



**IPCC WGII  
Fourth Assessment Report  
Climate Change Impacts, Adaptation and Vulnerability  
*Government and Expert Review of Second Order Draft***

**Specific Comments**

**GOVERNMENT REVIEW COMMENTS**

**SUMMARY FOR POLICYMAKERS**

**Author responses – December 2006**

**August 2006**

**(includes late Mexican Govt. comments at the end)**

## Discussion of expert review comments and record keeping

IT IS RECOMMENDED THAT:

- AUTHORS BEGIN WORK ON THE COMMENTS IMMEDIATELY. SUBSTANTIVE COMMENTS NEED TO BE SEPARATED FROM NON-SUBSTANTIVE, AND THE TWO SHOULD BE TREATED DIFFERENTLY
- CONTACT IS MADE BETWEEN AUTHORS AND THEIR REVIEW EDITORS IN AUGUST

### Substantive comments

- The chapter writing team should discuss all substantive expert review comments, by email and/or at Cape Town.
- Substantive comments require full and proper consideration. The *Principles Governing IPCC Work* state that:
  - genuine controversies should be reflected adequately in the text of the Report and
  - it is the role of the Review Editors to advise the lead authors on how to handle contentious/controversial issues
- You must record the outcome of these discussions in this document, under the column 'Notes of the Writing Team'.

### Non-substantive comments

- For non-substantive comments, a very brief entry should be made in the column 'Notes of the Writing Team'. The following terms are acceptable:
  - Addressed
  - Not applicable
  - Text removed
  - A tick to denote a comment has been addressed (somewhere on the document this should be stated)

### General

- The record should be kept in this document, ideally electronically.
- The document becomes part of the traceable account of the Working Group II Fourth Assessment. When completed to the satisfaction of the Review Editors, a copy should be returned to the TSU by the **8<sup>th</sup> December 2006**.

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
G-SPM-1	A	0	0	0	0	We would however like to make a number of general suggestions regarding presentation 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 or even in the underlying report. (Government of UK)	SPM substantially rewritten
G-SPM-2	A	0	0	0	0	The information on uncertainties is interesting and from a scientific point of view valuable, but expressions like "probably", "might happen", etc. should be more harmonised and it is also important to not overemphasize the exactness of the messages (more fully elaborated scientific language on uncertainties should however be used in the main part of the report) (European Union)	SPM uses confidence and likelihood language as defined in Endbox 2
G-SPM-3	A	0	0	0	0	The current draft has a lot of important messages but these might be difficult to understand for non-experts, some proposals for improvements: - The language could be improved by revision by a scientific journalist or editor - The messages should be provided in the main text (where possible) instead of referring to figures (for instance page 3 line 37 and other places). This will avoid that the reader must look at various different pages to get the message. - In some places different scenarios are mentioned - though without explaining the content of the scenarios. Policy makers should not be expected to know assumptions/content of SRES scenarios by heart. This only creates confusion and could be described more neutral without losing the message. (European Union)	A science editor has been employed  Headings indicate the main messages which are followed by supporting text  SRES scenarios are described in Endbox 3
G-SPM-4	A	0	0	0	0	Language and structure are too complex to be accessible to policy-makers and the style is uneven– simple structure and more plain language would help pull out the key messages. And more explanation is required in places. (Government of UK)	The SPM has been edited for language and style to ensure it is reader-friendly
G-SPM-5	A	0	0	0	0	It is not immediately apparent in the SPM what is new and important since the publication of TAR. This is clearer in the Technical Summary and summarised well in many of the headings in bold. Including some of these headings in the SPM will help emphasise key findings including the message that recent work is confirming earlier impacts and revealing new important impacts. This will also better communicate a sense of urgency which is lacking in this document. (Government of UK)	Indications of where advances from the TAR etc have been made are included in the SPM
G-SPM-6	A	0	0	0	0	It is important that the words used for probability or confident level ( virtually certain, likely,...) have the same meaning in all Parts of AR4 (WGI, WGII and WGIII) and to correct some inconsistencies that appears in the draft . (Government of Spain)	This is the case

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
G-SPM-7	A	0	0	0	0	It is important that the language in the summary for policy makers is made more easily understandable (adapted to the target audience). (European Union)	We have worked hard to ensure this is the case
G-SPM-8	A	0	0	0	0	In some cases in the draft it could be difficult for policy makers to understand well the key findings. The language of the main messages should be as much clear and direct as possible. (Government of Spain)	We have worked hard to ensure this is the case
G-SPM-9	A	0	0	0	0	In general, the footnotes should be used for necessary clarification not for definitions which should be included in the glossary or Appendix (Government of Spain)	Noted
G-SPM-10	A	0	0	0	0	In general the SPM should focus more on the key findings in the report. It should clarify the main impacts. Some places it is just said "is estimated" etc. Furthermore it should be clarified whether or not the main conclusions from TAR are reinforced by the new research and in that case the main findings from TAR could be briefly summarised. The SPM should also say that the magnitude of the impacts will depend on the magnitude of green house gas emissions during the next hundred years. (Government of Norway)	We have worked hard to ensure this is the case
G-SPM-11	A	0	0	0	0	In general it would be useful to make more of the headings in bold and turn them into short paragraphs which could stand alone as key policy relevant conclusions, leaving more technical info for the bullet points. Indeed the bold text could notionally form a set of very limited key conclusions on their own and should be eminently quotable. Some of the headings in bold in the technical summary might be used in the SPM. (Government of UK)	Bold headings representing the main messages are followed by concise supportive text
G-SPM-12	A	0	0	0		Climate change is primarily measured in terms of the (global) temperature change. This is quite obvious on lines 30-33 of page 3, footnote 5 of page 3, Fig. SPM-1, lines 11-26 of page 7. Temperature increase is a good indicator for some impacts (e.g., sea-level rise) but not for many other impacts. In particular temperature change is a poor indicator of regional changes in precipitation and soil moisture, which are very important parameters of impacts on continental ecosystems. Impacts of ocean acidification and continental ecosystem fertilisation depends primarily on the CO2 atmospheric concentration rather than change in temperature. The SPM should make it clear that there is a variety of impacts, which will respond to different drivers, most of which are well connected to, and some of which are poorly or not at all connected to, changes in temperature. (Government of UK)	Changes in other elements of the climate systems e.g., SLR and precipitation have been incorporated into the SPM, particularly in section C

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
G-SPM-13	A	0	0	0	0	At various occasions, there is inconsistent use (or lack of use) of the confidence / likelihood terminology outlined in Appendix 1. The author team may want to review each use of the terms "could", "may", and "probably". (European Union)	We have worked hard to make sure the appropriate likelihood and confidence statements have been applied
G-SPM-14	A	0	0	0	0	Add confidence levels to key statements, add and apply the UGN qualitative scale where appropriate (European Union)	Confidence levels have been added to all bold statements
G-SPM-15	A	0				To shorten individual chapters, it would be useful to remove repetition of expected climate trends and descriptions of climate scenarios except where changes in a particular parameter or scenario element is needed to support a statement. Likewise, removing brackets lists of parameters can be removed (e.g. Ch 5, page 7, line 39-40) (Government of Canada)	We have worked hard to ensure this is the case
G-SPM-16	A	0				This is an excellent Summary reflecting careful and thorough work. A few general comments: <b>1. Audience:</b> Consider lay readership (the non-scientists, non-climate initiates, non-technically versed journalists, lay persons generally) and the vital importance of making the SPM in particular accessible to these sorts of audiences to maximize understanding of the content. Part of the goal is to educate a broad public. So, for example, avoid technical terms and “jargon”. Limit the use of abbreviations. Consider giving the text to a non-technical person, non-scientist to read who will then point out terms and concepts that require a summary description or brief explanation, even in a parenthetical form. Make it more accessible. <b>2. Figures:</b> a. Where possible select colors in figures, charts, boxes and tables that will permit photocopying b. Label each figure, chart, box and table at the top c. Where possible, consider a more consistent formatting or “look” of the figures, charts, boxes and tables. This will make the document easier to read and to understand content being rendered. <b>3. Emphasis:</b> As appropriate and as space permits, indicate new, different, additional, confirming, more robust data, evidence or support from earlier reports such as the Third Assessment Report (TAR). Consider including, as space permits, a short statement or phrase as to each important item/bullet that is a “take away” for the reader. This will help readers	We have tried to take on board these comments. Audience: we have tried to reduce jargon to a minimum, avoid abbreviations, and the text has been seen and commented on by an editor with a view to minimizing inaccessibility. Figures: these are improved but still require work to make them clear when photocopied, and to impose some level of consistency. These steps will come once the choice of figures to be used is finalized. Emphasis. We have tried to make clear the relation of statements in the SPM to the TAR, even using a coding system in the sector and regional boxes.  We think we have identified the most important ‘take-home’ messages in the SPM and given them sufficient prominence. Broadly, we have used the Chapter 19 criteria of significance, which include magnitude, timing, confidence etc.(see Ch 19 executive Summary).

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
						<p>understand the importance of the item and its selection for inclusion in this Summary for Policy Makers. This will also help them “connect the dots”. This Summary will have a lay audience.</p> <p>Along these lines, and recognizing space limitations, have the most salient, the most significant, the most “telling”, the most important and consequential items been included in the Summary? The most compelling and remarkable, precedential data and evidence of change, impact and vulnerability? Review what criteria have been explicitly or implicitly used to determine when an item or fact has been selected for inclusion here.</p> <p>Consider fewer mini-examples and “factoids” and more text of an explanatory nature that describes <u>why the factoid is important to policymakers and the public(s) that they serve: the “so what?” factor.</u></p> <p>Use more space in the Introduction to “set the stage”. Why is it important for decisionmakers to understand and to act on what has be learned and presented here given their assigned “roles” as government (and other sector) leaders. This Introduction is flat, bland, and low in articulation of purpose. No statement here broadly conveying the breadth and significance of the accumulating scientific findings that are being set out in this AR4. No suggestion of how the Summary might be used by various audiences.</p> <p>(Government of USA)</p>	We have cut the length of the Introduction substantially, but have been careful to keep information from the assessment to a minimum there, given the need for line-by-line approval. Hopefully it is more focused and generally tighter than in the SOD>
G-SPM-17	A	0				<p>There is uneven treatment of regions in the sectoral chapters, in some cases leaving out discussion of some regions. If the reader does not also read the regional chapter he/she may miss important information.</p> <p>(Government of Canada)</p>	We have worked hard to ensure the SPM is as representative and balanced as possible
G-SPM-18	A	0				<p>There are some inconsistent expressions in SPM. For example, in page 1, in line 6-7, "natural, managed and human systems" is used but in line 26 "physical, biological and human systems" is used. Do these two kinds of expressions describe the same thing or different things? The readers could be easily confused with different expressions, especially many readers are policymakers. Suggest to keep all the expressions of the same thing consistent in SPM.</p> <p>(Government of China)</p>	We have worked hard to ensure that phrases are consistent
G-SPM-19	A	0				<p>The writing style of the SPM assumes a high level of scientific literacy and technical vocabulary. As is, the text is not user-friendly to a policymaker from a non-scientific background. Greater explanation of terms is necessary. Further, it is our general consensus that the Technical Summary is a more user-friendly</p>	We have worked hard to ensure the SPM is reader-friendly

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
						document for the policymaker than is the SPM; despite the fact that the SPM is specifically intended for policymakers. We suggest that the writers review the TS and re-write, re-order and re-structure the SPM based on that of the TS. (Government of Japan)	
G-SPM-20	A	0				The whole SPM of WG II seems to be rather unbalanced in terms of the degree of detail. Impacts are in parts described very specifically whereas section D, for example, stays very general - except three examples at the very beginning of this section. For policy makers, section D and E are the most interesting parts, but these sections are very general and not very well formulated. (Government of Germany)	We have altered the balance so that Sections D and E are consolidated and strengthened.
G-SPM-21	A	0				The summary should include a discussion on how to differentiate between man-made climate effects and natural variations and how to communicate the difference between these to the public (Government of Sweden)	This is outside the scope of WG2 – this is the role of WG1.
G-SPM-22	A	0				The Summary for Policymakers seems lacking in that it has only one line that identifies an air quality impact related to ozone. It should include at least another line to also identify particulate matter air quality impacts. The PM impacts are identified in several portions of the summary and in Chapter 8. See, for example, the following lines: pg 12 of 22, lines 13-14 (drought and forest fire); pg 12 of 22, line 32 (wildfires); pg 15 of 22, lines 25-26 (fires); 8.2.6 pg 18 of 72 lines 3-8 and 49-51 (PM related to health impacts); 19 of 72 lines 4-6 (wind patterns and transport); and pg 32 of 72 lines 1-10 (PM). In addition, there are many studies/papers on the climate impacts on air quality that have been published in the last 2-3 years and many more to be published soon. (Government of USA)	Ozone is mentioned in the Health section on page 7 of the new SPM. There was no support amongst the authors for a statement on particulate matter – it was not felt that it fulfilled the criteria of Chapter 19 as much as other some other statements that might be made, given length constraints.
G-SPM-23	A	0				The SPM, which is supposed to be based on the underlying chapters, includes some source references in brackets, but there are no associated “confidence levels.” It does include some statements of “likelihood.” In addition, a number of the bold-face statements do not include any references to chapter sources, research priorities, or uncertainties. The most obvious omission are in the first such SPM statement, which prominently states in bold-face (p. 3): Changes in climate are now affecting physical and biological systems on every continent. Effects on human systems, although more difficult to discern due to adaptation and non-climatic drivers, are emerging. Over 99% of observed changes in systems and sectors are consistent with regional temperature trends. Many of the changes are not attributed to temperature increase caused by anthropogenic greenhouse gas emissions.	Large efforts have been made in the preparation of the FGD to standardize the treatment of confidence, likelihood and sourcing. Hopefully this has been successful. Confidence levels are now included much more extensively; all substantive statements should be sourced back to the chapters; likelihood language should avoid imprecision such as ‘could’ ‘would’ ‘probably’ etc.

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
						Further, none of the bracketed sources appears to refer to the numerous uncertainties and related research priorities or gaps stated in most of the chapters.  (Government of USA)	
G-SPM-24	A	0				The SPM seems to be making the case for mitigation and is less helpful for policymakers who might want to plan adaptations. (Government of Canada)	The balance has shifted in the new SPM, and there is more content on adaptation.
G-SPM-25	A	0				The SPM needs significant work to improve the structure and content of the information contained in it to provide a more accurate reflection of the content and findings of the WG2 report. The purpose of the SPM and its likely readership (high-level policy makers from both inside and outside the climate change community), should be articulated in the document and the authors should ensure that the needs of the readership are taken into account. This readership will come from international, national and local perspectives and this should be kept in mind. At present there is a disconnect between the SPM and its possible audience. As such the key messages from the report need to be clearly presented, and care should be taken that these messages are not obscured by numerous caveats and/or the use of jargon. The SPM readership will be most interested in the possible consequences of climate change on their sector/region of interest, rather than more prosaic points of scientific concern (such as increasing hydrogen ion concentration in the ocean, page 5.) Where jargon, or scientifically-based key comments are included, these should be explained. To facilitate this the CLAs should consider bringing a 'science communicator' into the writing process. (Government of Australia)	The structure of the SPM has been adjusted to consolidate and strengthen the responses section. We have minimized caveats and scientific jargon. A scientific editor was used in the preparation of the new draft. Hopefully the reviewer will find the new draft SPM much improved.
G-SPM-26	A	0			0	The SPM contains interesting and useful information for New Zealand policy makers - thank you and well done (Government of New Zealand )	Thank you
G-SPM-27	A	0				The report could be improved through more clarity and cogency on significance of impacts and potential adaptation measures or lack of them. In this context the idea of an additional adaptation column on might be added to Figures such as SPM-3 might be explored in the next revision. This could for example indicate if adaptation would be possible, expensive, difficult or impossible e.g. melting of Greenland ice sheet (Government of Ireland)	Fig SPM-3 has been removed and replaced by Tables SPM-1 and SPM-2. The context with respect to the amount of assumed adaptation has been made clear in the captions to these figures. The sections on responses have been consolidated and hopefully strengthened. However, within the space constraints on the SPM, it has not been possible to deal at the detailed level reequested here with specific actions for adaptation.

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
G-SPM-28	A	0				The overall message or tone of the SPM to policy makers seems to be that there are emerging problems for ecosystems but there aren't any real pressing problems to human systems yet - was that intended? (Government of Canada)	No. For observed climate change we say there are few examples amongst human systems where we can say without doubt that the observed trend is due to climate change because of adaptation and other, confounding, influences. Hopefully this message comes across more strongly in the new draft – Section B is extensively reworked.
G-SPM-29	A	0				The methodology to assess climate change impacts of the 4AR WG II report is poorly described in Appendix I of the SPM. It is necessary not only to describe the terminology but also to describe the applied methodology more detailed (also in the TS) and make the assessment processes transparent to readers. This could be done by preparing an own chapter as part of the technical summary and refer to this chapter in the SPM. (Government of Germany)	Methodology and future scenarios are now dealt with in the TS, and there are references from the SPM to this section of the TS. However, impact assessment methods are not dealt with in detail in the TS – readers would have to go to the individual chapters to read about this. This appears to us correct – to deal with methods in the underlying chapters and keep the TS and SPM for the scientific results of the assessment.
G-SPM-30	A	0				The last page in SPM provides the description of likelihood, confidence and terminology. However, in some parts of SPM, the expressions without any indication of likelihood or confidence are used, such as "would be severely affected", "could lead to major shift", "would be threatened" and "would become" in line 14-18 in page 9. In SPM, when necessary, the level of scientific understanding should be provided based on the standard definition in the last page. (Government of China)	We have worked hard to remove such imprecise language.
G-SPM-31	A	0				The headings used in the Summary for Policy Makers are poorly organized and leave the reader unsure about where one topic ends and another begins. It is also unclear which headings are main ones and which are sub-headings to a main topic. The organizational pattern established in the Table of Contents and again on page 3, lines 9-13 states four main categories covered in the SPM, but the information found as sub-headings in these four categories seems random and at worst, misplaced. Substantive editing of the organization of the SPM is suggested. (Government of Japan)	The SPM has been substantially reorganized.
G-SPM-32	A	0				The graphs and figures should be layouted in a way, that it would be possible to copy or print the pages without colors and without losing detailed informations. This would also facilitate the positive reducing of worse impacts of using multi-color printers compared to one-colour printer and facilitate the understanding of the	We have worked to improve the presentation of the figures.

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
						report - not only in developing countries. (Government of Germany)	
G-SPM-33	A	0				The following chapters require substantial revision: 1, 3, 4, and 19. The SPM must incorporate changes in the conclusions of these chapters and highlights of technical background and rationale for those conclusions. Where chapter revisions improve clarity, the SPM should be revised to take advantage of that additional clarity. Additionally, there are specific chapter sections, tables, and figures that require major revision, and similarly the SPM must reflect these changes. (Government of USA)	Taken account of and implemented
G-SPM-34	A	0				The authors need to also clearly explain the process of joint attribution of climate change to ensure that readers are not confused between examples of climate variability and climate change. (Government of Australia)	'Joint attribution' has been removed from the main SPM. There is a box on page 4 explaining methods to link cause and effect.
G-SPM-35	A	0				Table of contents indicates a Technical Summary and yet Policy Summary text refers to an Executive Summary many times . If these are one in the same then make TOC consistent (Government of Canada)	Each chapter has an Executive Summary. The whole WG2 assessment has a Technical Summary. This should now be clear in the new draft.
G-SPM-36	A	0				SPM is a clearly written chapter containing the central points of the report. (Government of Finland)	Thank you.
G-SPM-37	A	0				Some conclusions from WGI report need to be used in this SPM. However, there are several places where the wording is not completely consistent with that in WGI report. The consistency between IPCC reports is very important. Please check WGI report and keep consistent. (Government of China)	Done
G-SPM-38	A	0				Reporting on impacts separately from the capacity to adapt in each chapter adds to the complexity of the narrative and in some cases creates repetition of information about impacts. To shorten, you may wish to ensure both are reported together, particularly in the sectoral chapters where you are reporting on subsectoral issues such as different modes of transportation. (Government of Canada)	Attempts to link impacts and adaptation in the same part of the SPM have failed and we have retained their separation, while working to strengthen the section on adaptation.
G-SPM-39	A	0				References to the Arctic Climate Impacts Study should focus on the technical volume and stay clear of the political statements. (Government of Canada)	Reference removed.
G-SPM-40	A	0				Paras included from page 19, line 30 to page 20 line 11 from the TS should be included in the SPM due to their high relevance for policy makers. (Government of Austria)	We have tried to keep the SPM as short as possible whilst still retaining key facts. No action.

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
G-SPM-41	A	0				Overall, this summary needs to summarise the implications for climate change policy and sustainable development. It should aim to present the current scientific knowledge etc, as concisely as possible (Government of Finland)	Agreed.
G-SPM-42	A	0				Many unexplained acronyms. The SRES nomenclature is particularly confusing A2, A1B, etc, suggest putting brief explanations of each in Appendix 1. (Government of Canada)	SRES scenarios now explained in an endbox
G-SPM-43	A	0				Many of the findings cited in SPM are given as extremely specific for a certain time period and/or emission scenario and/or Sea Level Rise (not in the least in Boxes SPM-1 and SPM-2 but also here and there in the SPM text). This is a lack of coherency which, albeit difficult to avoid given the same state of affairs in published literature, contradicts the ideal of a synthesis and might make the "whole problem" less accessible to policy-makers. Perhaps the findings could be formulated in less detailed terms so as to promote systemic understanding? One suggestion is to sort the examples in different time-horizons. (Government of Sweden)	Boxes removed due to similar concerns.
G-SPM-44	A	0				Make sure that all acronyms (SRES, WRE,... ) are explained within the text. (Government of Spain)	We have tried to do this.
G-SPM-45	A	0				Key messages from chapter 19 such as : " Global mean temperature changes of up to 2°C above 1990 (equal 2.6°C above preindustrial times) will exacerbate current key vulnerabilities and trigger others, such as reduced food security in many low-latitude nations." are missing in the SPM. In general we recommend to set findings for key vulnerable regions in relation to other regions and include these information prominent in the SPM as it is most policy relevant. (Government of Germany)	To address this we have added Tables SPM-1 and SPM-2.
G-SPM-46	A	0				It would be useful for the reader's reference to have a prominent table describing the four SRES scenarios. Currently, this table only exists in the Technical Summary. Though the writers of the AR4 SPM seem to have assumed otherwise, not all of the policymakers reading this and using it as a policy guiding tool will be familiar with SRES and the application of those scenarios in the work of AR4. If undesirable to insert directly into the text of 'A. Introduction to the Summary for Policymakers', then suggest it be added to the SPM Appendix. (Government of Japan)	See endbox 3.
G-SPM-47	A	0				It would be good to include economic adaptation mechanisms such as water markets in the Summary for Policy Makers. Insurance as a mitigation strategy is only mentioned for 'Small Islands' while it is a very general policy relevant tool	We no longer give substantial examples of adaptation strategies in the SPM (Table SPM-1 has gone), mainly because of space

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
						that deserves a general mention in the policy summary. These adaptation mechanisms are relied upon heavily and are discussed in depth in several of the chapters of the report. The underlying material may not be well developed within the relevant chapters of the document. As relevant material is added to the document, these points should be incorporated into the SPM. (Government of USA)	constraints – readers have now to go to the chapters for these. Chapter 17 does not consider water markets sufficiently important to make reference to them in the Technical Summary. Chapter 3 has only 2 paragraphs on these.
G-SPM-48	A	0				It will be useful if some additions are made to the text, wherein, information on examples of costs and benefits of adapting to these changes holds relevance to policymakers. This will help provide information on the order of investments being looked at for the interventions proposed. Table SPM-1 can be modified to include this. (Government of India)	There is very little robust information on costs. We searched very hard, recognizing the need, but were not successful.
G-SPM-49	A	0				It is suggested to include the text on TS, page 52, lines 30 to 32 in the SPM because this text is very policy relevant: Increased vulnerability to climate change .... (Government of Austria)	See page 18 lines 13-14 of new draft.
G-SPM-50	A	0				It is suggested to include the text on TS, page 52, lines 16 and 17 in the SPM because this text is very policy relevant: The social cost of carbon and all greenhouse gases will rise over time, the best estimate being between 2% and 3% per year. (Government of Austria)	See page 19 lines 15-25 of new draft
G-SPM-51	A	0				It is suggested to include the text from page 52, line 51 to page 53, line 2 in the SPM because it is very policy relevant (after checking whether the text is still valid after introducing the smaller range for the climate sensitivity). (Government of Austria)	This is not included in its entirety, but the general message is present at several points in the SPM.
G-SPM-52	A	0				It is proposed to highlight in the SPM also key uncertainties and gaps in knowledge as such information is very policy relevant. (Government of Austria)	See Section E
G-SPM-53	A	0				It is proposed that the SPM also highlights the main gaps in research on vulnerabilities, impacts and adaptation to climate change. (Government of Austria)	See section E
G-SPM-54	A	0				IPCC should try to weight the impacts of different sectors according to ethical principles. In such an aggregation of the assessment human health should play a big role as most people consider health as one of the most highly prized assets in life. (Government of Germany)	This would surely be policy prescriptive? No action.
G-SPM-55	A	0				IPCC should put further effort into creating a consistent picture with some emerging key messages and future risks. In the current version of SPM it is not easy to find these key messages.	Recognized and addressed – hopefully successfully.

