, there can be ppm values for constituents in other gases and liquids. (Stephen Hawkins, Marine Biological Association of the UK)	glossary comment; glossary is not open for review , but forwarded to glossary editor
0-232	E-0-4	D	0				[TSU note: comment on glossary] pH The correct definition is: the logarithm of the reciprocal of hydrogen-ion concentration in gram atoms per liter; provides a measure on a scale from 0 to 14 of the acidity or alkalinity of a solution (where 7 is neutral and greater than 7 is more basic and less than 7 is more acidic). (Stephen Hawkins, Marine Biological Association of the UK)	glossary comment; glossary is not open for review , but forwarded to glossary editor

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Running number	Topic - Comment	Batch	Page	Line	To Page	To Line	Comment	Considerations by the writing team
0-233	E-0-5	D	0				[TSU note: comment on glossary] Ocean acidification after acidity add “or more strictly speaking a reduction in alkalinity”. At the end of the sentence add “molluscs, crustaceans and some phytoplankton such as coccoliths.” (Stephen Hawkins, Marine Biological Association of the UK)	glossary comment; glossary is not open for review , but forwarded to glossary editor
0-234	E-0-6	D	0				[TSU note: comment on glossary] Extinction add “either locally (in a particular place) or regionally or globally, which equals total extinction.” (Stephen Hawkins, Marine Biological Association of the UK)	glossary comment; glossary is not open for review , but forwarded to glossary editor
0-235	E-0-7	D	0				[TSU note: comment on glossary] Coral after Scleractinia insert “in the phylum Cnidaria which also includes sea anemones and jellyfish”. (Stephen Hawkins, Marine Biological Association of the UK)	glossary comment; glossary is not open for review , but forwarded to glossary editor
0-236	E-0-8	D	0				[TSU note: comment on glossary] Catchment add “usually into a river system”. (Stephen Hawkins, Marine Biological Association of the UK)	glossary comment; glossary is not open for review , but forwarded to glossary editor
0-237	E-0-9	D	0				[TSU note: comment on glossary] Biodiversity replace with “The total diversity of all organisms and exosystems at hierarchy of spatial scales and levels of biological organisation”. (Stephen Hawkins, Marine Biological Association of the UK)	glossary comment; glossary is not open for review , but forwarded to glossary editor
0-238	E-0-10	D	0				[TSU note: comment on glossary] Alpine strictly speaking, this is not a biogeographic zone but a habitat zone. (Stephen Hawkins, Marine Biological Association of the UK)	glossary comment; glossary is not open for review , but forwarded to glossary editor
0-239	E-0-11	D	0				[TSU note: comment on glossary] Algal Bloom should be “population explosion” not reproductive explosion. (Stephen Hawkins, Marine Biological Association of the UK)	glossary comment; glossary is not open for review , but forwarded to glossary editor
0-240	G-0-1	D	0				The SYR is authoritatively, clearly and straightforwardly written. Most of the figures are complex in the sense of showing much information, but they can be easily interpreted by anyone with a reasonable knowledge of the subjects dealt with in the report. The same is true for tables. There is a good coherence between what is expressed in the SPM and the contents of the various ‘Topics’. (Government of Argentina)	Noted, thank you.