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
						(Government of Germany)	
G-SPM-56	A	0				In total the chapter gives a comprehensive overview with lots of illustrative graphs with focus on impacts and vulnerabilities and with less on adaptation which is understandable. However, some more could be said about it as will be explained further below. Reading the text now also almost presupposes that one is familiar with previous IPCC work and therefore the text needs to be made easier to read for readers new to the subject. (Government of Sweden)	We have worked to achieve an SPM which is more 'stand-alone'
G-SPM-57	A	0				In several places the text refers to specific SRES storylines or Perhaps the SRES storylines or scenarios. However, the differences in the storylines in not explained anywhere. Perhaps this deserves a 'Box', or at least the descriptive names should also be given (i.e. B2 - regional environmental). (Government of Netherlands)	See endbox 3 in new draft
G-SPM-58	A	0				In general, the chapters reviewed were an improvement since they incorporated information that was more recent than the original 2004 cutoff. This will make the document more relevant and real to readers. As an example page 10 line 4 to 7 speak to events that are well known and, if had not been acknowledged, would probably have resulted in the report being easier to dismiss. (Government of Canada)	Noted.
G-SPM-59	A	0				General comment. This draft of SPM only mentions new views on the more limited scope for carbon fertilisation in the context of "ecosystem impacts" in Box 1, with reference to their impact on the magnitude of carbon sinks. This is hardly sufficient. The results of FACE studies that the effect of carbon fertilisation is more limited than previous research has assumed has also important implications for estimates of climate impacts on agriculture and forestry, tilting the balance of positive and negative effects towards the negative direction. Carbon fertilisation is covered slightly more extensively e.g. in TS and Chapter 19, and there would thus be scope for flagging it up at least as an issue requiring more efforts to clarify in the future. See e.g. Long, S.P., Ainsworth, E.A., Leakey, A.D.B., Nösberger, J., and Ort, D.R. 2006. "Food for Thought: Lower-Than-Expected Crop Yield Stimulation with Rising CO2 Concentrations", Science 312: 1918-1921. There is some undercoverage of this issue also in the main chapters of the whole report of WGII. (Government of Finland)	Because of space constraints, this issue is no longer dealt with in the SPM.
G-SPM-60	A	0				General comment. The SPM notes in Box 1 that terrestrial ecosystems will provide a carbon sink until 2030 but that they may become a source of carbon after 2100. There would be a need for a greater coverage of recent studies of soil carbon, which suggest that earlier results may significantly underestimate the impacts of warming	Because of space constraints, we cannot debate this issue in the SPM - no action.

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
						on soil respiration, which may turn soils into sources of CO2 and provide a positive feedback for additional warming. See e.g. Heath et al, (2005), Rising Atmospheric CO2 Reduces Sequestration of Root-Derived Carbon, Science 309: 1711-1713; Korner et al (2005) Carbon Flux and Growth in Mature Deciduous Forest Trees ...., Science 309, 1360-62; Powlson (2005) Will Soil Amplify Climate Change? Nature 433: 204-205.; Knorr et al. (2005) Long term sensitivity of soil carbon turnover to warming, Nature 433: 298-301; Domisch, T. et al., (2005) Decomposition and nitrogen dynamics of litter in peat soils from two climatic regions under different temperature regimes. European Journal of Soil Biology, in press, available online. There is undercoverage of this issue also elsewhere in the main chapters of the WGII report. (Government of Finland)	
G-SPM-61	A	0				General comment. At the moment the SPM does not provide an interpretative summary of key observations - it is not interpretative enough. The large number of graphical elements and boxes leave the text disjointed and difficult to absorb even for a well-informed reader. Graphs and boxes do not speak for themselves. Less word count to be used for boxes and more words for interpreting the key lessons in an understandable way. (Government of Finland)	Graphs and boxes have been reduced. We have tried to improve level of interpretation.
G-SPM-62	A	0				Figures SPM-5 and SPM-6 refer to adaptive capacity. However, the extent of knowledge and basis for assessing adaptive capacity needs to be supported in the text. (Government of Canada)	Both figures removed. DAaptive capacity is only discussed in text, and only in brief because of length constraints.
G-SPM-63	A	0				Figure SPM 1. It appears that there is nowhere on the map where no change or change not consistent with global warming has occurred (grey areas). Is that correct- if so this should be explained in the text below the figure. The same goes for the white areas- that is polar areas, some areas in Africa etc are white on the map meaning that at least one change has occurred? More explanations are needed. (Government of Sweden)	Figure has been improved and should now address these concerns.
G-SPM-64	A	0				Fig. SPM-6: It is noted that this figure addresses "globalization vulnerability". This is not a common term in the domain of climate change. As this figure also reflects the situation on a regional (national) scale it is proposed to delete it in the SPM. (Government of Austria)	Removed
G-SPM-65	A	0				Ensure that full citation to the IPCC WG I AR4 report is used. (Government of Canada)	Can be added when available and if considered desirable by Plenary.
G-	A	0				Box SPM 2 Africa. The Nile delta has previously been mentioned as susceptible to	

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
SPM-66						flooding- is that not considered a serious impact in this assessment? (Government of Sweden)	
G-SPM-67	A	0				Being an important term in nature management, it would be desirable that the term "biodiversity" is mentioned in the text (not only in the boxes) - text from TS may be used. (Government of Norway)	Not mentioned explicitly due to space constraints
G-SPM-68	A	0				Basically a clear, coherent and usable summary for the policy makers. Anyhow, the scope could be expanded slightly more from the natural systems to human systems and human sustainable development aspects without significantly increasing the number of pages. The degree of the seriousness of the various impacts could be further elaborated. (Government of Finland)	These comments noted and taken into account during the extensive rewrite.
G-SPM-69	A	0				Authors are inconsistent and do not follow language regarding uncertainty provided in the introduction (e.g., Virtually Certain, Very Likely, etc.), and instead use "will" (or similar wording) that suggest a higher level of certainty than the information provided in the chapter. Therefore, the authors do not use the appropriate terminology when referring to the "degree of confidence" AND "likelihood of occurrence/outcome". (Government of USA)	Very substaintail effort has been put into the standardization and improved treatment of uncertainty and likelihood.
G-SPM-70	A	0				Appendix 1: In principle the information included in the Appendix 1 is welcomed. In particular the definitions under A1.1 as well as the information on the handling of uncertainty under A1.3 seem to be very useful. However, it seems to be unusual to include information under A1.2 in the SPM. It is proposed to use the same approach across all SPMs how to introduce important definitions in the SPMs as well as to inform about the concept of uncertainty. (Government of Austria)	Appendix removed.
G-SPM-71	A	0				Any inconsistencies between Working Group I Contribution to the IPCC AR4 and Working Group II Contribution to the IPCC AR4 should be avoided in order not to undermine the credibility of the IPCC and its authors. (Government of Austria)	Noted. We worked during the re-write of the SPM to ensure this consistency.
G-SPM-72	A	0				Although it is likely to be covered by other parts of the Fourth Assessment Report, the most obvious message to the Policy makers are what can be done to hinder a future of continuing climate change. There are still a lot of things to be done on policy level to alter the current development and it should be a primary target for policy makers to solve the problems at its core. (Government of Sweden)	This is a more a WG3 concern.
G-	A	0				4AR WG II focusses on temperature increase as the main and most important	Please see page 6 lines 6-8 in the new draft.

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
SPM-73						parameter driving climate change impacts. It might be considered to better address possible impacts of changes in the hydrological cycle (esp. freshwater availability) in combination with impacts of temperature changes. (Government of Germany)	
G-SPM-74	A	1	1	22	30	In the SPM there is no explanation of confidence levels, whereas the TS refers to confidence levels in each paragraph. The SPM should mimic this style, making reference to the level of confidence for key statements. (Government of Japan)	This has been done in the new SPM. Each bold statement is accompanied by a confidence level
G-SPM-75	A	1		22		The chapter 19 includes a lot of valuable but rather complex information, but quite a little of it is reflected in the summary. It would be important to at least explain more about a) the uncertainties in determining certain thresholds for certain DAIs [see chapter 19, page 3, lines 22-23]- in some cases we might have already passed those thresholds without knowing it b) the difficulties of climate models to consider and predict abrupt and/or unlinear changes [there is a great piece of text about this in the chapter 4, page 50, lines 42 - 48 c, see also chapter 10, page 50, lines 30 - 37] the differences between how it's not only the eventual stabilization level that counts but also the peaking. (Government of Finland)	(a) Uncertainties are dealt with in Tables SPM-1 and SPM-2 where a range is given where available, and an uncertainty statement included. (b) This is surely WG1 material, and not appropriate for the WG2 SPM
G-SPM-76	A	1		22		Possible changes in North Atlantic Meridional Overturning Circulation (MOC) and its possible implications to different regions and "sectors" has been discussed widely in the report itself. It is therefore surprising that there is nothing about it in the SPM. This needs rethinking. (Government of Finland)	A discussion of the MOC is included in the new SPM in two places. In Table 1 and on page 15 lines 35-41
G-SPM-77	A	1		22		It should be written out in the SPM that we are already committed to approximately 0,5 degrees of additional warming with current emissions. (Government of Finland)	This now appears on page 16 lines 12 - 18
G-SPM-78	A	2	5	2	5	Proposal : to change the header into "Observed impacts" (Government of Switzerland)	Section B heading has been changed to 'Current knowledge about observed impacts in natural and managed systems'
G-SPM-79	A	2	6	2	6	Proposal : to change the header into "Projected vulnerability and impacts" (Government of Switzerland)	Section C heading has been changed to 'Current knowledge about future impacts'
G-SPM-80	A	2	7	2	7	Proposal : to change the header into "Responding to climate change" (Government of Switzerland)	Section D has been changed to 'Current knowledge about responding to climate change'
G-	A	2	8	2	8	Proposal : to change the header into "Climate change and sustainable development"	Section E has been rewritten and is now

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
SPM-81						(Government of Switzerland)	entitled: Systematic observing and research needs
G-SPM-82	A	2				"Adaptation" could be mentioned at the headline and TOC level (Government of Finland)	Adaptation is covered in Section D which is entitled 'Current knowledge about responding to climate change'
G-SPM-83	A	3	3	3	7	As articulated above, the introduction should set out more clearly the purpose of the SPM. In particular: there needs to be a statement as to the policymakers that are being targeted, why they are being targeted and the policy implications that relate to their generic positions; and the SPM needs to show how policymakers at all levels, in different sectors (governmental and private) and across disparate geographic and geopolitical regions can utilise the findings of the WG2 AR4.  (Government of Australia)	To keep the SPM as short as possible, we have kept the Introduction to a minimum length – to provide a statement regarding the targetted policymakers would increase the word length significantly. It is hoped that the findings of the SPM are clear enough for policymakers to use them easily
G-SPM-84	A	3	3		19	The introduction needs to be beefed up—the reader needs more context, might not know what WGII is (or care), etc. Needs a discussion of what we tease out impacts of climate from land use practices, pollution, etc. – the reader is left questioning how we can determine, e.g., whether coastal water ecosystem effects are from temperature change or from pollution. Additionally, explain the relationship of this document to the reports of other WGs. (Government of USA)	To keep the SPM as short as possible, we have kept the Introduction to a minimum length – hopefully this addresses the concerns of the reveiwer in that we move to the main findings of the report as soon as possible.
G-SPM-85	A	3	4	3	4	Reference is made to the TAR and AR4 WG I report. This reference to external reports not included in this report and thus full citation should be included in references and author/year be used to cite in the text eg. IPCC 2004. IPCC-WGI-AR4 2006. (Government of Canada)	This seems unnecessary detail. The Third Assessment is now always spelled out in full. The Fourth Assessment citation is not yet available. These can be added if Plenary wishes.
G-SPM-86	A	3	5		5	Include date of publication of the TAR. (Government of USA)	TAR is only now ever referred to in full – seems unnecessary to give publication date.
G-SPM-87	A	3	9		9	Include abbreviation (SPM) here. It is referenced as such in footnote 4, at bottom of the page. (Government of USA)	The abbreviation SPM is now only used with respect to Fig and Table numbers, so this is not required.
G-SPM-88	A	3	9			Editorial: Insert (SPM) after “Policymakers”. (Government of USA)	The abbreviation SPM is now only used with respect to Fig and Table numbers, so this is not required.
G-SPM-89	A	3	13			Why change the general categories from the base document which is grouped according to assessment of: A) observed changes, B) Future impacts and adaptation of systems and sectors, C) Future impacts and adaptation of regions, and D)	We now follow this structure. 'Implications for sustainability' are not singled out as a key heading.

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
						responses to impacts? We do not agree that the SPM should single out “implications for sustainability” as a “key heading”, especially since the conclusions are so weak. This could be included in the response to climate change section as it is in the WG2 report. (Government of USA)	
G-SPM-90	A	3	13			It might be suitable to include, as a footnote, the preferred definition of sustainability already at this stage. (Government of Norway)	Sustainable development is defined on page 18 in footnote 11
G-SPM-91	A	3	13		13	Footnote No. 3 references “ES = Executive Summary”. Is this the same as SPM? If not, explain where this is to be found. (Government of USA)	Executive Summaries are at the beginning of every chapter so 6.ES would refer to the Executive Summary of Chapter 6. Does this not become clear once an example appears in text.
G-SPM-92	A	3	15		16	Should read “The definitions of key terms, a description of the procedures followed by this Assessment, and an explanation of terms used to describe uncertainty are included in Appendix 1.” (Government of USA)	We have tightened this up in the new SPM. There is no Appendix – we have used Endboxes. Readers are guided to the Endboxes using footnotes.
G-SPM-93	A	3	20			Before launching into the meat of the SPM, we believe the SPM should define key terms that a reader will encounter. This is critical so that the reader knows what a key term refers to rather than assumes or guesses what the term might encompass. Specifically, Section A1.1 of the appendix should be moved to this point. (Government of USA)	We tried it in this position but felt that the SPM was then too slow to get going. Definitions are now in Endboxes rather than Appendices.
G-SPM-94	A	3	21	3	21	Proposal : to change the header into "Observed impacts" (Government of Switzerland)	Header has been changed to ‘Current knowledge about observed impacts in natural and managed systems’
G-SPM-95	A	3	21	5	50	It would be useful to have a sense of how the observed impacts reported here compare to those reported in the TAR (scope, magnitude, rate of observed change). For example, page 5 line 1, how does reported rate of sea-level rise compare to that reported in TAR? (Government of Canada)	This is really the domain of WG1
G-SPM-96	A	3	21	6	48	Although there is greater uncertainty, why is there nothing on precipitation changes in either section B or C? (Government of UK)	In Section B this is because most studies of observed changes relate to temperature. In Section C we now make a statement about this – page 6 lines 6-8.
G-SPM-97	A	3	21	10	20	Somewhere in the chapters on knowledge about present-day and future impacts, increased variability in responses should be mentioned, as this will be very important for policy-makers to plan for future ranges of responses (rather than only	Unsure what is meant by ‘variability of response’. There is now a headline statement and table about changes in the frequency of

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
						means). (Government of Norway)	extremes – see page 14 new draft.
G-SPM-98	A	3	22	5	48	Present-Day Impacts—this section will be very important to policymakers and at this point the section is not compelling. First, the discussion of whether climate change is due to anthropogenic change does not belong here—move it to the introduction or to a section by itself. Second stick to what has already been observed—e.g rather than drought <i>is increasing</i> , say <b>increased drought attributable to climate change has been observed in .....regions</b> . Also, later in the chapter, extreme climate events are mentioned, but are not listed here. Revisions to Chapter 1 (Observations) are required as a basis for improving this section of the SPM. Details of required SPM revisions will be clearer when Chapter 1 is revised. (Government of USA)	Revisions to Chapter 1 have been carried through to the SPM. We have dropped the term ‘attributable’ and use ‘discernible influence’ instead. We have removed the mention of extremes from the SPM because it is not clear that impacts from extremes are increasing because the incidence of the extremes themselves is increasing.
G-SPM-99	A	3	23	1	23	Remove "changes" (Government of Netherlands)	This text has been rewritten
G-SPM-100	A	3	23	3	26	What is the status of the words in italics; are the part of the SPM or will they not be part of the final version of the SPM ? (Government of Switzerland)	Italics are no longer used
G-SPM-101	A	3	23	3	26	This paragraph contains very important information and key messages for policy makers, but the wording is confusing. It would be convenient to rewording the paragraph. (Government of Spain)	This text has been removed and replaced with much clearer language
G-SPM-102	A	3	23	3	24	The whole sentence is odd: "Increases in regional surface temperature changes..."; leave "changes" away or say something like "Regional surface temperature increases in all .... likely as a result of greenhouse gas emissions.." (Government of Finland)	Accepted. This text has been rewritten
G-SPM-103	A	3	23	3	25	The use of “many” is ambiguous. Specifically, the concern with this term is that it lends itself to varying interpretations. One policymaker’s definition of what constitutes “many” may differ from another. It would benefit all policymakers if this was expressed in quantifiable terms. (Government of Japan)	Accepted. This text has been rewritten
G-SPM-104	A	3	23	3	25	The time period of "Increases in regional surface temperature changes ... " should be indicated here to keep consistent with WGI report. (Government of China)	This text has been rewritten. Time periods are specified on pages 3 and 4
G-SPM-	A	3	23	3	25	Suggest clarification of text referring to “all inhabited continents”. Text states that temperature changes are said to occur in “all inhabited continents.” The reader	‘inhabited’ has been removed

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
105						wonders why there is a specific reference to inhabited continents while neglecting to mention temperature changes in uninhabited continents. It is assumed that the only uninhabited continent is Antarctica, but this is not clear; thus suggest clarification so as to avoid unnecessary misinterpretation among policymakers who refer to this text for scientific information. (Government of Japan)	
G-SPM-106	A	3	23	3	38	Section B introduction focusses on temperature increase as the main and most important parameter driving climate change impacts. Better harmonise this section by using expressions from paras highlight in bold on page 3 and 4 of Chapter 1. (Government of Germany)	This section has been rewritten and reorganised
G-SPM-107	A	3	23	3	23	please delete "changes", which is not necessary as the text already says "increases" (Government of France)	Text has been rewritten
G-SPM-108	A	3	23		25	This statement is incorrectly summarized from WG1 Ch 9. The reference either refers to the Executive Summary of Ch 9 which states “The anthropogenic signal in surface temperature changes has now likely been detected in all inhabited continents and many sub-continental land areas” and is therefore an attribution issue, not an impact and shouldn’t be included here OR it refers to Section 9.4.2.1 which talks about warming in many areas and cooling in some and is not accurately reflected in the current text. Revise to clarify spatial variability in warming/cooling and the importance of change at regional scales or delete the sentence. (Government of USA)	We only cite the WG1 SPM with respect to attribution of warming.
G-SPM-109	A	3	23		23	Language choice. Why the distinction of “inhabited”? Do this mean, for example, that Antarctic ice sheet is uninhabited? Greenland ice sheet? Is this distinction of inhabited/uninhabited important? “Increases in regional surface temperature changes . . .” is unclear. Does this mean increases in temps, or increases in changes in temps (which could be a declining temp)? (Government of USA)	We took this wording from WG1. It has now been removed.
G-SPM-110	A	3	23			Current text implies that the discussion is about temperature only. Revise to include changes in climate more broadly. (Government of USA)	With respect to observed change, the literature is on the links between temperature changes and observed responses in systems and sectors.
G-SPM-111	A	3	24	3	24	The first sentence tries to convey too much information, and it uses an inappropriate uncertainty statement to do so. In order to avoid confusion, the sentence should be split up to emphasize its main statements. First, regional temperatures on all inhabited continents have increased (specify time horizon, e.g.,	This text has been substantially rewritten. The time scale is over the last 3 decades (1970-2004) as is stated in Fig SPM-1 and page 3 line37.

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
						since 1900). Second, it is "very unlikely" (verify with WG I !) that this temperature increase can be explained by natural factors alone (such as internal dynamics of the climate system or changes in solar forcing). Third, the best explanation of the observed temperature changes is by combining natural and anthropogenic forcings (e.g., greenhouse gas and aerosol emissions). Fourth, based on these analyses we have a high (or very high?) confidence that the majority of the observed temperature change (since XXXX) is due to anthropogenic factors. Note that the current use of the term "likely" indicates that there is still at least a 10% probability that observed temperature changes are NOT the result of greenhouse gas emissions. (European Union)	Statements on page 3 in 25-26 of the new SPM are consistent with those of WG1 The issue of combined anthropogenic and natural forcings is discussed on Box SPM-1. The new bold statement on page 3 assigns high confidence to the anthropogenic component of warming having a discernible influence on many physical and biological systems
G-SPM-112	A	3	24	3	24	Replace "likely" by "very likely" (see SOD AR4 WG I chapter 9, page 3, line 5 (Government of France)	This text has been reworded and the new bold statement on page 3 assigns high confidence to anthropogenic component having a discernible influence on many physical and biological systems
G-SPM-113	A	3	24			We propose the following change: "... Are likely to be the result of INCREASES IN greenhouse gas emissions..." (Government of Norway)	Text has been reworded
G-SPM-114	A	3	25	3	25	Sentence is a little awkward in using the word "this": one wonders what "this" refers to. (Government of USA)	Redrafted
G-SPM-115	A	3	25		25	Include the title (or subject matter) of Chapter 9 here. (Government of USA)	Reference to Chapter 9 removed
G-SPM-116	A	3	25		26	Are there a significant number of instances where we've included "this... may not have affected..." that make it necessary to include the phrase, "...may not have affected" ? (Government of USA)	Statement removed
G-SPM-117	A	3	26	3	26	Add the word "chemical" after the word physical, since chemical processes are discussed later in the chapter (Government of Sweden)	This was considered but the statement on ocean acidification is considered by WG2 to be categorised under biological systems
G-SPM-118	A	3	28	3	29	Write : "... biological systems on every part of the world. Effects ..." (Government of Switzerland)	This was considered but not adopted. The text has been rewritten
G-SPM-119	A	3	28	3	33	This paragraph is meant to act as the "headline statement" for the section on present-day impacts. It is however confusing, overly general and presents a biased assessment. For example, the statement that "Over 99% of observed changes... are	Agreed. The text has been rewritten substantially and is now much clearer

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
						consistent with...trends", does not recognise the bias in the overall process; the purpose of the observed impact studies was to find evidence of climate change, with luck, 100% of the impacts would have been consistent with climate change. The point is that "Many observed changes are consistent...". This whole paragraph needs to be re-written to underline the central point that "Many of the climate - driven observed changes in physical and biological systems can now be attributed to temperature increase caused by greenhouse gas emissions". (Government of Australia)	
G-SPM-120	A	3	28	3	33	The SPM is positive in attributing changes to physical, biological and human systems to climate change. However, authors should clarify the situation that for the IPCC (as distinct from UNFCCC) the definition of climate change includes climatic variability. (Government of Australia)	This is defined in Endbox1 on page 20 of the new SPM
G-SPM-121	A	3	28	3	33	Section B: Logics of paragraph seems to be "upside down". Perhaps exchanging position of sentence 2 and 3 helps, or itemize whole paragraph. (Government of Germany)	This text has been substantially rewritten and is now much clearer
G-SPM-122	A	3	28	3	33	Request clarification of "temperature". Not all policymakers referring to this SPM will necessarily have climate change science background and some may wonder what "temperature" in this text refers to. Some may assume that it is surface air temperature, others may not. For clarity among policymakers of all academic backgrounds, we request temperature be clarified throughout this text and be consistently used throughout the SPM. For reference, Figure SPM-1 in this section uses the term "surface air temperature" in line 45, "regional temperature trend" in line 45, and "temperature" twice in line 46. The different references to temperature are confusing to the policymaker reader; thus suggest that authors be more specific and consistent when using the term temperature. (Government of Japan)	Temperature is explained in the captions of Fig SPM-1 and the two Tables SPM-1 and SPM-2, where the precise meaning is needed..
G-SPM-123	A	3	28	3	33	In this introduction only temperature is mentioned as a climate driver. Although this is the primer driver other climate factors such as precipitation (cf. Chapter 3) should be mentioned. (Even though more difficult to project regional scenarios for precipitation, some patterns are apparent cf. chapter 3.3) (Government of Norway)	Sections B and C although relating most impacts to changes in temperature now also incorporate change in precipitation and sea level
G-SPM-124	A	3	28	3	28	Add the word "chemical" after the word physical, since chemical processes are discussed later in the chapter (Government of Sweden)	This was considered but the statement on ocean acidification is considered by WG2 to be categorised under biological systems
G-SPM-	A	3	28			Section B: eliminate "now", climate change has not only "now" affected physical and biological systems	Agreed. Text has been rewritten substantially

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
125						(Government of Germany)	
G-SPM-126	A	3	28			Conclusions highlighted here are based on current versions of Chapters 1 and 4. Both chapters require substantial revision. These conclusions in the SPM must be reconsidered in light of those revised chapters. (Government of USA)	Done
G-SPM-127	A	3	28		33	Clarity. An awkward group of bolded sentences in these lines. In line 28 is it increases in temperature that are the “Changes” being referenced? What about the “changes” referred to in line 30? line 32? At lines 30 and 31 there is reference to “changes” in “systems and sectors”. How many systems and sectors were observed that constitute 99% of the total? There should be statement here noting that: A. Not all effects are necessarily detrimental. B. Some areas have experienced a cooling. (Government of USA)	Rephrased. Fig. SPM-1 shows that some areas are cooling. We mention earlier spring planting dates as a non-detrimental effect.
G-SPM-128	A	3	30	3	31	This sentence is somewhat difficult to interpret, since it is a bit unclear whether i refers to only the last or both of the preceding sentences and because the term "sector" is introduced for the first time. We will ask the authors if the sentence "Over 99% of observed changes are consistent with temperature trends in the affected regions" will convey the intended message more clearly. (Government of Norway)	This text has been rewritten substantially. More detail given in an attempt to clarify, see page 3 lines 20-22.
G-SPM-129	A	3	30	3	30	This is not a very informative statement unless what a change in system and sectors is precisely defined. I suspect there are many changes in ecosystems, not to talk about human systems, which are unrelated to climate change (eg change in biodiversity due to loss of habitat), it is just that they have not been considered in the 1% of observed changes not consistent with temperature trend. This also comes back to the fact that some changes can be attributed to global change, but not to temperature (eg changes in runoff in Gedney et al. 2006 paper). (Government of UK)	This text has been rewritten substantially. More detail given in an attempt to clarify, see page 3 lines 20-22.
G-SPM-130	A	3	30	3	31	The description of "over 99% of observed change ..." is not consistent with the information from Table TS-1 (Page 9 of TS). Based on TS-1, it is not possible to obtain a value of "99%". Suggest to change to “Most observed change in systems and sectors are consistent with regional temperature trends”. (Government of China)	This text has been rewritten substantially. Consistency with the TS and Chapter 1 has been checked. More detail given in an attempt to clarify, see page 3 lines 20-22.
G-SPM-131	A	3	30	3	31	It would benefit the policymaker to elaborate on “99% of observed changes in systems and sectors”. Though the reader understands that the text attempts to convey a high level of confidence for the said 99% of observations, it would help if the writers would elaborate on the systems and sectors where these observations	This text has been rewritten substantially. More detail given in an attempt to clarify, see page 3 lines 20-22.

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
						have been recorded. The writers might consider, for example, inserting "in cryospheric, hydrological, coastal zones, marine, freshwater and terrestrial biological systems. More importantly, the basis or denominator of 99% should be clarified. (Government of Japan)	
G-SPM-132	A	3	30	3	31	Is the expression "over 99%" quantitative/quantified? If not, please choose another formulation that better expresses the finding. (Government of Sweden)	This text has been rewritten substantially. More detail given in an attempt to clarify, see page 3 lines 20-22.
G-SPM-133	A	3	30	3	31	As currently written, this sentence is too broad. Need clarification of what systems and sectors are consistent with regional temperature trends. (Government of Canada)	This text has been rewritten substantially. More detail given in an attempt to clarify, see page 3 lines 20-22.
G-SPM-134	A	3	30	4	47	Sentence "Over 99% of observed changes in systems and sectors are consistent with regional temperature trends" does not seem to be in line with figure SPM-1 where there are several grids (especially in North America) where the changes are not consistent with warming. (Government of Netherlands)	This text has been rewritten substantially
G-SPM-135	A	3	30		31	What is the significance of 99% of observed changes being consistent with regional temp trends? This statement is confusing. 99% of observed changes in systems and sectors consistent with regional temperature trends – This statement seems to be obviously incorrect. What about the changes where humans directly impact the systems or sectors? Why should all the trends be consistent with the temperature trends? Add the idea: where climate is the main driver? (Government of USA)	More detail given in an attempt to clarify, see page 3 lines 20-22.
G-SPM-136	A	3	31	3	33	Based on WGI report, temperature increase should be caused both by anthropogenic and natural factors. Suggest to insert "likely" between increase and caused. Please keep consistent with the conclusions from WGI. (Government of China)	WG2 statements are consistent with WG1
G-SPM-137	A	3	31	3	31	"systems and sectors" is quite an abstract way of speaking; we propose instead "natural and human systems". (Government of France)	We have tried to move away from this phrase throughout the SPM
G-SPM-138	A	3	31		31	Include "such as..." with respect to letting the reader know what is meant by the terms "systems" and "sectors". Insert: "consistent with <i>documented increases</i> in regional <i>temperatures</i> " Is there enough evidence to substitute "Most" for "Many"? (Government of USA)	We now refer to 'sectors' and qualify by e.g., 'physical'.
G-	A	3	31		33	"Many of the changes are now attributed to temperature increase caused by	Section heavily rewritten. 'Attributed' no

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
SPM-139						anthropogenic greenhouse gas emissions.” Phrase ‘many of the changes’ is too vague. Wording in summary doesn’t reflect qualifiers found in actual text and could be misleading. This sentence, starting with “Many of the changes...” is poorly worded and implies more certainty than exists for causation for anthropogenic emissions leading to <u>attributed</u> temperature increase leading to observed changes in systems and sectors. Suggest looking at WG1 Ch 9 and WG2 Ch. 1 for accurate language or just deleting both sentences and bolding the next sentence and including it in the para. (Government of USA)	longer used – replaced by ‘discernible effect’ instead.
G-SPM-140	A	3	32	3	32	delete "now" or add a specification of the time scale "now", e.g. last decades or since 1970 (Government of Germany)	Text has been rewritten substantially. Time scales are specified in Fig SPM-1 and on page 3 ln37
G-SPM-141	A	3	32		33	Strike “caused by anthropogenic greenhouse gas emissions”. Yes, changes are, in general, consistent with temperature increases but that does not mean that they are all necessarily due to greenhouse gas emissions. (Government of USA)	This phrasing isn’t used anymore.
G-SPM-142	A	3	33	3	33	See above. Authors may wish to change the wording "caused by anthropogenic GHG emissions" to make clear that also natural factors play a role. Adding a confidence statement to this important finding would be useful. (European Union)	Text has been substantially rewritten. Clarification of role of natural and anthropogenic components of warming is given in Box SPM-1
G-SPM-143	A	3	35	3	36	these two lines are quite too much intricated. We propose to replace them by : "Many modifications observed since 1970 in natural and human systems have been attributed to climate change. The distribution of observed changes,..." (Government of France)	This section has been rewritten substantially and is now much clearer
G-SPM-144	A	3	35	3	35	Suggest "...since about 1970..." to be more consistent with the 1973-2002 period referred to in figure SPM-1. (Government of Canada)	This text has been rewritten substantially and the time period of 1970-2004 is specified in Fig SPM-1 and the last 3 decades are specified on page 3 line 37
G-SPM-145	A	3	35	3	35	"Systems and sectors" is relatively new phraseology. Could it be defined/explained somewhere (human and physical systems, economic sectors)? (Government of Canada)	Systems are qualified as being either natural (physical/biological) or human/managed
G-SPM-146	A	3	35	3	36	The text comments that observation of responses in multiple systems and sectors has been ‘since 1970’. In the next sentence, line 36-37, the authors refer the reader to Fig. SPM-1 which lists observations from 1973. The discrepancy in text is confusing. Why the figure includes observations from 1973, and yet the text states 1970 may lead to confusion among readers; thus suggest clarification. Further, it may be unclear to the non-scientist reader why the year 1970 has been chosen as	The time scale is now consistent between the text on page 3 line 37 (new SPM) and the caption of Fig SPM-1

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
						the timeline for observations. It would benefit policymakers who are less informed with climate change science to add a footnote which explains this. For reference, TS states on page 9, line 7-9 that “AR4 has analysed studies since the TAR showing changes in physical, biological and human systems mainly from 1970 to 2005...” The writers may consider inserting this text from the TS into the SPM, either as full text or as a footnote for this section. Mere reference to the TS is insufficient. (Government of Japan)	
G-SPM-147	A	3	35		38	Relevant chapters, particularly Chapter 1, do not support this conclusion. A revised Chapter 1 should evaluate the adequacy of available observations, potentially substantiating this and other conclusions in the SPM, and this statement should be reevaluated based on a more extensive assessment of observations and their uncertainties in a revised Chapter 1. (Government of USA)	‘Attributed’ is no longer used – we speak of ‘discernible effect’.
G-SPM-148	A	3	36	3	36	Footnote 5 : the second step for attribution needs a rephrasing such as "... trogh attribution of the regional warming to huma-induced climate change." (Government of Switzerland)	Footnote 5 has been removed. ‘Attribution’ is no longer used and is replaced by ‘discernible influence’. The evidence for the ‘discernible influence’ is provided on page 3 of the new SPM
G-SPM-149	A	3	36	3	36	...distribution of sites..... Drop "the" (Government of Canada)	Text has been rewritten substantially
G-SPM-150	A	3	39	5	48	Organization is confusing, seems off somehow: Should all after line 39 be a subsection of B that might be entitled: “Changes to Physical Systems” and the content from Line 40 to line 32 considered subsets of “physical systems” ? <i>Or</i> are bolded topics beginning at “intensified hydrological cycle” at line 1, page 4 subsets of “physical systems” that begin on page 3., line 40 ? We also move from snow and ice melt to “intensified hydrological cycle” and water topics until line 23 on page 5. We then have a short consideration of “terrestrial biological systems” from lines 25 to 32. Would the text after line 34 then would be a subset entitled, “human systems”. Are “Global economic losses..” at line 44 page 5 part of “human systems” in line 34 ? (Government of USA)	We have worked to improve the organization.
G-SPM-151	A	3	40	3	42	The statement, “The main change in physical systems is of snow and ice” may lend itself to differing interpretations and confusion among policymakers reading the SPM. Specifically, what the writers infer with the term “main” is unclear. “Main”	‘main’ has been removed and text has been rewritten

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
						can be defined as “the most important”. Based on this definition, should the reader assume that snow and ice changes are the most important of the observed changes in physical systems and that all other changes are minor, perhaps even inconsequential? So as to avoid misinterpretation of the word “main” and the ensuing conclusions readers may make regarding physical systems, we suggest clarification of the text. (Government of Japan)	
G-SPM-152	A	3	40	3	40	The start of this sentence should read "One of the main changes in physical systems..." (Government of Australia)	Text has been rewritten
G-SPM-153	A	3	40	3	40	Substitute " the main change" by " One of the main change". (Government of Spain)	Text has been rewritten
G-SPM-154	A	3	40	3	40	significance of bold face font is not given. Add to footnote. (Government of Canada)	The bold face font is merely an aid to identifying the different systems
G-SPM-155	A	3	40			To make the message clearer, we propose that "snow and ice melt" is written i bold in addition to or instead of "physical systems". (Government of Norway)	This has been considered but not incorporated. The bold text aims to highlight the different systems i.e., between physical and biological
G-SPM-156	A	3	40		42	“The main change” is awkward. The whole sentence is awkward. Why is “physical systems” in bold? What does it mean to say “main change”? Changes in permafrost, hydrology, oceans and others mentioned in Ch 1 are not main enough?  (Government of USA)	Wording greatly changed.
G-SPM-157	A	3	41	3	41	Retreating of glaciers is not the only phenomena observed in Greenland and WAIS. Recently more emphasis has been put to the rapid acceleration of outlet glaciers, which has been considered a more alarming phenomena than retreating. Therefore I would suggest a more descriptive phrase to be used in this context. Such as "...rapid changes in parts of the Antarctic and Greenland ice sheets". (Government of Finland)	Text has been rewritten substantially
G-SPM-158	A	3	42		42	The word “this” is awkward. Does it refer to “change”? An awkward construction. Sentence is a bit unclear. (Government of USA)	Construction changed.
G-SPM-159	A	3		22		This chapter is likely to be the only section of the assessment that policymakers and the non-specialist will read. It needs to be very clear—at this point, it appears to be more of a dense long list of negative impacts of climate change with very little	We have worked to make the SPM more relevant and better-focussed. Acronyms have been removed. Much more on timing (see

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
						<p>context and will not be useful to policymakers. Since it is so important to communicate the impacts of climate change to policymakers, strongly recommend that this chapter receive a good deal more effort—both in terms of content and for clarity/readability.</p> <p>Minimize the use of acronyms in this section—only use acronyms that are widely accepted, like IPCC.</p> <p>The reader does not get a sense of what we have learned since the last assessment. Have we made great strides in any particular areas?? What major questions remain? What is new?</p> <p>There needs to be more temporal context. Policymakers care a lot about whether things are happening now, in the next decade, or in distant future. Also care a lot about the rate of changes. Throughout the chapter, different time regimes are used but not clearly defined. It is often not clear when or if fast impacts will take effect. (Government of USA)</p>	Tables SPM-1 and SPM-2). Baselines made clear.
G-SPM-160	A	3				<p>Footnotes refer to an Appendix for definitions. Is it likely that policymakers will go to an appendix for this info? Might be helpful to have a glossary up front. Include a list of definitions and abbreviations specifically for policymakers. A set of basic definitions, now in the appendix, should be moved to the SPM introduction. (Government of USA)</p>	Appendices removed, but definition not placed at beginning. It takes too long to get to the ‘meat’ of the SPM.
G-SPM-161	A	4	1	4	3	<p>The use of “most” in this sentence lends itself to ambiguity thus we suggest the term be quantified. Specifically, exactly how much is “most”, is unclear to the reader. (Government of Japan)</p>	This text has been removed
G-SPM-162	A	4	1		6	<p>Specify the time frame of the changes in lines 1-6. (Government of USA)</p>	Time frames are available to those who want to read the underlying chapters – it would distract here.
G-SPM-163	A	4	2	4	2	<p>In the TAR, overall accumulation of ice on Antarctica was still foreseen, so the finding that also the Antarctic ice sheet is losing net mass is surprising (is there really agreement about this?). Is the statement that this already "seen" in sea level rise developments well founded? (European Union)</p>	This text has been removed
G-SPM-164	A	4	2		3	<p>Consider inserting the words “Himalayan glacier” after “example”. Clarify: The word “disruption” stands alone without description: what kinds or sorts of disruption? Ditto: what sort(s) of “local water resources”. And in what examples of “areas”. Not clear what “local” refers to here. Replace “disruption of local water resources in some areas” with “changes in local water resources”. Alternatively, replace it with “negative impacts in local water</p>	Text rephrased and figure has been removed.

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
						resources in some areas and positive impacts in others".  (Government of USA)	
G-SPM-165	A	4	6	4	6	The use of "substantial" may lead to varying interpretations. Further, the term is not quantitative and may be interpreted by some as a subjective statement. It would benefit policymakers if this was expressed in quantifiable terms. How substantial do the writers consider substantial is, is unclear to the reader. It might also benefit the reader if the writers were to insert recorded observations of the so-called "substantial changes" so as to illustrate the degree of substantiality to the readers. On page 9, line 8-9 in TS under the heading B Impacts observable now, the writers state that they have "found stronger quantitative evidence (1.3,1.4) and yet in the SPM quantitative comments are rather limited.  (Government of Japan)	'substantial' has been removed
G-SPM-166	A	4	6		6	Is it possible to include even a couple of examples of "substantial changes in what kinds of "flora and fauna"  (Government of USA)	Examples would unduly lengthen text and are available in underlying chapters.
G-SPM-167	A	4	9	4	9	there is more evidence ..... Add "since TAR"  (Government of Spain)	'more evidence' has been removed and replaced with 'high confidence' on page 2 of new SPM
G-SPM-168	A	4	9	4	9	The hydrological cycle is very complex, how much evidence there is that it has 'intensified' over the last 100 years. For instance the CRU dataset suggests that there hasn't been an increase in the global land precipitation over the last 40 years. Moreover it is not clear why an increase in drought and an intensified hydrological cycle are related to each other. There have been regional changes in the water cycle, some of these changes have been attributable to increase greenhouse effect, but a more careful wording maybe helpful than 'intensified hydrological cycle'.  (Government of UK)	'intensified hydrological cycle' has been removed and replaced with: There is high confidence that hydrological systems are also being affected...'
G-SPM-169	A	4	9	4	14	Since it is questionable whether drought is a result of an INTENSIFIED hydrological cycle, it might be appropriate to modify the first sentence.  (Government of Norway)	'intensified hydrological cycle' has been removed and replaced with: There is high confidence that hydrological systems are also being affected...'
G-SPM-170	A	4	9	4	14	In this section, suggest to add one bullet, "The risk of flooding is also increasing". This conclusion from chapter 3. Except drought, we think any conclusion of flooding is also important related to the intensified hydrological cycle.  (Government of China)	Drought has been removed and the associated bullets have been rephrased.
G-SPM-	A	4	9	4	9	Comment: "There is more..." replace word "more" with word "accumulating"  (Government of Finland)	'more evidence' has been removed

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
171							
G-SPM-172	A	4	9	4	9	"more evidence" compared to what: the TAR? In that case, it would be clearer to write "There is increasing evidence since the TAR..." (European Union)	'more evidence' has been removed
G-SPM-173	A	4	9		14	Specify the time frame of the changes in lines 9-14. (Government of USA)	Time frames are available to those who want to read the underlying chapters – it would distract here.
G-SPM-174	A	4	9		9	Define "intensified hydrological cycle." (Government of USA)	Phrase removed.
G-SPM-175	A	4	11	4	12	We understand the space constraints of the SPM, however we would ask that the writers elaborate on the impacts of increased runoff into the Arctic Ocean. For example, it would benefit the reader if the writers would include additional comments about the effects on the salt concentration of the seawater should there be increased runoff into the Arctic Ocean. (Government of Japan)	This text referring to runoff into the Arctic has been removed
G-SPM-176	A	4	11	4	12	The SPM should be the document which contains the most relevant data from the underlying report, especially that of the highest level of certainty. Thus, "probably due to a combination of..." sounds highly uncertain and its use in the SPM should be avoided. We suggest that the writers delete "probably" and use a term from Appendix A1.3 "Communication of Uncertainty in the Working Group II AR4". We also suggest that the writers review the SPM to check that all terms are consistent with the Appendix A1.3. (Government of Japan)	Agreed and implemented throughout the SPM
G-SPM-177	A	4	11	4	12	"probably" should be defined as to how it is used in this context. (Government of Canada)	Probably has been removed
G-SPM-178	A	4	11	4	11	"probably" is not a recognized term according to Annex 1.3. It should be replaced by one of the IPCC-agreed terms. (European Union)	Agreed and implemented throughout the SPM
G-SPM-179	A	4	11		14	May wish to add some transition language or explanation that intensified hydrological cycle can mean both increased precipitation and drought so that uninitiated will not feel a contradiction or confusion by the two bulleted statements (Government of USA)	'Intensified hydrological cycle' removed.
G-	A	4	11			It is questioned whether the 'plant response to higher ambient CO2' is a process	This text has been removed

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
SPM-180						which contributes significantly to an increased runoff into the Arctic Ocean. The available data and informations are not solid enough to make such quantified estimations about the impact of plant responses. (Government of Germany)	
G-SPM-181	A	4	12	4	12	replace "higher ambient CO2" by "higher CO2 atmospheric concentration"; in the footnote number 6, replace "supress" by "reduce" (Government of Spain)	This text has been removed
G-SPM-182	A	4	12		12	Is this the first reference to CO2 and higher ambient values? Footnote 6 speaks to suppressed transpiration in plants – how does the reader understand this to relate to the intensified hydrological cycle ?  (Government of USA)	Phrase removed.
G-SPM-183	A	4	12		12	Footnote No. 6 is misleading. While some researchers have reported a CO2-induced reduction in leaf transpiration, the response is not consistent at the canopy level. There is no evidence of this phenomenon for arctic plant systems.  (Government of USA)	Footnote removed.
G-SPM-184	A	4	13	4	14	This sentence is too short and concise. Droughts will be one of the most important consequences of the climate change, with very important negative direct and indirect impacts (e.g food security one of the issues mentioned in Article 2 of the UNFCCC), therefore to give more information from 1.3.2.2 could be very useful for policymakers. (Government of Spain)	This text has been removed
G-SPM-185	A	4	13	4	14	Text states that “Drought is increasing, with drier regions most affected”. It is unclear however exactly how much drought is increasing by and since when. Quantification would benefit the reader. Further, a ‘drier region’ requires definition and/or clarification. This statement could lend itself to several sweeping generalizations about the intensified hydrological cycle; thus to avoid such misinterpretation, suggest clarification. (Government of Japan)	This text has been removed
G-SPM-186	A	4	13		13	Add the following after “increasing”: “in some areas but not in others” (Government of USA)	Statement removed
G-SPM-187	A	4	16		44	Size and color choices. It is very difficult to pick out red triangles in a red area on the Figure SPM-1. (Government of USA)	Figure has been improved, triangles removed.
G-	A	4	16		39	Is this the proper place in the text to insert Fig. SPM-1? This goes to surface air	Resited to end of section.

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
SPM-188						temperature and systems. (Government of USA)	
G-SPM-189	A	4	16		47	Fig. SPM-1: Temperature trends from 1973 to 2002 (and 20 years) are not of sufficient length to tell us whether changes are within the range of natural variability. We would recommend using a much longer period of record, and noting where there is insufficient data to estimate a trend. (Government of USA)	Many series are longer, but WG1 were consulted and are happy with this record length for assessment of changes.
G-SPM-190	A	4	17	4	47	In Fig. SPM-1, observed regional temperature trend is showed. However, the baseline is not indicated. Please indicate the baseline, 1950-1980 or 1960-1990 or others. (Government of China)	Baseline is not relevant since only the trend is shown and no absolute values. The trend is between 1970 and 2004, and this is stated in the caption.
G-SPM-191	A	4	17	4	48	Figure SPM-1 shows NE and NW American continental in hatched shading indicating " No Change or Change Not Consistent with Warming". I don't think these two categories can be grouped together. No change in a given region might be perfectly consistent with global warming. It is impossible from the original diagram, F.1.9, to determine anything about these regions, as the underlying detail is obscured by other labels and map icons. (Government of Ireland)	Fig SPM-1 has been changed substantially
G-SPM-192	A	4	17	4	34	Figure SPM-1 is confusing and needs to be bigger to be better understood. There are several locations where a significant temperature trend is shown (red arrow) but the underlying temperature field shows no trend. Also, some boxes of observed changes occur in areas where there is no warming, yet the change is said to be "consistent with observed warming". It is also a concern that there seems to be no data for areas such as northern Canada while observations for this region do exist. Please try to be consistent and complete. (Government of Canada)	Fig SPM-1 has been changed substantially
G-SPM-193	A	4	17	4	47	Fig. SPM-1, the current graphical presentation does not provide a category for cells in which both changes consistent and inconsistent with the climate trend were observed. The use one pattern for "consistent changes" and another one for "inconsistent/no changes" would make it visible if both types of observations are made in a particular grid cell (these two patterns could simply be overlaid). This is not possible in the current diagram where "consistent changes" are characterized by "no pattern". Sources of data: [F1.9,T1.12] should be mentioned (in the caption). (European Union)	Fig SPM-1 has been changed substantially
G-SPM-194	A	4	17		39	There are non-boxed white areas in the Figure SPM-1. What are these given the key? Do we need to indicate what kinds of "changes" at line 37 of the Figure? Should the Figure be entitled something like, "Data Sites Surface Air Temperature	Figure has been improved to address these concerns

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
						Trends and Observed Changes"? The cross-hatching is hard to find/see. (Government of USA)	
G-SPM-195	A	4	36	4	41	In Figure SPM-1, the observed changes are divided into "at least one observed change consistent with warming" and "no change or change not consistent with warming". Assuming that this is a summary of climate change based on scientific observations, the reader is confused as to what kind of changes the authors are referring to in the statement "change not consistent with warming". If one assumes that the policy implications of "no change" and "change not consistent with warming" are different, then it would benefit policymakers to separate the two. For reference, in TS on page 9, line 30-34, Table TS-1 refers to observed responses as those "consistent with warming" and "non consistent with warming". There is no mention of "no change". If Figure SPM-1 is based on the more detailed Table TS-1, the reader wonders why there is this discrepancy between the SPM text and the TS text. (Government of Japan)	Fig SPM-1 has been changed substantially
G-SPM-196	A	4	42	4	47	The caption for Fig SPM-1 needs more detail. For instance, in F1.9, it is clearly indicated that "white regions do not have sufficient observational climate data to estimate a trend". This sentence needs to be included in this caption as well. (Government of Canada)	The caption now includes this information
G-SPM-197	A	4	42	4	42	Suggest "...trends in annual surface air temperature..." for clarity. (Government of Canada)	Caption has ben rewritten
G-SPM-198	A	4	42	4	42	An explanation should be provided in the figure caption and/or in this Section B on why in the western part of the USA and in the eastern part of the USA and Canada there is "no change or change not consistent with warming" (Government of Switzerland)	Fig SPM-1 has been changed substantially
G-SPM-199	A	4	42		42	Is 2002 the latest year for which we have trend data for surface air temperature and observed changes? (Government of USA)	No, but given period of literature assessment for the AR4 (post 2001) this seems appropriate.
G-SPM-200	A	4	43		43	Define cryosphere. (Government of USA)	Not done – it is in standard dictionaries.
G-SPM-201	A	4	44		44	Clarity. What does "This" refer to? Refer back to line 30 on page 3 which uses the value of "99%". Does this square with use of the word "most" in line 44 of page 4?  (Government of USA)	Text rephrased.

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
G-SPM-202	A	4	45		45	Have we earlier defined “systems”? “sectors”? (Government of USA)	Only systems used now, and always with a qualifying adjective, e.g., physical, biological.
G-SPM-203	A	4	46		47	For emphasis, might point out that only about 8 triangles depicting significant temperature decrease trend out of a total of ___ (number) of red triangles. (Government of USA)	Depiction changed – should be clear that agreement is very strong.
G-SPM-204	A	4	48	4	48	footnote ...transpiration and hence water use by plants. (Government of Canada)	This footnote has been removed
G-SPM-205	A	4				Figure SPM-1, triangles are hard to see when the background color is about the same as the color of triangles; maybe black color in the edges of the triangles would help to clarify the figure (Government of Finland)	Fig SPM-1 has been changed substantially
G-SPM-206	A	5	0	5		In general, impacts of climate change exacerbate other stresses, and for different types of impacts the share of climate change as one of the pressures as well as the certainty with which one can attribute the change to climate change vary. The current text does in most cases not make such difference, suggesting that all impacts are mainly due to and can equally be attributed to climate change. It could be recommended to qualify the statements systematically, also indicating which types of impacts have a larger share of total changes than others (e.g. simply by saying a major contribution to observed impacts as in the case of glaciers and growing season, a significant contribution as in the case of heat waves, or a minor contribution as in the case of some coastal impacts, and what the confidence level of the attribution to climate change is. In some cases, also information on the confidence of attributing climatic changes to human causes should be provided, as in the case of extremes (line 46). (European Union)	Text added on multiple stresses – see page 16 lines 39-52 in new draft.
G-SPM-207	A	5	0			The main text and TS have statements about non-linear/abrupt effects and associated impacts. One finding in the SPM is recommended. (European Union)	A discussion of the potential impacts of changes in the MOC and Greenland and WA ice sheets is provided in section C page 21
G-SPM-208	A	5	1	5	3	The second sentence seems to go beyond the content of section 1.3.3. See for example Chapter 1, page 28, lines 31-32. (Government of Australia)	The phrase regarding erosion is consistent with Chapter 1 and has been moved to the managed and human systems section in Section B page 3 line 46 The remainder of the text in the second sentence has been removed from the SPM
G-	A	5	1	5	4	The first sentence assumes that sea level rise is associated with anthropogenic	This text has been removed

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
SPM-209						forcing. Therefore, how do human activities on coasts differ from anthropogenic forcing? This is not clear in the text as is. More detailed explanation is required (i.e. coastal development). (Government of Japan)	
G-SPM-210	A	5	1	5	1	Replace "Average sea levels are rising about 1.7 mm/year" by "Global sea level rise in the second half of the 20th century is estimated as 1.8 +/- 0.5 mm/year, and a rise of 3.1 +/-0.8 mm/year has been observed since 1993." (See WGI Second Order draft, Chapter 5, page 5, lines 42-46) (Government of Germany)	This text has been removed
G-SPM-211	A	5	1	5	1	Not consistent with SOD WG I, Ch 5, page 2, line 43-44 "Sea level rise measured by satellite altimetry since 1993 is estimated as 3.1 ± 0.8 mm yr <sup>-1</sup> ". See also same page lines 56 to line 2 page 3. (Government of France)	This text has been removed
G-SPM-212	A	5	1	5	1	It is noted that according to the Working Group I contribution to the AR4 sea level rise was about 1.7mm/yr only in the time before 1993 but increased to about 3mm/yr during the most recent decade on record from 1993 to 2003. It is suggested to clarify this and to take this increase in sea level rise also in due consideration or to inform the reader that this recent increase has not yet been reflected in the current literature on vulnerabilities, impacts and adaptation. (Government of Austria)	This text has been removed
G-SPM-213	A	5	1	5	1	For the sake of accuracy, insert, "with significant regional variation" after "1.7mm/yr globally". (Government of Australia)	This text has been removed
G-SPM-214	A	5	1	5	1	Are the average sea levels rising about 1.7 mm /year globally only because global warming or are there other causes ? (Government of Switzerland)	This text has been removed
G-SPM-215	A	5	1	5	4	We understand the space constraints of the SPM, however we suggest that in addition to the ratio of annual sea level rise, the total accumulation of sea level rise detected during the period of observation be mentioned. Without this, the text as is, is insufficient. (Government of Japan)	This text has been removed
G-SPM-216	A	5	1		1	Sea level rising at a rate of 1.7 mm/yr – Over what time frame is this? Estimate obtained from tide gauges? If so, it should be noted then the value is not a global average. It is an average of a limited number of tide gauges. (Government of USA)	Reference to SLR removed
G-SPM-	A	5	1		4	Are the changes identified occurring everywhere or just certain spots? If only in certain spots then the statement needs a caveat.	Reference to SLR removed

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
217						(Government of USA)	
G-SPM-218	A	5	1			A context needs to be provided for the rate of change in sea level. Accordingly, an estimate should be provided for the average rate of SLR during the last century. (Government of USA)	Reference to SLR removed
G-SPM-219	A	5	3	5	4	This last sentence seems to disqualify the first sentences. A suggestion is to reformulate this by saying that sea level rise (often) exacerbates threats to coasts from other pressures. (European Union)	This text has been removed
G-SPM-220	A	5	3	5	4	SLR is often superimposing other pressures on coastlines leading to amplified effects and damages (Government of Germany)	This text has been removed
G-SPM-221	A	5	3	5	4	Delete last sentence " However,.....level rise" it is confuse and negative. (Government of Spain)	This text has been removed
G-SPM-222	A	5	3	5	4	Comment: Change the last part of sentence; e.g. . "...than impacts of current sea level rise". (Government of Finland)	This text has been removed
G-SPM-223	A	5	6	5	23	These sections need to better explain technical terminology (e.g., weathering, vertical stability) and the significance of changes (e.g., is a 30% increase in H ions significant) and why is this a concern (e.g., what is the impact?). (Government of Canada)	This text has been removed
G-SPM-224	A	5	6	5	10	The text need mentioning the increased transport of pollutants in regions where the hydrological cycle is intensified. There is a risk of increased spreading of pollutants and faster pollution transports as an effect of increased rainfall leading to increased flooding and higher groundwater pressures as was the case in central/east central Europe in 2002. Higher water levels/pressure may also lead to larger infrastructure problems like dam failure and large volumes of spill of environmentally harmful substances as in the case of the Baia Mare spill, Spain, 2000). (Government of Sweden)	This text has been removed. The thermal structure of lakes is now included on page 2 line 36
G-SPM-225	A	5	6	5	6	Reference and full citation to report needed on where changes in water temperature are documented. This is the primary effect of warming which then affects water chemistry and thermal profiles. Fig SPM 1 only shows changes in air temperature and not water. (Government of Canada)	Full sourcing is provided
G-SPM-226	A	5	6	5	11	"... rivers around the world are warming" is mentioned in line 6. But there is no corresponding conclusion in this part. It should be added. Related conclusion can be selected from chapter 3.	This text has been deleted. Rivers are now mentioned on page 2 line 36

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
						(Government of China)	
G-SPM-227	A	5	6		42	Over what time frame are these changes? Since 1970? (Government of USA)	Time frames are available to those who want to read the underlying chapters – it would distract here.
G-SPM-228	A	5	7	5	9	To the lay reader, the term “weathering” (physical erosion) is likely not understood. Additionally, it is assumed the reader understands that the “ions” come from dissolved minerals. Those with no training in physical science would likely not know this; thus we suggest that perhaps the writers consider using the term “physical erosion” in place of “weathering”. (Government of Japan)	This text has been removed
G-SPM-229	A	5	7	5	10	The first and last dot-points in the section on ocean impacts, have little relevance for the wider SPM readership and should be either deleted, or re-phrased to include advice on why such changes are important. (Government of Australia)	Points either removed or rephrased.
G-SPM-230	A	5	7		7	Explain in short way why effects “concentration of ions” is important. Also there’s no indication here whether those concentrations increasing or decreasing? And explain what “weathering” is in this bullet relating to lake chemistry and observed warming of lakes. “...concentrations of ions increasing . . .” Ions of what? Why is this important? (Government of USA)	Text removed.
G-SPM-231	A	5	8		9	Need to clarify or explain for lay readers. What does ocean “thermal structure” mean? Does it affect coastal permafrost? Ditto in line 10, explain what “vertical stability of the water column” in lakes means. (Government of USA)	Reference to thermal structure of oceans and vertical stability in lakes removed
G-SPM-232	A	5	10	5	10	This sentence is not clear. It should be indicated that the "decrease" or "increase" of “the vertical stability of the water column in freshwater lakes.” (Government of China)	This text has been removed
G-SPM-233	A	5	10	5	10	the statement is neither part of the TS nor the executive summary of chapter 5. furthermore in 5.4.6.2 , the statement comes from one paper only. Therefore, insert after "in" "the", delete s in lakes, and insert after lake "Tanganyika". (Government of Germany)	This text has been removed
G-SPM-234	A	5	10	5	10	replace "vertical stability" by "vertical dynamic and seasonal mixing mechanisms". Rationale: The water bodies of freshwater lakes have multiple behaviours with respect to the vertical properties (temperature, oxygen, nutrients...), coupled with the local and regional climate. In some regions the water column is stable all around the year, in others there is a single mixing period, in others there are two or more mixing period. These dynamics is being affected by climate change so, using	This text has been removed

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
						the term "dinamic" is more precise than referring to the "stability" (Government of Spain)	
G-SPM-235	A	5	14			Please, explain the bleaching of coral reefs. The meaning of "bleaching" is not clear for a nonspecialist reader. (Government of Finland)	This text has been removed
G-SPM-236	A	5	14		14	Coral bleaching – How widespread is this? Everywhere? Most? (Government of USA)	Corals not mentioned in Section B
G-SPM-237	A	5	15	5	16	We suggest that additional information be added to the statement regarding the “poleward extension in distributions of many marine plankton and fish species”. Specifically, the TS refers to this on page 11, lines 50-51. It would benefit non-European policymakers if the writers would include marine systems in other areas of the globe where scientists have observed and recorded similar poleward extension. (Government of Japan)	High latitude oceans are now specified. Further information can be found in chapter 1
G-SPM-238	A	5	17		18	Clarity. What is meant by “altered abundance and productivity”? Is it an increase or decrease? in every case? Is this good or bad? In what species or kind(s) of “community”? “Migration” of what? Give examples or explain a little. The problem is vagueness. Sometimes its ambiguity as written. As in other instances in the Summary, the language is cryptic. (Government of USA)	Rephrased.
G-SPM-239	A	5	18	5	18	add in the list of effects "modifications of key limnological mixing processes" (Government of Spain)	This text has been removed
G-SPM-240	A	5	20	5	23	We suggest that the texts changed to: “Ocean acidification due to increasing atmospheric levels of CO2 is occurring with a drop in the pH of seawater (the measure of the balance of acidity and alkalinity) from 8.2 to 8.1 over the past 200 years. Because this issue has only recently been identified, the present knowledge about impacts so far on ocean and costal biology, although there are concerns about impacts e..g. for calcifying organisms such as corals, lobsters, crabs and oysters. These species rely upon building up calcium-based structures. If the increase in CO2 emissions continues the pH will drop further and it can be concluded with certainty that calcifying organisms will be negatively affected in the present century. Serious effects on other marine living resources cannot be ruled out.” Rationale: The Acidification of the ocean is dealt with in a report from The OSPAR Biodiversity Committee (BDC) based on available scientific literature on this topic. The report is available at the OSPAR website	The text on ocean acidification has been reworked substantially – most of it removed

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
						<p><a href="http://www.ospar.org/eng/html/welcome.html">http://www.ospar.org/eng/html/welcome.html</a>. In a press release from the meeting in BDC 13 – 17 March 2006 th it is said that the report “Ocean Acidification” confirms that high levels of carbon dioxide (CO<sub>2</sub>) in the atmosphere are changing ocean carbon chemistry at least 100 times faster than at any time in the last 100 000 years. The pH of seawater (the measure of the balance of acidity and alkalinity) has dropped from 8.2 to 8.1 over the past 200 years. Models forecast that it will drop to 7.8 by 2100, and may drop as low as 7.5 if there is a business-as-usual scenario. This would be lower than anything experienced in the last 10 – 20 million years. Marine species that rely upon building up calcium-based structures will be adversely affected. These include corals, crustaceans (e.g. lobsters, crabs) and molluscs (e.g. mussels, oysters). Higher levels of CO<sub>2</sub> in seawater generally depress the physiological performance of sea creatures. It cannot be ruled out that these changes will also diminish other marine living resources. The OSPAR Biodiversity Committee said that: both acidification of the ocean due to elevated level of CO<sub>2</sub> in the atmosphere caused by increased anthropogenic emissions of CO<sub>2</sub> and climate change may have severe impacts on the marine environment. They therefore emphasised the need to find strategies and measures to mitigate these effects. (Government of Norway)</p>	
G-SPM-241	A	5	20	5	23	<p>This paragraph provides little assistance to the broader SPM audience on the impacts of increasing ocean acidification. It also provides no advice on how increasing CO<sub>2</sub> concentrations lead to increasing ocean acidification. This again clouds the key messages that the SPM should report on, and should be deleted. If authors wish to keep this paragraph, to accurately reflect Chapter 1 after "1800" insert "in the ocean's surface"; and replace the term "calcifying organisms" with a less jargonistic term. (Government of Australia)</p>	Reference to acidification removed.
G-SPM-242	A	5	20	5	23	<p>It is highly important to inform policymakers of ocean acidification. Description of this phenomenon is critical to policymakers and thus although the impacts are yet uncertain, it is vital that comments regarding ocean acidification be maintained. We would also suggest that the writers consider possible elaboration on the text in the SPM regarding ocean acidification. (Government of Japan)</p>	Effects of recent ocean acidification are as yet undocumented
G-SPM-243	A	5	20		23	<p>Make the connection for the lay reader – increased concentrations of atmospheric CO<sub>2</sub> due largely to anthropogenic emissions also affect oceans and acidity. Is this the same as in line 7 of page 5? If not, distinguish, as its confusing as each entry is written. What are the “concerns” being referenced vis a vis “calcifying organisms”;</p>	Reference to acidification removed.

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
						what are the possible “implications” that are being referenced. Give examples of what such organisms are. (Government of USA)	
G-SPM-244	A	5	21	5	22	The process of increasing carbon dioxide leading to an acidification of the ocean has been identified already some time ago, being a part of the science of carbon cycle. Perhaps what is meant here is that as a problem (viz. impacts on biological systems) has been identified in earnest only recently. (Government of Sweden)	Effects of recent ocean acidification are as yet undocumented
G-SPM-245	A	5	21	5	21	Is this a reference to the Executive Summary or Technical Summary or are they one in the same? Check consistency (Government of Canada)	ES relates to the Executive Summary. Definitions of the sourcing is found in footnote 2 on page 2
G-SPM-246	A	5	25	5	25	We suggest clarification of “wide array of species”. For reference, the Oxford English dictionary defines array as 1) an impressive display or range of a particular thing; 2) an ordered arrangement of troops; 3) (mathematics) an arrangement of quantities or symbols in rows and columns, a matrix; 4) (computing) an ordered set of elements; 5) (law) a list of jurors impaneled; 6) (poetic/literary) elaborate or beautiful clothing. It’s rather unsettling to think that the leaders in climate change research can only tell policymakers that “responses to warming have occurred in a wide array of species”. It’s these kinds of sweeping generalities that serve only to devalue this SPM and we suggest that authors quantify their statements so as to ensure clarity and scientific validity. (Government of Japan)	This section has been rewritten substantially and ‘wide array of species’ is no longer present in the SPM
G-SPM-247	A	5	25	5	32	This section does not mention insect species migrating to new areas or disease vectors & pests. Section B (“Current knowledge about present-day impacts”) should include at least one bullet point on the spread of insect species (including agricultural and silvicultural pests and disease vectors) to new locations - whether this is classified as a terrestrial biological systems impact or as a human systems impact. This could draw on Chapter 1 (p51, lines 16-20) and/or Chapter 5 (section 5.4.1.4, p15, lines 12-30 and p25, lines 21-27). (Government of Canada)	This is now included on page 3 lines 49-50
G-SPM-248	A	5	25	5	25	Suggest change “biological” to “ecological”. “Ecological” is more proper to be used here, because the content in this part is related to ecological system. (Government of China)	This was considered but biological remains
G-SPM-249	A	5	25	5	32	May be there can be added that there occurs physical changes as an adaptation to warmer climate (e.g. loss of weight by birds, longer wings,...) (Yoram Yom-Tov et al, 2006. Oikos 112:91-101) (Government of Belgium)	This was considered but not included

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
G-SPM-250	A	5	25		25	What is time frame? If short, less than 30 years or so, what part is signal (i.e. response to increasing GHG) and what part is natural variability? (Government of USA)	Time frames are available to those who want to read the underlying chapters – it would distract here.
G-SPM-251	A	5	26	5	27	The example given in Fig. SPM-2b is extremely region specific (leaf unfolding for the Betula pendula and Aesculus hippocastanum in Germany) and to refer only to that does not truly represent changes in floral and faunal abundance as claimed in the text. As is, the text does not give policymakers a clear picture of the global changes in floral and faunal abundance. Further, just what is meant by ‘abundance’ is unclear. The Oxford English dictionary defines abundance as “a large quantity that is more than enough”. For clarity, we suggest that “abundance” be quantified and/or multiple examples be referred to illustrate this abundance. (Government of Japan)	Fig 2 has been removed
G-SPM-252	A	5	26	5	26	Add "latitudinal and altitudinal" to the start of the sentence to give stronger focus. (Government of Australia)	This text has been removed
G-SPM-253	A	5	26			The reference to the example in Fig. SPM-2b is not suitable to describe the mentioned 'changes in floral and faunal abundance', for the Fig. describes only the unfolding of leaves in springtime. (Government of Germany)	Fig 2 has been removed
G-SPM-254	A	5	27	5	27	SPM2b does not show changes in floral and faunal abundance, but changes in leaf phenology. Drop reference to figure, it is also referred to in the 3 bullet line 29 (Government of Canada)	Fig 2 has been removed
G-SPM-255	A	5	28	53	28	Avoid "avian" jargon - call them Birds! (Government of Canada)	Done. Avian has been changed to bird
G-SPM-256	A	5	29			It would be helpful to use a more representative example than the one described, for this reflects only the situation in parts of Germany (35 meteorological stations). (Government of Germany)	Three examples are now given: leaf unfolding, bird migration and egg-laying
G-SPM-257	A	5	29		29	Clarity. What are spring “events”? (Government of USA)	Examples provided
G-SPM-258	A	5	31	5	32	It is unclear whether the 6% increase refers to elevated CO2-concentrations alone or is the increase due to other factors as well. (Government of Norway)	Text has been removed
G-SPM-259	A	5	31	5	32	in France the increase in forest productivity has been much higher. The growth of forest has increased in France by about 30% since the beginning of the 20th century (INRA mensuel, N°113, juin 2002)	Text has been removed. A reference is now made to earlier greening of vegetation in the spring and increased NPP related to longer

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
						(Government of France)	growing seasons and increasing CO2 concentrations
G-SPM-260	A	5	31	5	31	"Net primary productivity", please define. (Government of Canada)	Definition for this can be found in the AR4 glossary
G-SPM-261	A	5	31		32	The statement "increases in global NPP (c. 6% since about 1980) due to elevated atmospheric CO2 concentrations" is incorrect: increases in NPP were not attributable to CO2 (although CO2 concentrations may have contributed to observed/modeled changes). What was found was an increase in estimated NPP, due to changing climate (~40% of differences), solar radiation (in the wet tropics), vegetation changes, altered nutrient deposition, and many other factors. Delete the "due to elevated atmospheric CO2 concentrations" and the statement will correctly characterize the publication upon which this is based. (Government of USA)	Text rephrased.
G-SPM-262	A	5	31		31	Clarity. This a bit obscure. What is "net primary productivity"? Is this the case in both the northern and southern hemispheres? What does the parenthetical "(c. 6% since about 1980)" mean? Why the parentheses? Does this pertain just to flora? Can "increasing concentrations of" be substituted for "elevated"? The latter is ambiguous - elevated compared to what? Also, "elevated" doesn't necessarily convey or connote an on-going trend or change. (Government of USA)	Text rephrased.
G-SPM-263	A	5	34	5	42	The structure of this paragraph encourages misinterpretation. By suddenly listing "exceptions include" (after headings and points up to this point are listed as facts, not exceptions) the reader tends to continue reading as though the following points are thought to present facts. (Government of Japan)	The section has been reworded and 'exceptions' has been removed
G-SPM-264	A	5	34	5	42	Do not recommend stating that effects on human systems are not yet strongly apparent. It might be better to state that there is not enough knowledge to attribute effects solely to climate change. (Government of Canada)	The text has been rephrased to take these comments into account
G-SPM-265	A	5	34	5	42	ad: increasing quantity of people are affected by flooding (Government of Belgium)	No action. Increase in damages due to flooding are not clearly part of a long-term trend in changing incidence of extremes..
G-SPM-266	A	5	34	5	42	ad: increasing appearance of illnesses (Government of Belgium)	Health effects are included
G-	A	5	34	5	34	"are not yet strongly apparent" Increasingly appearance of illness of Lyme and	Text has been rephrased

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
SPM-267						meningitis; due to the hot summer of 2003 35000 people died; 15 big floodings in 2002 in Europe 1 million people where affected and 250 died (I presume other regions, other time, same or worse problems) ,... I should not call this "not yet strongly" (Government of Belgium)	
G-SPM-268	A	5	34		37	To say that effects are “not yet strongly apparent because of adaptation and non-climate drivers” is biased. Some research shows increases in productivity of some agricultural systems at small increases in temperature. Temperature is climate driven. Delete “yet” and full stop after “systems” (Government of USA)	Text rephrased
G-SPM-269	A	5	34			The term ‘human systems’ could be misleading (and not defined in the appendix) for the average reader when used to refer to agriculture. Perhaps ‘managed systems’ could be used. (Government of USA)	‘Managed systems’ included.
G-SPM-270	A	5	34			‘Non-climate drivers’ affect not only human systems (and therefore reduce the impacts of climate change) but also natural systems. Though it would be useful to add a para where drivers are described and there possible impact assessed. (Government of Germany)	Text has been removed
G-SPM-271	A	5	34		42	Give examples of what is meant by “human systems”, e.g. agriculture, infrastructure in Artic settlement areas, human health due to heat waves and to pollen production changes. (Government of USA)	Examples are given in following text.
G-SPM-272	A	5	38	5	38	To more clearly separate the impacts, add a comma after permafrost. (Government of Canada)	Text has been rephrased
G-SPM-273	A	5	38	5	39	The reference to changes in indigenous livelihoods is unclear (are these changes induced by climate change?) (Government of Norway)	The text more clear indicates that these are changes related to climate change
G-SPM-274	A	5	38	5	39	Statement as written does not reflect the underlying references and the fact that separation of human and climate factors is difficult in determination of building and highway failure. To correct it should state: In SOME Arctic settlements... (Government of Canada)	The text now states ‘some human activities in the Arctic...’ page 3 lines 51 and 52
G-SPM-275	A	5	38	5	39	Please add that thawing permafrost has significant influences on infrastructure, particularly on oil and gas extraction and transportation facilities. (Chap. 15, 15.7.1) (Government of Germany)	Vehicle travel is now mentioned under human activities in the Arctic
G-	A	5	38	5	39	Including “subsidence of buildings and highways due to thawing permafrost” and	Text has been rewritten substantially.

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
SPM-276						“changes in indigenous livelihoods” in the same sentence creates a very obscure statement. These are two totally different points and should be in separate sentences so that there is no confusion among readers. Further, “changes in indigenous livelihoods” in the Arctic is debatable in this context. Indigenous livelihoods, specifically Inuit in the Canadian Arctic, have been changing irrespective of climate change as a result of political, economic and social pressures for the last century. We suggest that this statement be more specific about the changes observed in indigenous peoples’ livelihoods which can be linked to climate change. Although the impacts of climate change in the Arctic on indigenous peoples’ livelihoods is a valid scientific observation, unfortunately the text as is infers a gross exaggeration of the impacts of climate change. Thus, we suggest that if the writers are referring to the impacts climate change has had on hunting behavior among indigenous people in the Arctic, they specify this in the SPM text. (Government of Japan)	Highways and buildings have been removed
G-SPM-277	A	5	38		39	At line 38, why “highways” and not “roads” or “roads and highways”? Line 39, Clarify: What is meant by “changes in indigenous livelihoods”? Give example(s). (Government of USA)	‘highway’ removed. We now speak of ‘aspects of indigenous livelihoods’.
G-SPM-278	A	5	39		40	It’s not clear that <b>all</b> changes in indigenous livelihood would not have taken place because of increased technological change, trade, and population growth (because people are living longer). This needs to be modified accordingly. (Government of USA)	Text now modified.
G-SPM-279	A	5	40	5	42	The summary of health effects caused by climate change are not well reflected in the SPM. Changes in pollen production and related changes in allergic diseases are neither the only nor the key vulnerabilities. We recommend to reflect human health in the concert of impacts adequately and on the basis of the underlying chapter 8. Key messages (in particular chap.8, p. 3, 1.11 to 24) can be taken from the executive summary of chapter 8. Furthermore the second half of concluding remarks in SPM "increased duration and frequency of heatwaves" describes rather meteorological conditions than health effects. We strongly urge you to amend the text. (Government of Germany)	Changes have been made to reflect these comments.
G-SPM-280	A	5	40	5	42	If possible, add a geographic qualifier as is done in the previous two bullets. (Government of Canada)	Europe and Asia have been specified for heat-related mortality, and allergenic pollen in northern mid-latitudes
G-SPM-281	A	5	40	5	42	Heatwaves are not part of human systems. Suggest this is reworded as ‘emerging evidence of effects on human health caused by changes in seasonal production of pollens ... and increased ... heatwaves’.	The health effect (heat-related mortality) has been specified

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
						(Government of UK)	
G-SPM-282	A	5	40		42	Emerging evidence of effects on human health should also include changes in the quality and production of plant based pharmaceuticals with changes in temperature and carbon dioxide (e.g. Ziska et al. Global Change Biology 11:1798-1807); and potential change in plant based contact dermatitis from increasing CO2 (e.g. Mohan et al. PNAS 103:9086-9089). See additional comments on Chapter 8. “Effects” of what – higher temperatures? increased CO2 concentrations? climate change generally? “[c]hanges” standing alone is ambiguous or vague – do we mean to say <i>increases</i> in production? Lines 41 and 2, consider fleshing out a little what the implication is on human health of “frequency of heat waves” – such as “that can adversely affect human health and functioning, increase hospitalizations, exacerbate respiratory and other conditions, morbidity, mortality, etc. – or whatever obtains as a result of more frequent and longer heat waves. (Government of USA)	Wording changed. Some of the examples given in the comment are not considered sufficiently ‘key’ to include in SPM.
G-SPM-283	A	5	41			This sentence is in it's general statement not true, that 'changes in seasonal production of pollens ... cause allergic diseases, ...'. The cause effect relations of allergic diseases are much more complex, and can not be simplified as stated. (Government of Germany)	‘Allergenic pollens’ has now been used
G-SPM-284	A	5	42	5	42	Mention relationship with air pollution (European Union)	This was considered but not incorporated
G-SPM-285	A	5	42			Consider adding cold waves if supported by relevant research results documented by revisions to Chapter 8. (Government of USA)	Considered but not implemented – only three examples from human health included..
G-SPM-286	A	5	43	5	43	Add a point. "Increased damages to roads and other infrastructure due to flooding, undermining and decrease in ground stability" (Government of Sweden)	This was considered but not incorporated
G-SPM-287	A	5	44	5	44	Would it be possible to indicate a figure in the text on the global economic losses from weather-related disasters ? (Government of Switzerland)	This text has been removed
G-SPM-288	A	5	44	5	45	We suggest that the sentence starting with “Global economic losses...” be replaced by TS, page 12, lines 10-12. Further, because past, current and potential future economic impacts are a concern of policymakers, it would benefit the policymaker for whom this SPM intended for, to have this section elaborated on. We understand the challenge of space constraints for each section, however, we feel that this is an important section which is insufficient as is and requires lengthier text. We suggest that the writers consider condensing the text in TS, page 12, lines 10-41 and	This text has been removed

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
						inserting it into the SPM. If condensing the text is not an option, then perhaps the writers may consider inserting TS lines 10-12 and lines 31-34 on page 12 into the SPM. (Government of Japan)	
G-SPM-289	A	5	44			Not only the number and magnitude of catastrophes is increasing but also the variability/volatility (Government of Finland)	This text has been removed
G-SPM-290	A	5	44		48	Line 46 "tropical cyclones <i>and hurricanes</i> " (for the benefit of those of us in the Western Hemisphere. Can we say anything about increases in the number of terrestrial tornadoes/cyclones in the U.S. and earlier beginning of the tornado season here? Has the intensity of tropical cyclones increased <i>significantly</i> , i.e. can we say more here? Can we say more about, e.g. number of category 4 and 5 storms worldwide? Will there be more data available to include before publication of AR4? Lines 45 and 46, should it be some extreme weather <i>events, such as...</i> ? Clarify changes in economic losses versus observed changes in frequency or intensity of weather related disasters. (Government of USA)	Text on observed tropical cyclones removed.
G-SPM-291	A	5	46	5	48	This statement seems to be in contradiction with the TS (p. 12, l. 31-34), which states that "once losses are normalized for exposure, there still remains an underlying rising trend." It is important that SPM, TS, and Chapter 1 are consistent with respect to this message, given the public debate about this very topic. (European Union)	This text has been removed
G-SPM-292	A	5	46	5	48	This is not consistent with bold text in TS B.3 and Section 1.3.8. In Section 1.3.8.5 it reads: "While the dominant signal remains that of the significant increases in the values of exposure at risk, once losses are normalised for exposure, there still remains an underlying rising trend". There is evidence that climate change may have resulted in some increase in disaster losses, see Mills 2005 in Science 309, 1040-1044, Schiermeier 2006 in Nature 441, 674-675 and a workshop report at <a href="http://sciencepolicy.colorado.edu/sparc/research/projects/extreme_events/munich_workshop/workshop_report.pdf">http://sciencepolicy.colorado.edu/sparc/research/projects/extreme_events/munich_workshop/workshop_report.pdf</a> . (Government of Netherlands)	This text has been removed
G-SPM-293	A	5	46	5	46	the ongoing debate on trends in tropical cyclone would invite a word of caution here. (Government of UK)	This text has been removed
G-SPM-294	A	5	46			Whether the intensities of cyclones have increased worldwide is still a debated issue. In any case, a 30-35 year long record is hardly long enough to provide a definitive statement.	Text on observed tropical cyclones removed.

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
						(Government of USA)	
G-SPM-295	A	5	50			Consider inserting a summary discussion of the effects of extreme weather events on human mortality rates from either Chapter 1 or 8. (Government of USA)	Would require too much detail – readers can go to underlying chapters.
G-SPM-296	A	6	1	6	32	We understand the need to make the SPM more specific. However, since isolated examples of opposite trends probably also can be produced, care must be taken to avoid the SPM being perceived as biased. Preferably more general and aggregated examples should be used or, if this is not possible, it should be clearly stated in the text that these examples represent a global trend. (Government of Norway)	Figure removed
G-SPM-297	A	6	1	6	37	The authors should provide an explanation as to why the selected systems and sectors are representative or instructive. (Government of Australia)	Figure removed
G-SPM-298	A	6	1	6	37	It would be helpful if figures SPM-2(c) and (d) would also include the regional temperature trend. (Government of Netherlands)	Figure removed
G-SPM-299	A	6	1		37	In Fig SPM-2, titles at top of each visual.... In (a), are there data for Canadian fires available since 2000 that can be included? In (b), parenthetical synonym or description of what “phenology” means – leafing out. Might a better example be found – this one looks to be minor change as a longer term trend, and major fluctuations over short periods of time. This will not photocopy well. In (c), might this be blown up – its rather hard to see the earlier year values way to the left. Also, is there something odd about the coloration of that has 3 blue entries and the rest are single different color per year? This will not photocopy well. Text Line 32 or as part of single title above all charts, something like “Time/Temperature Increase Trends and Affects on Some Sample Systems” (Government of USA)	Figure removed
G-SPM-300	A	6	2		2	Can be accused of cherry-picking data. Especially the glacier, given the end of the LIA. It should be stated that these are representative of the globe. (Government of USA)	Figure removed
G-SPM-301	A	6				The authors should consider whether there is value in including a page of figures without explanatory text in a policy document. Also, perhaps figures from the underlying chapter that support major points in the previous pages would be more helpful. (Government of USA)	Figure removed
G-	A	6				figure SPM-2-d: The units for the water storage used in the figure (GL) usually are	Figure removed

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
SPM-302						expressed in cubic hectometers (hm <sup>3</sup> ) (Government of Spain)	
G-SPM-303	A	6				figure SPM-2-b: there is no reference to the period of the anomaly. Remove the decimals of the labels in the left vertical axis (Government of Spain)	Figure removed
G-SPM-304	A	6				figure SPM-2-a: there is no reference to the period of the anomaly (Government of Spain)	Figure removed
G-SPM-305	A	6				Figure SPM-2(d) Unless there are compelling reasons why different averaging periods are used, which are not stated in the discussion, it is not apparent how a valid comparison can be made between a 63 year average and 20 & 7 year averages. Also, it is misleading to suggest the average inflow annual has decreased. Clearly what has happened is that there has been a very significant decrease in the magnitude and frequency of high inflow years. The magnitude of inflow during medium and low inflow years seems only slightly decreased. To be honest, it looks like a singular event in the late 1970's triggered a major change, and another in 1996. These events need to be shown to be climate related, with fulsome discussion which is lacking in the SPM and Chapter 11 text. (Government of Ireland)	Figure removed
G-SPM-306	A	6				Figure SPM-2(b) The diagram is poor. I believe it would fail to convince the non-expert reader of any observable response of leaf unfolding to Climate Change. It does show trees responding to ambient temperature. But the climate signal is hidden in the annual variation. A running average of the data might show the climate signal better. Also, unless there is a compelling reason to show the response of two species, I think one example extracted from the original diagram, F1.4, is sufficient. As it is, the graph is too cluttered. (Government of Ireland)	Figure removed
G-SPM-307	A	6				Figure SPM-2(b) The caption for this figure should more clearly articulate that the graph is indicative of the earlier on-set of spring in Europe over the past 50 years. Figure SPM-2(d) The stream flow reduction in SW WA is an example where the reduction is clearly related to climate change. However, the anthropogenic component of that climate change remains unclear. It is therefore misleading to include this example with more clear-cut temperature-related impacts. (Government of Australia)	Figure removed
G-SPM-308	A	6				#1) Figure 8, First appearance of the Orange tip ( <i>Anthocharis cardamines</i> ) butterfly in The Netherlands in relation to the flowering time of the two host plants found in World Wildlife Fund's 2004 report Extreme weather: does nature keep up? (can be	Figure removed

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
						accessed at <a href="http://assets.panda.org/downloads/extremeweatherreportdoesnaturekeepup.pdf">http://assets.panda.org/downloads/extremeweatherreportdoesnaturekeepup.pdf</a> or alternatively 2) mapping of the observed changes in flowering dates for the Japanese cherry tree and the irohakaede, Japanese maple recorded by the Meteorological Agency researchers in Japan (these figures can be access only in Japanese at <a href="http://www.data.kishou.go.jp/climate/cpdinfo/20th/box6.htm">http://www.data.kishou.go.jp/climate/cpdinfo/20th/box6.htm</a> and we suggest that the Japanese SPM writers refer to this page for review). (Government of Japan)	
G-SPM-309	A	6				Although this is a useful figure for policymakers we suggest that “(b) spring temperatures and ate of leaf unfolding in Germany” and “(d)changes in yearly streamflow into the Perth, Australia, water supply” be replaced with other figures. For “(b) spring temperatures and ate of leaf unfolding in Germany” we recommend that either one of the two following figure be used to replace it (Please see #1 in the cell below (No.30) for reference information) For figure “(d)” we suggest the current figure be replaced by Figure 4 Sacramento River Runoff found in Potential Consequences of Climate Variability and Change (can be accessed at <a href="http://www.gcric.org/NationalAssessment/14WA.pdf">http://www.gcric.org/NationalAssessment/14WA.pdf</a> ). (Government of Japan)	Figure removed
G-SPM-310	A	7	0			This overview of impacts per temperature range is very useful. Not all findings have the same level of confidence, agricultural production even has low confidence for the lower temperatures (2 out of 10 chance: so more likely to be wrong?). It could be made clearer to what extent adaptation has been taken into account, notably in the findings about agricultural production, hunger, coastal protection; A note could be added about the simplification to temperature only, stressing that also changes in other climate parameters are important and can exacerbate the temperature effect. When talking about ecosystems: distinguish between terrestrial and marine. Add to which temperature these temperatures are additional (1990? pre-industrial?). (European Union)	This text removed, see Tables SPM-1 and SPM-2
G-SPM-311	A	7	1	7	45	Reference to the effects at different temperature ranges on ecosystems and food security, 2 issues in Article 2 of the UNFCCC, is useful information for the policymaker. Further, the way it has been organized and presented makes the information easily accessible to all levels of readership (i.e. user-friendly for both veteran policymakers and those new to climate change issues). (Government of Japan)	This text removed, see Tables SPM-1 and SPM-2
G-SPM-	A	7	1	7	2	Proposal : to change the header into "Projected vulnerability and impacts" (Government of Switzerland)	Not supported by other reviewers, changed to 'Current knowledge about future impacts'

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
312							
G-SPM-313	A	7	1		29	<p>The information contained in the boxes on page 12-15 could be very useful information for policymakers, if it were expanded to contain uncertainty/confidence levels and revised to be consistent with recommended revisions to the underlying chapters. This section would benefit from an introduction explaining why the information contained in this section is important and why policymakers should care. We recommend replacing all of pages 7-11 with this introduction that would provide an introduction of key concepts. Then, more space could be dedicated to expansion of summary of the sectors/regions with confidence levels.</p> <p>Reasons to delete the existing pages are as follows:</p> <ol style="list-style-type: none"> <li>1. The underlying chapters do not give the authors enough support for making such strong statements, without confidence/uncertainty levels, in the SPM. Therefore, this section is problematic.</li> <li>2. We recommend not referencing Article 2. Include examples from other sectors/systems in addition to ecosystems and food security.</li> <li>3. The temperature breakouts in the underlying chapters and the models on which they are based do not support the specificity of temperature categories presented on page 7 and should not be included here in this way.</li> <li>4. All of these assumptions suffer from only considering temperature and not precipitation and moisture. This may suggest to policy makers that temperature is the only concern, which is misleading.</li> <li>5. If there is to be an aggregate of impacts, they should represent impacts across all sectors that can be predicted with high confidence. The entire section does not provide confidence/uncertainty levels for the impacts projected. In addition, there are fundamentally.</li> <li>6. The timeframe over which these changes would occur has relevance and should be addressed.</li> <li>7. Any discussion of key vulnerabilities or sectors/regions most at risk should reflect changes recommended to Chapter 19 and not be based on selective risks from a few chapters. (add comment from Ch. 19)</li> </ol> <p>(Government of USA)</p>	Boxes removed – just far too long. Text on pages 7 to 11 largely replaced.
G-SPM-314	A	7	1		50	<p>The impacts of climate for 1, 2, or 3 degrees, etc. –this discussion is very confusing—again no temporal context or discussion of why these particular impacts were selected, etc. Also, this discussion assumes that the reader knows how the IPCC SRES scenarios are defined, etc—need to clarify.</p> <p>(Government of USA)</p>	This text removed, see Tables SPM-1 and SPM-2. Box added on SRES scenarios.
G-	A	7	4	7	5	The text in bold should describe the main impacts not only the fact that it can be	This would result in a very long bold

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
SPM-315						estimated. (Government of Norway)	statement. This statement has been rewritten and is now on page 10
G-SPM-316	A	7	4	7	5	It is proposed to insert "some" before impacts. This is because we are not even sure that we really know all impacts associated with temperature increase, this is even true for the increase by 1 degree Celsius. Many suggest that there are significant impacts on human systems, e.g. by storms, floods, drought. However, figures in terms of damage costs are still very uncertain and that is reflected in lines 11 to 13 on page 7 because this impact is not even mentioned due to the associated uncertainties. (Government of Austria)	This was considered but not incorporated
G-SPM-317	A	7	4	7	5	"Can" is used here to express a kind of over-certainty. Please indicate the scientific uncertainty in this sentence. (Government of China)	Can remains as it is true that we can estimate more systematically. Bold statement has been rewritten and can be found on page 10
G-SPM-318	A	7	4		9	Would it be helpful to include in short fashion a reminder for the reader of what the accepted models are predicting by way of temperature increases over what periods? In Line 9, would "projected" be a better word choice than "estimated"? (Government of USA)	Information included in Table SPM-1.
G-SPM-319	A	7	4		5	Is this an advance from the TAR? What is the significance...we couldn't estimate before? We can estimate with higher confidence? Need to include link to document (cite). (Government of USA)	Headline rephrased
G-SPM-320	A	7	4		7	Add confidence level to line 5. Add to line 7, "such estimates include significant uncertainty." (Government of USA)	All headline statements now contain confidence statement. Line 7 now rephrased so that addition not required.
G-SPM-321	A	7	7	7	9	The introduction should include the clause "in the absence of adaptation strategies", as is in Figure SPM-3. (Government of Australia)	Page 6 lines 3-8 now outline the assumptions made in section C
G-SPM-322	A	7	7	7	7	The footnote indicating that temperature changes in the SPM refer to pre-industrial temperatures is a departure from the TAR. For instance, TAR WG2 Fig SPM-2 "displays the observed temperature increase relative to 1990". If this change to pre-industrial is to remain in the AR4 WG2 SPM, this change of reference point needs to be explained at the beginning of the report and not relegated to a footnote. In addition, the use of 1750 as definition of pre-industrial does not correspond to the WG1 report which cites 1850 as the pre-industrial reference -- these 2 need to be consistent. (Government of Canada)	The baseline temperature is 1990 and this is clearly stated in the introductory paragraph of section C
G-	A	7	7	7	7	Global effects also have been estimated for other climatological parameters like	Text has been rewritten substantially

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
SPM-323						extremes and not only for a range of global temperature changes. Please add at the end of the sentence: "as one of the key parameters". (Government of Germany)	
G-SPM-324	A	7	7	7	7	As global effects have been estimated not only for a range of global temperature changes but also for other climatological parameters like extremes please add at the end of the sentence: "as a base parameter". (Government of Germany)	Text has been rewritten substantially
G-SPM-325	A	7	7	7	7	A systematic reference to "pre-industrial temperature" may raise many questions, unless the three IPCC working groups take the same option and state clearly what is the present level of warming relative to this reference. Indeed, WGI refers usually to the 1901-2005 period, which shows a warming of 0,65°C. Nothing is said by WGI relative to "pre-industrial" temperature. References are also often made to the 1961-1990 average. It is essential that the three Working groups be consistent on stable references. Concerning the reference to 1750, if we look at figure 6.10 of the SOD of WG1, the temperature in 1750 appears to be between .2 and .7 °C below the 1961-1990 average. The temperature in 1900 seems to be .3 °C below the 1961-1990 average. All this is very confusing. (Government of France)	The baseline temperature is 1990 and this is clearly stated in the introductory paragraph of section C
G-SPM-326	A	7	7		8	Why just ecosystems and food security? Suggest deleting the gratuitous mention of Article 2. (Government of USA)	List expanded in Tables SPM-1 and -2. The reference to Article 2 with respect to ecosystems and food security is deleted.
G-SPM-327	A	7	7		7	Skip the footnote and include some wording conveying that temperature changes – based on “c. 1750 pre-industrial times” as part of the sentence. (Government of USA)	We have standardized references to baseline and made clearer what we are using.
G-SPM-328	A	7	7			Insert prior to “For ecosystems...” the following new sentence, which is for the most part lifted from page 6, lines 28 to 30, of the Technical Summary: “The role of non-climate drivers such as technological change, economic development, and regional land use policy is shown in some studies to be more important in determining outcomes than climate change.” (Government of USA)	Text rephrased, but for this message see SPM page 17 line 8-11.
G-SPM-329	A	7	7			Before listing the selected temperature ranges a sentence should be inserted explaining that these ranges resulted from previous work with emission scenarios and global modelling etc as a service to those readers who are not familiar with that work. (Government of Sweden)	This text has been removed. The introductory paragraph of section C states the assumptions
G-SPM-	A	7	8		8	Spell out UNFCCC. (Government of USA)	Source is given to underlying chapter where this is explained properly, for those who are

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
330							unfamiliar with UNFCCC Article 2. It would take too much space to explain all this in SPM.
G-SPM-331	A	7	9	7	29	The temperature increases need to be explained (are these increases from 1990-2000, or 1750?). Generally there should be a consistent use of a base-line for the timescales used throughout the SPM. The authors should explain how different studies findings have been normalised for presentation in this condensed, tabular form. (Government of Australia)	The baseline temperature is 1990 and this is clearly stated in the introductory paragraph of section C
G-SPM-332	A	7	10	7	27	this table should explain how it takes into account the fact that some adaptation will be made. (Government of France)	This text has been removed. The introductory paragraph of section C states the assumptions
G-SPM-333	A	7	11	7	26	When describing impacts associated with different time frames and emission scenarios, for example, increases and decreases in agricultural production potential, it is not clear whether the reductions are net changes from a current baseline, or reductions from enhanced levels. The reader will not know whether the incremental increases in Agricultural production up to +2-3oC are larger or smaller in magnitude than the decreases beyond 3-4oC. (Government of UK)	This text removed and replaced by Tables SPM-1 and SPM-2 where these distinctions should be clear.
G-SPM-334	A	7	11	7	26	We suggest that terms to describe likelihood be added to the list of impacts for each grade of temperature rise. As is, the description is insufficient. (Government of Japan)	Text has been removed and refigured into Tables 1 and 2. Each statement there has a confidence level. Text in section C under Regions and Systems and Sectors has a confidence and a likelihood statement attached
G-SPM-335	A	7	11	7	26	We recommend that the writers include "time-scale" information (references) for each of the effects mentioned here. A number of effects mentioned here for specific temperature ranges. For the policymaker reader it is critical to have a time-frame indication as to when these effects may potentially occur. For exmple, are the effects expected to observable in 100 years or are we looking at several centures in the future before these changes will occur? Specific reference to time-scales is essential information for policymakers. (Government of Japan)	Time scales are provided in Tables 1 and 2. More detailed information can be found in the TS and the underlying chapters
G-SPM-336	A	7	11	7	26	These lines will give an overview for a reader who doesn't have time to read the whole summary but just bits and pieces. Therefore it should be considered carefully what to include to this set of impacts and what to leave out. I'm not convinced that it has been thought from that perspective. The set of impacts should include at least something about the increase of water stress, Greenland (and WAIS) and the	These elements have been incorporated into the new Tables 1 and 2

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
						Amazon, as they all have great global significance. (Government of Finland)	
G-SPM-337	A	7	11	7	26	There is no exact corresponding part for such a detailed classification in the main report. For example, in Table 9.2, only three categories: the vulnerabilities of <2C, 2-4C, >4C are listed. Therefore, 6 groups should be reduced and the current confidence should be provided. Suggest to change to 3 groups: 0-1°C; 1-3°C; 3-6°C. Also is should be noted that impacts can be reduced by adaptation. (Government of China)	This text has been removed and replaced by Tables 1 and 2
G-SPM-338	A	7	11	7	26	The availability of water seems to be a key point for vulnerability in particular in regions which already are arid or semi-arid today. Is it possible to include some water related impacts into this very important and helpful table? We think the inclusion of water issues would reflect key vulnerabilities better, as well as including more information on other sectors, see Tables TS 5. Also information from chapter 19 and 20 should be integrated here. (Government of Germany)	Water issues are included in the new Tables 1 and 2
G-SPM-339	A	7	11	7	26	Should include some estimation for the increase of water shortage. Preferably a regional example, as the global estimations vary so much. (Government of Finland)	Water issues are included in the new Tables 1 and 2
G-SPM-340	A	7	11	7	26	Preferably the description of species loss should be more specific. Can "species loss from current range" be separated into extinction and migration? (Government of Norway)	Text removed. More specific information can be found in the new text of section C page 6 and in Table 1
G-SPM-341	A	7	11	7	15	Increase in agricultural production potential lacks any reference to water availability. (Government of Canada)	Text has been removed
G-SPM-342	A	7	11	7	27	Explanation of the expected impacts at different temperature increases is too brief to create a full understanding with the policy maker. Recommend complete sentences and completion of terms like 'yields' to refer to 'crop yields', etc. (Government of Canada)	Text has been reconfigured into Tables 1 and 2 and new text in Section C on pages 6-10
G-SPM-343	A	7	11	7	26	Availability of water may be critical with respect to vulnerability especially in areas which are already arid or semi-arid today. Some water related impacts should be included into this listing. Inclusion of water issues would reflect key vulnerabilities much better. (Government of Germany)	Water issues are included in the new Tables 1 and 2
G-SPM-344	A	7	11		29	These statements, placed as they are in the SPM, will be widely referred to and should be based on solid science (i.e. more than a few studies). Do the reviewers have confidence in these findings based on the underlying chapters? At the very least, these need confidence/likelihood levels attached. The wording in line 28	Removed and replaced by Tables SPM-1 and SPM-2 which are carefully sourced and every statement given a confidence statement.

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
						implies that all of the examples in lines 11-26 are key vulnerabilities (not true) and that others are in Fig 3, yet the term key vulnerability is not defined for the reader. In fact, the nomenclature is confusing: are these impacts, effects, or vulnerabilities – all three terms are used. (Government of USA)	
G-SPM-345	A	7	11		12	Define or explain what is meant by the term “shifts”. Also, for clarity, is it some ecosystems or some shifts? Are the reduced yields due to temperature increases or to heat-related drought or both? (Government of USA)	‘Shifts’ not used. Text removed.
G-SPM-346	A	7	11		27	Are hydrological changes implicitly included? If so, mention that fact. Also what is the time frame for the responses? (Government of USA)	Text removed, see Tables SPM-1 and SPM-1 which include time frames..
G-SPM-347	A	7	14	7	16	the statement on loss of species is probably too strong, considering that there is only one reference by Thomas giving such numbers, whose validity is not generally accepted. (Government of France)	Text removed.
G-SPM-348	A	7	14	7	16	Some policymakers reading this text may be unsure as to how to interpret the comment about “further increases in global agricultural production potential but further yield reductions at lower latitudes”. Policymakers, specifically those involved in food security issues, will wonder if the writers are inferring that the increases outbalance the reductions or visa versa. Because of the policy implications, it would benefit the policymaker if the ratio of increase versus reductions in agricultural production were clarified here. (Government of Japan)	Text has been removed and replaced by Tables 1 and 2
G-SPM-349	A	7	14		19	With regard to the impacts of climate change on ecosystems, we note that: A. “lost from current range” is not the same as “lost forever.” This should be noted. Also, it would be useful to provide an estimate of the period of time over which such losses may occur, and to note what might take the place of these species. After all, nature does abhor a vacuum. B. Instead of relying on anecdotes about the tundra and boreal systems, it would be more fruitful to look at how climate change might modulate other threats to biodiversity. Specifically, climate change is one of many threats to biodiversity. In fact, habitat conversion, chiefly due to conversion to agricultural uses, is probably a greater threat. How would this threat be affected by climate change? In fact, analyses suggest that these pressures might actually be reduced, at least for several decades. For instance, Levy et al. (2004) estimate that global sink capacity and net biome productivity would increase through 2100 even under a 4oC increase <u>over</u>	Text removed and replaced by Tables SPM-1 and SPM-2 where phrase ‘lost from current range’ not used.

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
						1990 levels (under A1FI; Levy et al. 2004). They also estimate that under the same scenario, the amount of global cropland would decrease. Each of these diminish pressures on biodiversity. Accordingly the items pertaining to ecosystems should be re-done. (Government of USA)	
G-SPM-350	A	7	14		26	Does "species" refer to agriculture production? ecosystems? both? Ditto at lines 18 and 26. Same for each line? One asks ...one-quarter of what lost, exactly? Also is there movement to a new range or just that species is lost? clarify language in this phrase. (Government of USA)	Text removed and replaced by Tables SPM-1 and SPM-2.
G-SPM-351	A	7	16		16	Append to the end of line 16, the following: "unless effective adaptations are undertaken." (Government of USA)	Text removed and replaced by Tables SPM-1 and SPM-2.
G-SPM-352	A	7	17	7	17	The tundra and forest may "disappear" but they are replaced by something. That something should be mentioned. (Government of Canada)	Text has been removed
G-SPM-353	A	7	17	7	21	Should include "Amazon collapse - huge loss of biodiversity" [see for example TS, page 15, Fig- TS-5] (Government of Finland)	Major changes to Amazon are included in Table 1 and in the text of Section C under Latin America
G-SPM-354	A	7	17	7	22	Particularly in the discussion of impacts connected to temperature increases over 3C, the examples given lack balance. Since the temperature range is used to discuss impacts on ecosystems and food security, it is recommended for the sake of consistency, that individual examples of impacts on both ecosystems and food security be presented. (Government of Japan)	Text has been removed and replaced by Tables 1 and 2
G-SPM-355	A	7	17	7	21	Could include "Treshold triggering a partial or complete deglaciation of the Greenland ice sheet" [Chapter 19, page 26, lines 1-2], with a reference to the rate of confidence. [see chapter 19, page 26, lines 1-2] This should be formulated in a way that it's consistent with the formulation in the figure SPM3, which now includes references to "localised" deglaciation with warming of 1-2 degrees and "widespread" deglaciation with 3-4 degrees. I believe that the references to Greenland and WAIS in figure SPM3 need rethinking. I feel they are not consistent with the formulation in the chapter 19, page 26, lines 1-2. (Government of Finland)	Greenland and WAIS melt and SLR information is included in Table 1 and in section C page 15
G-SPM-356	A	7	19	7	21	Suggest to delete "but further yield reductions at lower latitudes suggest large increases in numbers of people at risk of hunger." Because this conclusion is a kind of subjective judgment.	This was considered but the statement on lower latitude yield potential and hunger risk has been retained

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
						(Government of China)	
G-SPM-357	A	7	22	7	25	There are no comments about ecosystems and yet in the heading the writers state that they will list some of the effects estimated for both ecosystems and food security. We suggest that comments about ecosystems be added. One suggestion is to add commentary about the impacts on coral reefs for the a 3 to 4 degree C increase in temperature and the impacts on mountain glaciers, specifically that they will disappear, for the 4 to 5 degree C range. (Government of Japan)	Text has been removed and replaced by Table 1 which included ecosystems and food security and by new text on pages 6-7
G-SPM-358	A	7	22	7	23	Suggest to delete "large numbers additionally at risk of hunger". Because this conclusion is a kind of subjective judgment. (Government of China)	This was considered but the statement on lower latitude yield potential and hunger risk has been retained
G-SPM-359	A	7	22		23	Large numbers of ___? people? Clarify. (Government of USA)	People, but this text removed and replaced by Tables SPM-1 and SPM-2.
G-SPM-360	A	7	24		25	Add at the end of this sentence, the following: "although impacts can be attenuated if effective adaptive measures are undertaken." (Government of USA)	Tables SPM-1 and SPM-2 which replace this text make clear the adaptation context of the described impacts.
G-SPM-361	A	7	26	7	26	We suggest the term "widespread" be quantified. What percentage of species may become extinct? For reference, the Oxford dictionary defines widespread as "spread among a large number over a large area". Based on this definition, one could argue that there is already widespread extinction, irrespective of climate change. Thus, it would benefit the reader if "widespread" were quantified. (Government of Japan)	This text has been removed and replaced by Table 1
G-SPM-362	A	7	26	7	26	There are no comments regarding food security at this temperature range. The policymaker reading this can not help but wonder if agricultural production will be as severely impacted as the ecosystem (i.e. "widespread species extinction") for this temperature range. For many policymakers, food security is a critical issue and thus text should be added here. (Government of Japan)	This text has been removed and replaced by Tables 1 and 2. New text on pages 6-7 aso include ecosystems and food
G-SPM-363	A	7	26	7	26	There are no comments about food security and yet in the heading the writers state that they will list some of the effects estimated for both ecosystems and food security. Suggest that quantified comments about food security be added. (Government of Japan)	This text has been removed and replaced by Tables 1 and 2. New text on pages 6-7 aso include ecosystems and food
G-SPM-364	A	7	28	7	28	Need to also include in SPM the criteria for identifying "key vulnerabilities" (as per TS page 49). (Government of Canada)	This is now in a footnote on page 10
G-	A	7	28	7	29	Key vulnerabilities are crucial. Some more information should be added.For	Key vulnerabilities are included on page 10.

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
SPM-365						example one or two more sentences related to water stress, flooding, human health and weather extremes. (Government of Spain)	Water stress, flooding, human health and extremes can be found in Tables 1, 2, 3
G-SPM-366	A	7	28		28	One asks, “these” what? Could it be “the above (or these?) projected vulnerabilities”? Can one substitute “are likely to” for “might”? (Government of USA)	This text removed.
G-SPM-367	A	7	31	7	44	The text seems rather disjointed. Specifically, it is unclear what the writers are trying to convey to the policymaker reader for whom this text is intended. A further concern with this text is that for the policymaker who is new to IPCC report reading, reference to the SRES as is, isn’t really helpful and may leave them more in the dark or confused by this brief mention of SRES. If the aim of this SPM, specifically this section, is to inform policymakers from around the world what the “current knowledge about future vulnerability and impacts” is, then we suggest a re-write of the current text. Additionally, because of the overall importance of SRES to the work of Working Group 2 we would suggest that the writers add A.2 “Underpinning scenarios for the Working Group II Fourth Assessment” from TS, page 5 line 1 to page 7 line 14, as an Appendix to SPM. If insertion of the complete A.2 section is not feasible, then we suggest that the A.2.1 “Characterising the future in this assessment” and Figure TS-1 be included as an Appendix in the SPM. (Government of Japan)	Text has been removed
G-SPM-368	A	7	31		36	If this is true, then they cannot now be characterized as key vulnerabilities. (Government of USA)	This text removed.
G-SPM-369	A	7	32	7	36	This sentence is too long. Split into (at least) two sentences for clarity. (European Union)	Text has been removed
G-SPM-370	A	7	33	7	33	Suggest addition of text : "indicate that levels AND NATURE of development are likely to affect....". This would reflect, for example as is discussed later in the SPM with respect to vulnerable coastal areas, it is not necessarily the level of development per se but also the nature (where, how, if adaptive or maladaptive) of the development takes place that can affect the amount of impact. (Government of Canada)	This text has been removed but a discussion of development scenario used can be found on page 17
G-SPM-371	A	7	33	7	33	abbreviation SRES; please explain it (Government of Finland)	Full explanation of SRES can be found in Endbox 3
G-SPM-	A	7	33			The term IPCC SRES should be explained the first time it is used. Through the chapter an effort should be made not to use acronyms not previously explained or	Done

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
372						to avoid using them whenever possible as the text becomes more unaccessible. (Government of Sweden)	
G-SPM-373	A	7	33		41	Explain in short form what "IPCC SRES" is. Ditto references at lines 40 and 41. At line 34, would it be accurate and more specific to substitute, "temperature change" for "climate change"? (Government of USA)	Box from TAR now included to explain SRES
G-SPM-374	A	7	38	7	38	For clarity, suggest "...illustration of the range of impacts is given..." (Government of Canada)	Text has been removed
G-SPM-375	A	7	38	7	44	Example too specific for SPM, as it seems to be only based on one literature study (Government of Germany)	It aids to illustrate the role of the development pathway in determining the number of people negatively affected by certain elements of climate change
G-SPM-376	A	7	39	7	39	replace "millions" by "millions of people" (Government of Spain)	Text removed
G-SPM-377	A	7	39	7	41	Definitions of SRES scenarios should be added to help understanding. (Government of India)	See Endbox 3
G-SPM-378	A	7	39	7	44	Clarify if the discussion of flooding is only in reference to coastal flooding. Currently unclear. (Government of Canada)	Done
G-SPM-379	A	7	42	7	44	Adaptation measures are obviously not included in the SRES Scenarios and can therefore reduce impacts on vulnerable systems (example: flooding). In Germany the measures for coastal protection are not addressed as 'adaptation measures to climate change' although they could be claimed as. These measures are regulated by sectoral laws. Therefore it is not general true, that investments in additional protection measures enhance the impact-resistance, because several measures are still existing but not labeled as 'adaptation'. It should be mentioned somewhere in the text (e.g. the storylines of the scenarios), which measures are already included under the described conditions. (Government of Germany)	Text has been removed
G-SPM-380	A	7	43	7	43	unexplained abbreviation GDP, probably gross domestic product ??? (Government of Finland)	GDP has been removed
G-SPM-	A	7	43	7	44	The last part of this sentence sounds awkward and difficult to read properly (heavy on the wording). Recommend rephrasing	Text has been removed

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
381						(Government of Canada)	
G-SPM-382	A	7	43	7	43	Comment: explain abbreviation GDP when mentioned first time! (Government of Finland)	GDP has been removed
G-SPM-383	A	7	43		44	What does “this” refer to - impacts? Awkward construction - reorder the words in the sentence to make it more clear what is being said. (Government of USA)	Text removed.
G-SPM-384	A	7	43			Section C: instead of "pro rata" use "in proportion to" (Government of Germany)	Text removed
G-SPM-385	A	7	43		43	“...spending on coastal protection is assumed to evolve pro rata with GDP...” Evolve is not the right word. Increase, grow, or expand would be better. (Government of USA)	Text and figure removed.
G-SPM-386	A	7	47			footnote 7: It is noted that WG II decided to choose pre-industrial level of temperature as reference value. However, Working Group I decided to frequently use the current temperature level as reference value. This may induce a lot of confusion among the readers of the report. It is strongly recommended to use one common reference value. This seems to be much more important compared to the reference value itself, being it pre-industrial, current level or anything in between. (Government of Austria)	Addressed. We use one common baseline, and make reference to how to convert to others.
G-SPM-387	A	8	0			Important further improvement of the TAR reasons for concerns graphic. The + sign for low confidence is somewhat misleading, small circles with black, grey and white would be better, or a - rather than a +. Why only 3 of the 6 IPCC SRES/TAR scenarios in the graph and why the outdated WRE scenarios while there are new ones? The word Sustainable Development (headline in graphic) could be dropped, it is not limited to the three issues mentioned in the associated column. (European Union)	Figure removed.
G-SPM-388	A	8	1	8	17	The criteria for the inclusion of these global impacts should be provided. It also should be made clear that Figure SPM-3 has been drawn from a wide variety of sources some of which use different assessment techniques. (Government of Australia)	Figure removed.
G-SPM-389	A	8	1	8	17	on the left part of the figure, the reference for temperatures (zero on the vertical scale) is not consistent with the usual 1900, 1961-1990 or 1990 reference, nor with the 1750 reference decided in the note 7 of this SPM. This deserves some explanation. (Government of France)	Figure removed.
G-	A	8	1	8	2	Figure SPM-3 comments: In the first column of the table: How "c" is defined	Figure removed.

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
SPM-390						(Government of Germany)	
G-SPM-391	A	8	1	8	1	Fig. SPM-3 column re. Sustainable Development reword to ... "1 billion people newly water stressed". (Government of Canada)	Figure removed.
G-SPM-392	A	8	1		17	What species are being referenced in the chart? Explain somewhere what the WRE 1000 – WE 450 are. Ditto, A2 A2B and B1. Ditto re-MOC and WAI – if space spell out abbreviations in the chart. (Government of USA)	Figure removed.
G-SPM-393	A	8	1			Is the use of the term "Sustainable development" in column 3 in accordance with the use of sustainability in other parts of this document? Use "settlement and human health" instead? (Government of Norway)	Figure removed.
G-SPM-394	A	8	1			In figure SPM-3 the first statement in the "Weather Extremes" column has no confidence level. This needs to be added. (Government of New Zealand)	Figure removed.
G-SPM-395	A	8	1			figure SPM-3: The figure is welcomed. However, it is proposed not to use abbreviations without explanation when using them for the first time (e.g. SLR (sea level rise) or NB in the caption. Furthermore relative figures (e.g. 1/3 of the population should also be transpated into absolute figures (indicating a range, reflecting various population scenarios). (Government of Austria)	Figure removed.
G-SPM-396	A	8	1			figure SPM-3: The figure is welcomed. However, clarification is needed about the models used to translate emission scenarios into temperature changes. It is strongly supported to use AR4 data. However, those have also be specified because there are several options, e.g. with or without feedback of the terrestrial biosphere. (Government of Austria)	Figure removed.
G-SPM-397	A	8	2	8	2	Impacts shown in right table are presumed for different ranges of temperatures. However it is not clear what temperature ranges these are as shading could be interpreted as greater effect rather than to denote the degree of temperature range. Perhaps project lines from graph at left into textbox at right. Colour range used in left graph differs from the right box. At least add a label indicated temperature range on right side of text box. (Government of Canada)	Figure removed.
G-SPM-398	A	8	5	8	5	What is meant by "NB" ? The following sentence seems to be important. (Government of Germany)	Figure removed.

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
G-SPM-399	A	8	5	8	6	In the caption of Fig.3, it should add the following points: (1)this figure shows only impacts under fast climate change, or extreme situation. (2)it should noted that there is no adaptation. (Government of China)	Figure removed.
G-SPM-400	A	8	5	8	6	For those unfamiliar with the abbreviation “NB”, we would suggest that the term is stands for “important” be used instead; thus avoiding confusion among those who are not familiar with the abbreviation and its meaning. (Government of Japan)	Figure removed.
G-SPM-401	A	8	5	8	17	Change CO2 to CO <sub>2</sub> with the "2" in subscript. (Government of Spain)	Figure removed.
G-SPM-402	A	8	5	8	5	AR4 data should be used for the left figure. It will be difficult to justify that we are using data and figure from TAR. Also the explanation of the left figure should be simplified. (Government of Spain)	Figure removed.
G-SPM-403	A	8	5			Spell out acronym "NB" (Government of Spain)	Figure removed.
G-SPM-404	A	8	5		5	Explain what “NB” is. Also, per page 7, include c. 1750 to explain what pre-industrial/industrial means here. (Government of USA)	Figure removed.
G-SPM-405	A	8	7	8	8	We suggest that the sentence: “Confidence estimates cannot be made for each statement” be deleted. Additionally, confidence level rankings should be added to “frequency of hot days” under the category of “Weather Extremes.” (Government of Japan)	Figure removed.
G-SPM-406	A	8	7			The descriptions of the confidence levels and the definitions in appendix 1 are not sufficient to understand the assessment method applied by the IPCC. The Appendix 1 should therefore be extended. (Government of Germany)	Figure removed.
G-SPM-407	A	8	9		9	Insert the date of the Third Assessment Synthesis Report (Government of USA)	Figure removed.
G-SPM-408	A	8	11	8	15	Comment: use subscript in word CO <sub>2</sub> for number 2 (Government of Finland)	Figure removed.
G-SPM-	A	8	14		14	Insert “vertical” before colored bars. And consider adding, the “diamonds next to the vertical bars” and omitting “on the right hand side”.	Figure removed.

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
409						(Government of USA)	
G-SPM-410	A	8	16		17	Suggest including what the AR4 data actually are vis a vis projected temperature increases. (Government of USA)	Figure removed.
G-SPM-411	A	8	17	8	17	...rather than that from ... need to correctly cite the TAR, see comment for page 2. (Government of Canada)	Figure removed.
G-SPM-412	A	8		8		The picture on the left is confusing, as it includes only some of the SRES storylines. Politicians don't always have the time to read the explanatory texts, and even if they did, the text might not be clear enough as it is now. The picture can therefore be misleading and give the impression that approximately 3,5 degrees celsius could be maximum rise for this century, and that temperature rises (and impacts) exceeding that are something to worry only in a much longer time period (two to three centuries). It doesn't help that the A2 has been included in an indicative manner (outside the grey area). I would therefore suggest to use instead (a modified version of) the figure 9.13b in the TAR synthesis report. (Government of Finland)	Figure removed.
G-SPM-413	A	8		8		The estimations for the newly water stressed are confusing. Since the estimations vary a lot depending on the model used and especially on the time horizon, the presentation of these estimations should be reconsidered. It is illustrative that according to for example the table 3.2 shown in the chapter 3, page 32, 1 billion newly water stressed (at least) COULD occur already with warming of c. 2 degrees. Also the reference of "up to one-third of the population water stressed" with c. 4 degrees of warming doesn't tell much, as it is estimated that already today one-third of the population might be water-stressed [see chapter 3, page 7, line 7. (Government of Finland)	Figure removed.
G-SPM-414	A	8		8		I feel that placing "most mountain glaciers disappear" to the rate of 4 - 5 degrees warming is misleading, as many important glaciers (from human perspective), such as the Himalayas, the Kilimanjaro and the Andies will be gone much before. [seeChapter 10, page 46 for the Himalaya; chapter 9, page 31 for the mount Kilimanjaro; for Andes chapter 13] (Government of Finland)	Figure removed.
G-SPM-415	A	8				SPM-3: We suggest that the heading "sustainable development" be deleted and in its place the text which is currently in brackets serve as the heading. Our reason for this comment is that representing "sustainable development" with only ""water," "flooding stress" and "human health" (and without "food") is an inappropriate use of the terminology.	Figure removed.

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
						(Government of Japan)	
G-SPM-416	A	8				SPM-3: Under the category of “Ecosystem” several statements have unnecessary “c”. We assume these are unintended typos and suggest they be deleted. (Government of Japan)	Figure removed.
G-SPM-417	A	8				Many responses need a time scale. How long will it take for the mountain glaciers to disappear? Also what is the basis for the “increases in severe storms” bullet? Is this frequency or intensity? How do the diagrams relate? What do the colors in the right-hand chart refer to? For example, since most of the world’s coral reefs will be bleached in the bright yellow section of the first column, does that correspond to the 0.2°C section of the left-hand chart? An explanation of the assumptions behind the SRES Scenarios would be helpful. Also, perhaps calling the scenarios by a descriptive nickname, such as “high population growth, regionalized trade” might make it easier reading. Fig SPM-3: This could be a useful approach to synthesis. However, it is crucial that all statements, including estimates of confidence, contained in this figure be derived from and be consistent with the underlying chapters and reflect the broad range of impact categories (not just these five). Suggest including impacts that have high or medium confidence levels or justified by very high risk. Since 19 and 20 are synthesis chapters, references in this table should refer to the sector/regional chapter and not 19 or 20. (Government of USA)	Figure removed.
G-SPM-418	A	8				figure SPM-3: It should be clearer to add the same scale of temperatures at the right hand of the rectangle with the description of the impacts, as it seems to be coupled with the left projected temperature profiles graphic. The acronym NB is not explained (Government of Spain)	Figure removed.
G-SPM-419	A	8				Figure SPM-3, some unexplained abbreviations like NB, SRES and WRE; all subscripts are missing from the chemical symbol of carbon dioxide (CO <sub>2</sub> , three cases in the figure legend) (Government of Finland)	Figure removed.
G-SPM-420	A	8				Figure SPM-3 comments: The chosen terms in the first line of the figure are not clear: Why "flooding" is to be find under "Sustainable Development" , Why "flood" are not tobe find under "Weather Extremes" (Government of Germany)	Figure removed.
G-SPM-	A	8				Figure SPM-3 comments: The availability of water seems to be a key point for vulnerability. In particular in arid and semi arid regions water plays a bigger role in	Figure removed.

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
421						identifying vulnerabilities than temperature changes. But the figure do not reflect this important finding. Therefore we feel that the figure is oversimplistic as it is at the moment. We think that a figure like that is very important during the communication process of IPCC findings. Therefore IPCC should put further effort into inserting water issues into the figure as well. (Government of Germany)	
G-SPM-422	A	8				Figure SPM-3 comments: following our comment #4, we propose to also include water related aspects or have them in a seperate figure. (Government of Germany)	Figure removed.
G-SPM-423	A	8				Fig. SPM-3: There appear to be two problems with Figure SPM-3 which require amelioration. Firstly, the positioning of the key to the left of the figure representing some of the projected future global impacts needs revision.Placing the key to the left of the figure may cause some readers to wrongly assume that all of the impacts listed in figure 3 will have occurred by 2300. Secondly, there are no specific timeframes for the impacts listed in the figure. We suggest that timeframes be inserted into the figure. It is necessary for the policymaker to be able to understand when the impacts listed will occur, be they 100 years from now or several centuries from now. Therefore timescale information is essential and without it, this graph is misleading. We also strongly believe that the left hand side graph will also cause misunderstandings for policymakers as explained above and accordingly it should be deleted or modified so as not to cause such confusion. (Government of Japan)	Figure removed.
G-SPM-424	A	8				Fig. SPM-3: The use of “most” is highly open to interpretation. Are studies available to be able to list the proportions and/or percentages? For example, when the writers use the word many in this context, do they mean that “90% of mountain glaciers disappear” or some other number? Quantification of comments is of more value to the policymaker than generalities. (Government of Japan)	Figure removed.
G-SPM-425	A	8				Fig. SPM-3: Critical to include a time line for WAI and Greenland Ice Sheet. We also suggest that WG2 ensure that all comments referring to WAI be consistent with the observations made in WG1. For reference, in WG1 Chapter 10.6.4.2 and Question 10.2 there is a text referring to WAI which differs from that of WG2. We ask that the writers ensure consistency between the two working groups. Furthermore, localized deglaciation of WAI and Greenland Ice Sheet do not always consist of the same time line, therefore it is necessary to clarify the different time lines and discuss them individually. (Government of Japan)	Figure removed.

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
G-SPM-426	A	8				Fig. SPM-3 Suggest to replace this phrase "Triggering of wide spread deglaciation in Greenland and disintegration of WAI" with "Triggering of wide spread deglaciation in Greenland". Description about WAI in WGII-19.3.5.2 is "Consideration of a wider range of models indicates ice shelves are unlikely to become vulnerable for less than 5C (WGIAR4 ch.10.7.4.4) global warming". WAI description should be removed in this sentence. If WAI is mentioned, it should be located around 5C range in this graph. (Government of Japan)	Figure removed.
G-SPM-427	A	8				Fig SPM-3:This left box needs to use the AR4 data showing the range of projected temperature changes to 2100 and not the WRE stabilization scenarios. The current figure implies that impacts will not be seen until 2300. This figure would be easier to read if the columns were divided. (Government of Canada)	Figure removed.
G-SPM-428	A	8				Fig 3 - is there a need to explain what WRE's, NB, SRE's stand for. Rather complicated for "policymakers" (?) (Government of Finland)	Figure removed.
G-SPM-429	A	9	0	15		In the Figure on page 11 also some positive impacts are listed, these are generally not included in the texts about regional and sectoral impacts (examples: transport, agriculture in northern regions). In general, if sectoral impacts are positive, these should also be included in the SPM. However, care must be taken in that interpretation (e.g. is impact on transport in Northern regions indeed positive? It maybe positive for transport from other regions – i.e. ships – but is more likely to be negative for transport within the region). (European Union)	Boxes have been removed, as has Fig. SPM-5.
G-SPM-430	A	9	0	15		In all these interesting pages - including the very good Figure SPM-5 - it generally remains unclear to what extent adaptation is been taken into account, and if not, to what extent the described impacts can be avoided. One option is to frame these pages in terms of vulnerability rather than impacts (European Union)	The introductory paragraph of Section C outlines the assumptions made
G-SPM-431	A	9	0			Has (in-land) migration been taken into account in this graph? (European Union)	Figure has been removed
G-SPM-432	A	9	1	9	6	The authors should explain what is meant by "Constant (1990) Protection", and "Evolving Protection". (Government of Australia)	Figure has been removed

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
G-SPM-433	A	9	1	9	6	Figure SPM-4... the meaning of the markers seems unclear. Do they mark some specific periods and if so, how does this reconcile with the caption that refers to "in the 2080s"? (Government of Sweden)	Figure has been removed
G-SPM-434	A	9	3	9	3	For clarity, suggest "... estimated to be at risk of flooding..." (Government of Canada)	Figure has been removed
G-SPM-435	A	9	3	9	6	Fig. SPM-4 The terms "constant protection" and "evolving protection" are confusing. The terms should be explained here. (Government of Canada)	Figure has been removed
G-SPM-436	A	9	3		3	"Additional" – additional to what base number? Can we say? See also lines 22 and 39 on page 7. (Government of USA)	Fig SPM-4 removed.
G-SPM-437	A	9	5		5	Consider either deleting the figure as it does not clarify issues for policymakers or defining terms and elucidating the policy relevant points in the text. (Government of USA)	Fig SPM-4 removed.
G-SPM-438	A	9	8	9	8	The organization and/or structure of this section are rather confusing. Specifically, in this line, the reader wonders if the bold type infers that this is a sub-heading or if it is not a heading but a comment the writers intend to emphasize. Re-organization of this section would improve "reader-friendly" text. (Government of Japan)	The section has been reordered and every effort has been made to improve the organisation
G-SPM-439	A	9	8	9	21	A discrepancy: on page 9 the SPM identifies a list of FIVE systems or sectors on which climate change will have the greatest impact although the Box SPM-1 lists SEVEN sectors (the additional ones are "health" and "industry, settlement & society". Also the order of the sectors is different in these two occasions. The order is of matter of concern or importance, as one could think of order of "importance/relevance", or "cause& effect", or perhaps something else. (Government of Finland)	In the new SPM, these are the five sectors which are likely to be especially affected by climate change
G-SPM-440	A	9	8	11	9	Mountain areas as most vulnerable regions are completely missing in the systematic of the IPCC. It is necessary to add this category as an own focus of interest. (Government of Germany)	Mountain areas are included on page 15 line 5
G-SPM-441	A	9	10	9	10	Why is this sentence in italics ? Are they part of the SPM or will they not be part of the final version of the SPM ? (Government of Switzerland)	Italics have been removed
G-SPM-442	A	9	10	9	10	It's confusing to a reader if the box is given the same name as the previous figures. (Government of Sweden)	Boxes and Figures are clearly differentiated by the prefix Box or Figure

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
G-SPM-443	A	9	12		21	What criteria do the authors use to determine that impacts in the listed systems and sectors are expected to have the greatest implications for sustainability and development? Both terms imply human-linked impacts yet the first listed is the Cryosphere, not defined (does the average policymaker know what the cryosphere is?) and not explicitly linked to sustainability or development. In fact, none of the examples have explanations that link the impact to sustainability or development. The link should be made in each example. (Government of USA)	This text heavily rewritten – see page 15 lines 1-11. Mention of crosphere removed.
G-SPM-444	A	9	12		12	If these bullets are included, they should contain confidence levels and likelihood language, not words like could or would. (Government of USA)	We have tried to be systematic in the treatment of confidence levels in the revised SPM, and to avoid imprecise words such as ‘would’ could’ possibly’ etc.
G-SPM-445	A	9	14	9	21	Section C: order of items relevant? What is the principle behind it especially reflecting we are in SPM (cryosphere most important?)? (Government of Germany)	There has been considerable reworking of this section following debate on which sectors should appear. The cryosphere has been removed as more the province of WG1. Order reflects the hierarchy from natural to managed systems, to human welfare.
G-SPM-446	A	9	14		19	Good use of bolding here. (Government of USA)	Noted
G-SPM-447	A	9	15	9	15	add at the end of the sentence "and water equivalent" (Government of Spain)	Text has been removed
G-SPM-448	A	9	16	9	16	The vulnerability of an ecosystem depends not only on the level of temperature rise but also on the rate of the temperature change. The rate of temperature change is particularly of note since many ecosystems cannot respond fast enough to adapt to the rapid change of their environments (i.e. as the latitudinal range of the ecosystem extends). This characteristic of ecosystems should be emphasized here. (Government of Japan)	This text only deals now with the types of ecosystems which are most vulnerable – there is nothing about the amount or rate of temperature rise.
G-SPM-449	A	9	16	9	16	The term "could" is vague, and suggests too little confidence in the relationship. It is "virtually certain" that (major) climate change would lead to (major) ecosystem shifts. The disruption of ecosystems and the extinction of species as other "very likely" impacts of climate change should be mentioned. (European Union)	Text has been rewritten substantially
G-SPM-	A	9	16	9	16	It seems that this conclusion "...lead to major ecosystem shift" is too serious. Please give its confidence level.	Text removed

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
450						(Government of China)	
G-SPM-451	A	9	16	9	16	add at the end of the sentence "and altered important goods and services provided by them" (Government of Spain)	Text removed
G-SPM-452	A	9	16	9	16	Add "latitudinal" after the word "major". (Government of Australia)	Text removed
G-SPM-453	A	9	16	9	16	"ecosystem shifts" is too vague. Clarify if you mean geographic shifts or shifts in species composition or both. (Government of Canada)	Text removed
G-SPM-454	A	9	17	9	17	The text should be supplemented by: "Low-lying areas, which would be threatened by flooding." (Government of Sweden)	Low-lying areas have been added
G-SPM-455	A	9	17	9	17	Add the following words after "rise", "increased ocean acidification and impacts of extreme storm events". (Government of Australia)	This was considered but has not been incorporated at this point in the SPM
G-SPM-456	A	9	18	9	18	This statement needs to be more carefully phrased as the role of direct population and economic growth in water scarcity can be more important than climate change, however, this is not mentioned. This finding also needs to be assessed in relation to the finding at Figure TS-4, that, globally, fresh water runoff will increase by 2100. (Government of Australia)	This statement has been clarified and qualified
G-SPM-457	A	9	18	9	18	This sentence is not clear. Add "in water -scarce areas" after "most people". (Government of China)	This statement has been clarified and qualified
G-SPM-458	A	9	18	9	18	Term 'most people' can have many interpretations. Clarify. (Government of Canada)	This statement has been clarified and qualified
G-SPM-459	A	9	18			Since intensified hydrological cycle is also frequently mentioned in the report, we would ask the authors to consider to include something about extreme water related events under this point. (Government of Norway)	This was considered but not incorporated at this point
G-SPM-460	A	9	20	9	21	Would be useful to provide distinctions on a regional basis for all sector/system impacts, rather than a general statement on regions most at risk. (Government of India)	Regional distinctions are provided on page 15 lines 13 - 20
G-SPM-461	A	9	22	9		Add a new subsection (message in bold) regarding extreme events, after the subsection referring to some sectors and systems are especially vulnerable. It is quite clear and recognize that the increase in frequency and intensity of the extreme	Extreme events section has been added to page 14 and includes Table 3

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
						events it is the bigger risk of cc in the short term. To add a new subsection on extreme events and the disasters caused would be very coherent with the messages given in page 10 lines 4-7. (Government of Spain)	
G-SPM-462	A	9	23	9	23	South-Asia could also be included as the region most at risk. South-Asia includes India, Pakistan, Bangladesh, Sri Lanka etc. All the evidence available suggest that South-Asia is highly vulnerable to climate change impacts. Therefore, the Line 23 gets modified to - "Sub-Saharan Africa, South Asia, small islands and polar areas are the regions most at risk". Therefore, a bullet point in support of vulnerable South Asia can be as follows: All the evidence available suggest that South-Asia is highly vulnerable to climate change impacts. Further, the region in characterized by receding glaciers, lowering of water table, high population density, large dependence on rainfed agriculture, frequent occurrence of droughts, significant low lying coastal agriculture and large settlements in coastal; and low lying areas. (Government of India)	Asian megadeltas have been included
G-SPM-463	A	9	23	9	23	It should be clarified why polar areas are one the regions most at risk. Looking figure SPM-5 polar regions have more positive (green boxes) and weakly negative impacts than other regions as for example Latin America. (Government of Spain)	Figure 5 has been removed.
G-SPM-464	A	9	23	9	36	In this part, we suggest to add Qinghai-Tibet Plateau as one of regions most at risk, together with sub-saharan Africa, small islands and polar areas. Because this region is very vulnerable to climate change. Correspondingly, a paragraph about the risk in Qinghai-Tibet Plateau should be added in this part. (Government of China)	Following discussion Asian mega deltas have been included
G-SPM-465	A	9	23	9	23	As commented on for page 9, line 8, the reader wonders if the bold type infers that this is a sub-heading or if it is not a heading but a comment the writers intend to emphasize. It is also unclear how the writers have determined that Sub-Saharan Africa, small islands and polar areas are the regions at most risk. If, as mentioned in line 27, the 2 sources of risk are exposure and intrinsic vulnerability, it could be argued that parts of Asia are equally at risk and that Asia should be added to this comment. (Government of Japan)	Consistent use of bold text has been made in the new SPM
G-SPM-466	A	9	23		23	How are "small islands" defined? Based on what criteria in what time frame? Given recent evidence of glacial melt and the long time frames and reasonable predictability for sea-level rise why are areas dependent on glacial melt not most at risk?	Reference should be made to chapetr 16 for a definition.

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
						(Government of USA)	
G-SPM-467	A	9	25	9	25	Why is this sentence in italics ? Are they part of the SPM or will they not be part of the final version of the SPM ? (Government of Switzerland)	Italicised sentences have been removed
G-SPM-468	A	9	25	9	25	It's confusing to a reader if the box is given the same name as the previous figures. (Government of Sweden)	Boxes and Figures are clearly differentiated by the prefix Box or Figure
G-SPM-469	A	9	27	9	35	the uses of the term exposure and vulnerability are questionable in this section. What is called exposure here is in fact hazard: high warming, drought, sea level rise, storm surge,...Exposure is more a component of vulnerability to a given hazard: for instance, a house would be exposed to sea level rise if it is on a beach, but not if it is in the mountain, in which case it would also not be vulnerable to sea level rise. (Government of France)	This text has been removed
G-SPM-470	A	9	27	9	27	The concept of "Intrinsic vulnerability" is difficult to understand. Could be explained further. (Government of Sweden)	Text has been removed
G-SPM-471	A	9	27	9	27	A definition of the term "intrinsic vulnerability" is necessary as this term is not used consistently elsewhere in the report. (Government of Australia)	Text has been removed
G-SPM-472	A	9	28	9	29	This section should mention that people living in the polar regions will have their livelihoods impacted by climate change. Climate change will likely impact their built environment, their economies, their cultural, their access to food, their health... (Government of Canada)	This has been covered in the new text of Section C on page 10
G-SPM-473	A	9	33	9	35	Could it not be better to say: Small islands with little relief are... (Government of Belgium)	Considered but not incorporated. High elevation islands are also at risk from SLR
G-SPM-474	A	9	34		34	Not all small islands lack infrastructure (e.g., Singapore). Also, infrastructure may increase vulnerability. (Government of USA)	This statement no longer made.
G-SPM-475	A	9				Figure SPM-4: example too specific for SPM, as it seems to be based only on one literature study, therefore suggest to not include this figure in SPM. (Government of Germany)	Figure has been removed
G-SPM-476	A	10	1	10	19	We suggest this part to be re-organized. The sentence in line 1-2 can be as the summary of the above two parts (Page 9, line 8-36). However "even the most developed" should be deleted, because it is not appropriate to overemphasize the	This text has been removed

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
						developed country here. The developing countries are more vulnerable than developed countries. Then delete first and second bullet (line 4-14). The third bullet (line 16-19) can be as another part in bold, together with Fig.5. (Government of China)	
G-SPM-477	A	10	1	10	2	Suggest altering the sentence; "All areas, particularly low income economies and even most developed regions have vulnerable communities and sectors" (Government of India)	This text has been removed
G-SPM-478	A	10	1			There is a need for each region to identify their vulnerable groups and to have preparedness to take actions to protect them since they are likely to be the most affected by climate change. There is also a need for regions to know about their key-weaknesses in relation to climate change. This can be achieved by the planning process in each region by performing research games on different climate-related scenarios. The Swedish National Institute of Public health are about to publish a report on this (ISBN 91-7257-449-6). (Government of Sweden)	This text has been removed
G-SPM-479	A	10	1			A vulnerable group also worth pointing out for special attention are immigrants. (Government of Sweden)	Considered but not incorporated.
G-SPM-480	A	10	4		7	We disagree with the inclusion of these examples, as they are not clearly attributed to climate change. We recommend using better examples more indicative of climate change (e.g., arid regions of the southwestern U.S.) from the appropriate chapters or including a statement at the start of the second sentence such as, "Although these specific events cannot be attributed to climate change alone,..." (Government of USA)	Examples removed.
G-SPM-481	A	10	9	10	9	It is unclear where "the" refers to: people? (Government of Netherlands)	People, yes. This text has been removed
G-SPM-482	A	10	9	10	14	These general statements of "comparative vulnerability" are not particularly useful for those determining a course of adaptation actions. It would be more useful to draw out attributes of adaptive capacity that contribute to the assessment of these groups as highly vulnerable. (Government of Canada)	Text removed
G-SPM-483	A	10	9		12	The "most vulnerable" -- what ? areas ? regions ? locations? Not clear what is being referred to. Ditto re "Those" in lines 10 and 12. Clarify.  (Government of USA)	Rephrased – see page 15 line 22-23

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
G-SPM-484	A	10	10		11	Doesn't "poor" cover issue? "marginalized or weakened by over-exploitation" are charged words. If such people had money, they could cope. Correct? (Government of USA)	Yes, and rephrased.
G-SPM-485	A	10	11	10	11	Suggest the writers consider a re-wording of the phrase "weakened by over-exploitation". This phraseology seems out of context here and inappropriate. It is important to maintain a neutral tone with neutral language throughout the SPM. (Government of Japan)	Text removed
G-SPM-486	A	10	12	10	12	Who are included in this group? Some clarifying example would improve the understanding. (Government of Sweden)	Text removed
G-SPM-487	A	10	12	10	12	low adaptive capacity could be qualified & expanded here a little. It could also be noted that capacity does not translate directly to implementation (Government of Finland)	Text removed
G-SPM-488	A	10	13	10	14	Suggest to change the text from "women, young children and the elderly (particularly in primary-resource dependent and poorer economies)" to "women, young children and the elderly in primary-resource dependent and poorer economies." (Government of Norway)	'Primary-resource dependent and poorer economies' has been removed
G-SPM-489	A	10	13	10	13	I don't think that women will be the most vulnerable. On the contrary, there is ample evidence of greater adaptability and persistence of women (compared to men) in difficult conditions. (Government of Finland)	Women have been removed
G-SPM-490	A	10	14	10	14	there should also be a mention of persons with specific health problems, such as diabetics or alcoholics (Government of France)	Considered but not incorporated
G-SPM-491	A	10	16	10	19	Section C: suggestion to eliminate itemization because this is a different level of information compared to the two items before (Government of Germany)	Text removed
G-SPM-492	A	11	0	11	0	which baseline scenario is this table based on? (although by 2050 there is little sensitivity to scenario). (Government of UK)	Figure removed.
G-SPM-493	A	11	0	11	0	A large study for India has shown strong negative impact of climate change on forest ecosystems under A2 and B2 scenarios with over 75% of the forested grids likely to undergo change in current vegetation. Suggest changing the colour code for Asia. Therefore forestry impacts can be marked as orange instead of green. (Government of India)	Figure removed.
G-	A	11	0			Regarding Figure SPM-5, unaware of many studies that have fully accounted for	Figure removed.

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
SPM-494						<p>the increases in adaptive capacity that should accompany economic development and secular changes in technological change. What has been assumed as the secular rate of technological change in constructing this figure? How advances in economic development, and social and human capital accounted for? What is meant by “strongly negative” or “weakly negative.” These seem to be subjective judgments. Regarding Figure SPM-5, it’s interesting that impacts of climate change are mostly positive for forestry in all regions, yet this information is not conveyed in any of the previous text or charts. Perhaps some of the balance from this chart should inform the text.</p> <p>Regarding Figure SPM-5, it’s an interesting attempt to combine geographic and sector/systems. However, it doesn’t help explain issues that come before or after in the text, it doesn’t reflect confidence levels, and needs to reflect changes suggested to underlying chapters. Need to define potential productivity and its application across systems/sectors. Why were these sectors/systems selected rather than those in SPM-1? Explain what “T” stands for. Re for example, entry for forestry in North Am. value is weakly negative (yellow) – but what of heat-induced increased stressors like forest pests, pathogens and forest fires ? Ditto forestry in Africa, Asia, and Latin Am.? Also what of migration of species?</p> <p>(Government of USA)</p>	
G-SPM-495	A	11	0			<p>No discussion is included on the possible impacts of an abrupt cessation of the overturning circulation in the North Atlantic.</p> <p>(Government of Finland)</p>	Figure removed.
G-SPM-496	A	11	0			<p>It might be useful to include the Australia/NZ figure (11.5) on coping range, adaptive capacity and vulnerability. Could this be generalised from the results offered from different regions?</p> <p>(Government of Finland)</p>	Figure removed.
G-SPM-497	A	11	1	11	1	<p>Please explain the definition for the different colours of negative and positive impact and the definition of the terms "weakly" and "strongly"</p> <p>(Government of Germany)</p>	Figure removed.
G-SPM-498	A	11	1	11	9	<p>Fig. SPM-5 is one of the most important of the SPM so it could be worthy to try to improve the figure and the wording of the caption. There are some ambiguities, for example in line 6 What means - ... "significantly" reduced emissions.- ?</p> <p>(Government of Spain)</p>	Figure removed.
G-SPM-	A	11	1	11	9	<p>1/ It would be useful to have also a line for mountain settlements, which may be in some cases seriously threatened by glaciers disruption and in their economic</p>	Figure removed.

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
499						activity. Much work has already been done in the Alps on this subject. 2/ there should be some explanation on how the severity of impacts is assessed, whether they include losses of lives only or also economic losses, and on which scale This looks more like experts judgements. 3/the effect on urban areas in Europe should appear in red, considering the casualties due to heat waves. (Government of France)	
G-SPM-500	A	11	1	55	9	The figure SPM 5 summarising the impact of climate change contains some dubious results. In particular, the finding that in Australia and New Zealand impacts of climate change to 2050 will be "weakly positive" is incongruous when considered with the findings of Chapter 11. Suggest that this specific box is altered to at least "weakly negative", and further that the authors carefully review this table to ensure that colour coding is accurate. It is suggested that this table is reviewed and the methodology/scenario made clearer for this summary table. (Government of Australia)	Figure removed.
G-SPM-501	A	11	1			In figure SPM-5 more explanation needs to be added. Presumably T = table and F = figure, but this should be stated. In addition, SPM-5 only "works" in colour - is this a potential problem for information dissemination? If so, the shading on the table should be changed so that it will work in both colour and black and white. (Government of New Zealand)	Figure removed.
G-SPM-502	A	11	1			Figure SPM-52 might appear clearer when printed in colours, but it is difficult to see the difference between negative and positive impacts. (Government of Norway)	Figure removed.
G-SPM-503	A	11	1			Figure SPM-5: Some of the impacts indicated here are extremely misleading. For example, forestry impacts in Europe are given as "neutral", but this masks large regional disparities of opposite sign. Perhaps examples of this kind should have a separate category (i.e. neutral due to cancelling of regional responses of opposite sign) (Government of Finland)	Figure removed.
G-SPM-504	A	11	2	11	9	Surprised this table does not include a row for "Energy Production" - why "Energy Demand", but not production? (Government of Canada)	Figure removed.
G-SPM-505	A	11	2			Figure SPM-5: This figure may well be the most important one in the whole WG II contribution. It is not possible to distinguish positive and negative impacts in b/w printouts. While the AR4 will be printed in colour, many readers will access the SPM electronically and print it. Their understanding of this figure could be greatly helped if some pattern (e.g., diagonal lines) could be used in addition to the colours to indicate the few cells with positive impacts.	Figure removed.

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
						(European Union)	
G-SPM-506	A	11	2			Figure SPM-5, Caption: The sentence: "Impacts are estimated for c. 2050, assume that climate changes have not been significantly reduced by emissions reductions" is somehow confusing. This is because SPM of Working Group I informs on page 12, lines 14 to 19 that under all SRES scenarios warming will be about 0.2oC per decade in the next decades (at least until 2030). This means that even significant differences in emissions in the next decades will have little impact on the climate change in the next 40 to 50 years. Furthermore the meaning of "c. 2050" is unclear. (Government of Austria)	Figure removed.
G-SPM-507	A	11	3	11	4	This is confusing. Need to clearly indicate when it does include human well-being. (Government of Canada)	Figure removed.
G-SPM-508	A	11	5	11	5	what is the meaning of "c.?" (Government of Germany)	Figure removed.
G-SPM-509	A	11	5	11	9	The "scenario description" in the caption of Figure SPM-5 is very unclear. To say that "climate changes have not been significantly reduced by emissions reductions" is only meaningful when a baseline for future emissions has been specified. Even though this figure is qualitative, authors may select either a specific emissions scenario, or a statement is made that impacts in 2050 do not differ significantly across the SRES emission scenarios. The statement about the "development pathway along a line similar to that of the past half century" is also ambiguous. If this figure makes assumptions that are different from the SRES storylines (there may be good reasons for doing so), this should be clearly stated. In the current version, these statements are too vague. (European Union)	Figure removed.
G-SPM-510	A	11	7	11	7	The specific SRES used should be referred to as well as the projected temperature change for that scenario. (Government of Canada)	Figure removed.
G-SPM-511	A	11		11		Comment: change the direction of text in the first row of the Fig. SPM-5 (names of the regions) (Government of Finland)	Figure removed.
G-SPM-512	A	11				Figure SPM-5: We suggest that the difference between "forest ecosystem" and "forestry" should be clarified. Also the impacts in the polar regions need to be specified since impacts for the North and South are different. (Government of Japan)	Figure removed.
G-	A	11				Figure SPM-5: Transport in polar regions is ranked as a positive impact, and yet it	Figure removed.

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
SPM-513						is believed that local transport (esp. for indigenous people) will be impacted negatively. There seems to be a slight contradiction in the SPM regarding transport in polar regions. We suggest there be a clarification of what kind of transportation was discussed when the ranking was decided upon. (Government of Japan)	
G-SPM-514	A	11				Figure SPM-5: The figure is valuable in its effort to try to visualise the regional information. However, for example forestry in Europe is a totally different in the Mediterranean as compared to the situation in Northern Europe. Maybe a shifting colour scheme could be used in this figure, indicating the variability. In the text, it should also be added, that the figure only gives an average for the large continents. Maybe also a code to mark those sectors and regions where large differences exist could be used? (Government of Finland)	Figure removed.
G-SPM-515	A	11				Figure SPM-5: T, ES, F, B to be explained (Government of Germany)	Figure removed.
G-SPM-516	A	11				Figure SPM-5: I would appreciate an explanatory note for the green colours for the forestry in Africa, Asia and Latin America. For a person who only reads the summary, it might be difficult to understand why a temperature rise would be good for the forestry in for example Latin America, when at the same even a 2 - 3 degrees rise can be fatal to the Amazon forest. As it comes to the estimated impacts for commercial agriculture, it would be valuable to have a explanatory note saying how the increasing irrigation needs have been taken into account. (Government of Finland)	Figure removed.
G-SPM-517	A	11				Fig. SPM-5. The table might be too aggregated, since the differences within the regions are wide for many of the listed issues e.g. Commercial agriculture in Europe. The regions could be divided into 2-3 subareas for more informative description of the strenght of the estimated impacts. The very strong negative impact for the marine ecosystems across all the regions seems rather an overestimate. (Government of Finland)	Figure removed.
G-SPM-518	A	11				Fig SPM-5: Polar Region: Effects of warming on transport in Polar Regions is shaded as positive, however what about loss and reduced times for ice roads in interior areas, this could overwhelm the changes due to increased time for coastal shipping. (Government of Canada)	Figure removed.
G-	A	11				Fig SPM-5 Water Resources / Polar Regions: How can water resources be impacted	Figure removed.

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
SPM-519						positively when the lakes/ivers situation are undergoing strongly negative impacts and land-based ice is melting. Will increased precipitations alone compensate for those changes? Must be consistent with Fig SPM-5. Unless they have strong models to back this off, I'm not comfortable with assessing effects on water resources to be positive. With glacier melting and changes in precipitation there will be more freshwater in the Arctic. Runoff will definitely increase in the spring, but we cannot talk about aquifers in the North so it is mostly surface water. Will precipitations increase in the summer, supposedly. Increased temperature will also increase evaporation rates, so the end result might be a decrease in some periods of the year of level of some waterbodies. Overall I feel it might be difficult to determine net effect on freshwater supplies. Unless they have strong indications on the situation, I would prefer seeing a neutral than a weakly positive. (Government of Canada)	
G-SPM-520	A	11				Fig SPM-5 Transport / Polar Region: It is true that the Northern Sea Route is likely to open more up for marine transportation; and eventually the Northwestern passage as well. However, there are other means of transportation/infrastructure for transportation that will be strongly negatively impacted such as roads, airstrips, winter roads, docks. Some work has been done on this in NWT for instance. Decreasing sea ice has to be combined with improved ship structure to travel the Arctic and Antarctic, this might be a limitation to the positive impact as well when people cannot benefit from opportunities. It is true that the Northern Sea Route is likely to open more up for marine transportation; and eventually the Northwestern passage as well. However, there are other means of transportation/infrastructure for transportation that will be strongly negatively impacted such as roads, airstrips, winter roads, docks. For example, see Ch15 (p37, lines 16-20) re oil and gas transportation infrastructure. Decreasing sea ice has to be combined with improved ship structure to travel the Arctic and Antarctic, this might be a limitation to the positive impact as well when people cannot benefit from opportunities. (Government of Canada)	Figure removed.
G-SPM-521	A	11				Fig spm -5 Is the impact of CC on transport and forestry in Europe really going to be negative? There are potentially serious disruptions to our road and rail networks due to eg flooding, subsidence, heat (Highways Agency 2005). (Government of UK)	Figure removed.
G-SPM-522	A	11				"Fig SPM-5 Forest ecosystem / Polar Regions: ""Positive"" might be a little too optimistic. Why is this strongly positive? Will the soils sustain growth rates, what will happen with pest infestation and forest fires? It is indeed predicted that growth rates will increase and that the treeline is migrating north. It will take years before	Figure removed.

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
						positive impacts can be felt. Furthermore, as temperature warm up and species can migrate north, risks for forest fires and parasite infestation increase. From all I've read, impacts are well documented in many regions, but science has not been able yet to assess the net effect of warming temperature on forests. I guess referring back to the Canadian Perspective (2004, NRCan) could be a good start, their chapter ends mentioning that net effects are not yet defined. (Government of Canada)	
G-SPM-523	A	11				"Fig SPM-5 Construction: In all regions except the polar regions and Africa projected changes in climate are seen as neutral or slightly positive to construction. While lengthening the construction seasons is positive, more extreme weather events (rain, wind lightning, heavy snowfalls and associated floods, avalanches, forest fires etc.) and rising sea level may be negative in all regions depending on topography etc. Please reconsider this designation and provide a reference to the literature citing this classification. (Government of Canada)	Figure removed.
G-SPM-524	A	11				Fig SPM-5 - it would be helpful if the "title" of the figure already revealed that the impacts are estimated for c. 2050. So instead of "Estimated impacts of climate change" it would say "Estimated impacts of climate change by c. 2050". In reference to this, it would be very valuable to have also a table where the impacts would be estimated for a later time, say 2080 or 2100. (Government of Finland)	Figure removed.
G-SPM-525	A	12	1		1	The term "expected" implies greater certainty than may be warranted. Change "expected" to "potential". (Government of USA)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-526	A	12	3	12	20	Under the title "water", I would like to see a reference to the challenges the melting mountain glaciers bring to the ecosystems and people relying on these "water storages". [See for example chapter 10, page 46; chapter 3, page 3, lines 14 - 16] (Government of Finland)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-527	A	12	4	12	4	Unclear what the phrase 'hydrological cycle is likely to intensify' means. Can this phrase be clarified by changing phrase to say 'extremes in the hydrological cycle are likely to intensify and precipitation patterns are likely to shift'? (Government of Canada)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-528	A	12	4	12	4	please explain what "intensify" means. Is the fact that there would be more very wet and very dry days linked to intensification? If not, this should be better in another bullet (Government of France)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-	A	12	4	12	20	Include a new bullet related to the changes in water run off may have impacts on	Boxes removed and statements reworded and

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
SPM-529						hydropower. (Government of Spain)	reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-530	A	12	4	12	20	changes in water run off may have impacts on hydropower, this should be mentioned (European Union)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-531	A	12	4	15		Authors should include confidence statements for each of the bullets in this section. Authors should also take care to ensure that the standard language on likelihood is applied (e.g., highly likely, very likely, etc.) throughout the section (e.g., in section on small islands). (Government of USA)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-532	A	12	4		4	Define the meaning of the phrase that hydrological cycle is “likely to intensify”. Number – What is meant? Extent? (Government of USA)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-533	A	12	6	12	7	This statement feels too broad and imprecise. There are quite a few regions where at least the sign of the projected precipitation response is rather robust across climate models and scenarios. In between regions of increase and decrease are also areas of uncertain sign due to either small changes or specific models placing the boundary between increases and decreases slightly different. (Government of Sweden)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-534	A	12	6	12	6	the term "uncertain" is not in the terminology of page 22; does this mean medium or low confidence? Also, we think that there should be a discussion according to the scale of precipitation. It is said above that the hydrological cycle is likely to intensify, which means apparently that there would be more precipitation globally. If this is the case, line 6 refers more probably to regional or local scales. (Government of France)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-535	A	12	6	12	6	The sentence should read “Simulation of precipitation change by climate models provided clear predictions for some countries, while for others it still remains uncertain” (reference 10-3-2). (Government of Japan)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-536	A	12	6	12	8	The degree of ‘uncertainty’ is important to be known in this case for policy makers, as changes in the precipitation rates have huge implications for both natural and human systems and translates to response measures required to adapt. (Government of India)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-537	A	12	8	12	8	The text would benefit from mentioning "An increased transport of pollutants due to river flooding and increased groundwater pressure in some regions is likely to result". (Government of Sweden)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

<b>Chapter-Comment</b>	<b>Batch</b>	<b>From Page</b>	<b>From Line</b>	<b>To Page</b>	<b>To line</b>	<b>Comments</b>	<b>Notes of the writing team</b>
G-SPM-538	A	12	9	12	10	Mention on threat to flows in rivers being maintained by glacial and snow-melt required. (Government of India)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-539	A	12	10	12	10	we propose to replace the first word of this line, "projected", by "(high confidence)" (Government of France)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-540	A	12	10			Box SPM-1: eliminate last sentence, no impact info, different level of information (Government of Germany)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-541	A	12	10			Before "Management" suggest to insert "Basin" to make it clear what kind of management is being referred to. The term "catchment management" instead of "basin management" would also work. (Government of New Zealand )	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-542	A	12	11	12	11	replace "CO2" by "CO2 atmosferic concentration" (Government of Spain)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-543	A	12	11	12	11	Comment: delete unnecessary space in word CO2 between letters O and 2 (Government of Finland)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-544	A	12	11			Insert "concentrations" after CO2 (Government of New Zealand )	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-545	A	12	18	12	18	The text would benefit from mentioning "An increased transport of pollutants due to increased groundwater pressure and flow in some regions may result" . (Government of Sweden)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-546	A	12	19	12	19	The statement "The thickness of small island freshwater lens in the Indian Ocean.." leaves open whether (a) there is only one freshwater lens, (b) there are multiple freshwater lenses, and a specific one is referred to here, (c) there are multiple freshwater lenses, and this statement is true for all of them, or (d) there are multiple freshwater lenses, and this statement refers to their average. Please clarify. (European Union)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-547	A	12	19		19	Replace "declines" with "decreases". (Government of USA)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-548	A	12	19			Change "lens" to "lenses" (Government of New Zealand )	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
G-SPM-549	A	12	22	12	41	The ecosystems section should state clearly, in a language understandable to laypeople, whether climate change is expected to cause the extinctions of many species. The current text mentions "25% biodiversity loss" possible Most laypersons might not know whether this means extinction of 25% of species or something different. (European Union)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-550	A	12	22	12	41	Nothing is mentioned for aquatic ecosystems under the section "Ecosystems". Since many studies report a drastic increase in nuisance algal blooms in connection with global warming as mentioned in e.g. chapter 4 page 35 it would be wise to consider it as it has far-reaching consequences. (Government of Sweden)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-551	A	12	22	12	55	the statements are taken out of the TS and were already commented there, please see comments in the TS to pages 24 and 23 (Government of Germany)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-552	A	12	23	12	23	Authors should include the finding of Chapter 4 that deforestation in the tropics could provide an additional release of CO2 into the atmosphere, adding between 29-129ppm to the atmosphere by 2100. (Government of Australia)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-553	A	12	25	12	25	For the sake of clarity it is proposed to substitute "that" by "sequestration". (Government of Austria)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-554	A	12	25		25	After phrase "CH4 losses from tundra" add "and shallow sub-marine permafrost" (Government of USA)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-555	A	12	26	12	26	Change sentence from "...constraints on CO2 fertilization are..." to "...constraints on the CO2 fertilization effects are...." (Government of Canada)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-556	A	12	26	12	27	Box SPM-1: eliminate last sentence, no impact info, different level of information (Government of Germany)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-557	A	12	29		29	The word impact is used with a negative connotation, but "impact" is defined in the appendix as "the consequence of climate change on human and natural systems," which could be positive or negative. Need to abide by definitions. (Government of USA)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-558	A	12	30	12	30	The use of the 77% figure seems overly precise especially when the term "~25% is used on line 31. No estimate is given for Amazon forests or China's taiga or Kakadu - be consistent.	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
						(Government of Canada)	
G-SPM-559	A	12	30	12	31	The report as a whole gives somehow contradicting picture of how the Amazon rainforests are predicted to be impacted by a certain degree of warming, one of the examples can be seen in the SPM. Here it is stated that temperature rise exceeding 3 degrees would lead to a risk of degradation, whereas for example the table 4.2 on the chapter 4, (page 46, line 41) and Fig- TS-5 in the TS (page 15) indicate that already 2-3 degrees would lead to the "Amazon collapse" with "huge loss of biodiversity". See also chapter 4, page 50, line 9 about the predicted loss of Amazon wild species due to 2,9 degrees warming. (Government of Finland)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-560	A	12	30	12	31	Change to "...and Australian Kakadu wetlands at risk of inundation with..." (Government of Canada)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-561	A	12	32	12	33	The formulation of the statement on the role of pests here might sound a bit contradictory to the stament on the same page of this SPM, lines 48-50. (Government of Sweden)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-562	A	12	33			Delete "alien" as this is unnecessary in this context. An invasive species does not have to be "alien" in order to be problematic. (Government of New Zealand )	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-563	A	12	33			Box SPM-1: eliminate last sentence, no impact info, different level of information (Government of Germany)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-564	A	12	34	12	36	We suggest a second sentence is replaced by: “Recent findings forecast a drop in pH to 7.8 by 2100, and it may drop as low as 7.5 in a business-as-usual scenario changing ocean carbon chemistry at least 100 times faster than at any time in the last 100 000 years to a pH lower than anything experienced in the last 10 – 20 million years. Species relying upon building up calcium-based structures will be adversely affected including corals, lobsters, crabs and oysters. It cannot be ruled out that these changes will also diminish other marine living resources.” Rationale: The Acidification of the ocean is dealt with in a report from The OSPAR Biodiversity Committee (BDC) based on available scientific literature on this topic. The report is available at the OSPAR website <a href="http://www.ospar.org/eng/html/welcome.html">http://www.ospar.org/eng/html/welcome.html</a> . In a press release from the meeting in BDC 13 – 17 March 2006 th it is said that the report “Ocean Acidification” confirms that high levels of carbon dioxide (CO2) in the atmosphere are changing ocean carbon chemistry at least 100 times faster than at any time in the last 100 000 years. The pH of seawater (the measure of the balance of acidity and alkalinity)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
						has dropped from 8.2 to 8.1 over the past 200 years. Models forecast that it will drop to 7.8 by 2100, and may drop as low as 7.5 if there is a business-as-usual scenario. This would be lower than anything experienced in the last 10 – 20 million years. Marine species that rely upon building up calcium-based structures will be adversely affected. These include corals, crustaceans (e.g. lobsters, crabs) and molluscs (e.g. mussels, oysters). Higher levels of CO <sub>2</sub> in seawater generally depress the physiological performance of sea creatures. It cannot be ruled out that these changes will also diminish other marine living resources. The OSPAR Biodiversity Committee said that: both acidification of the ocean due to elevated level of CO <sub>2</sub> in the atmosphere caused by increased anthropogenic emissions of CO <sub>2</sub> and climate change may have severe impacts on the marine environment. They therefore emphasised the need to find strategies and measures to mitigate these effects. (Government of Norway)	
G-SPM-565	A	12	34	12	34	The process of increasing carbon dioxide leading to an acidification of the ocean has been identified already some time ago. Perhaps what is meant here is that as a problem (viz. impacts on biological systems) has been identified in earnest only recently. Suggest deleting "previously unrecognized". (Government of Sweden)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-566	A	12	34			Box SPM-1: eliminate "previously unrecognized", irrelevant info at this point (Government of Germany)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-567	A	12	36	12	36	The text uses the term "is expected". We ask the writers to delete this and replace with a word for likelihood from Appendix A1.3 "Communication of Uncertainty in the Working Group II AR4". (Government of Japan)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-568	A	12	36	12	36	Clarify we are talking about tropical or equatorial corals. Any mention or consideration of Cold water corals. (Government of Canada)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-569	A	12	36	12	37	"annual" appears to be inconsistent with "between 2030 and 2050" (Government of Netherlands)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-570	A	12	38	12	39	the response lag of plants behind warming is important as it leads to stress and possible loss, but the taxonomic differences in lags and in sensitivity and adaptive capacity needs noting. (Government of UK)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-	A	12	39	12	39	Reword: ...is expected to decline at low latitudes and increase at high latitudes.	Boxes removed and statements reworded and

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

<b>Chapter-Comment</b>	<b>Batch</b>	<b>From Page</b>	<b>From Line</b>	<b>To Page</b>	<b>To line</b>	<b>Comments</b>	<b>Notes of the writing team</b>
SPM-571						(Government of Canada)	reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-572	A	12	40	12	41	The conclusion that ice dependent species such as polar bears will lose their habitat and be pushed to extinction is overstated. The sentence should be reworded to read: "Populations of ice dependent species including polar bears and seals will decline as their habitat deteriorates." (Government of Canada)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-573	A	12	40	12	40	The authors should provide a footnote explaining IS92a. (Government of Australia)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-574	A	12	43	12	43	In Chapter 5, fishery products are also described. Please insert FISHERY before AND in line 43 and change "FFF" to "FFFF". Also, the description about fishery should be added in this part. (Government of China)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-575	A	12	43	12	43	Although some may argue this similarity to bullet 5 in the section on Food, Fibre and Forest Products of Box SPM-1, we recommend that bullet 8 “changes in primary production...” on page 24 of BoxTS-3 Food, Fibre and Forest Products be added to the SPM. (Government of Japan)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-576	A	12	43			Points in box are all contained in the Executive Summary section. Not clear how the bullets chosen for the box were selected over other bullets in the Executive Summary as “key”. Need to make sure the final bullets in this box are consistent with any changes made in the rewrite process (Government of USA)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-577	A	12	44	12	45	We recommend that “moderate” be deleted. If the writers choose not to delete then we suggest that at least a consistent definition of the usage of “moderate” be footnoted. (Government of Japan)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-578	A	12	44	12	44	It is strongly recommended to delete "moderate" because such value judgement is policy prescriptive. The wording should be neutral, e.g.: In temperate regions, increases in temperature of 1 to 3oC, can have small beneficial impacts on crops, due to associated CO2 increase and rainfall changes. (Government of Austria)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-579	A	12	44			Using a term "moderate increase" for a warming of 1 - 3 degrees sounds misleading. 1 degree may still be considered moderate, but it's very different from 3 degrees. This comment does not, of course, refer to only this particular sentence, but on the report as a whole. It is understandable that compare to 6 degrees warming,	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
						3 degrees is moderate, but it is still misleading, compared to how different impacts you get with 1 or with 3 degrees of warming. (Government of Finland)	
G-SPM-580	A	12	45	12	45	It is strongly recommended to delete "even moderate" because such value judgement is policy prescriptive. The wording should be neutral, e.g.: In tropical regions, such temperature increases are likely to have .... (Government of Austria)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-581	A	12	46	12	47	Box SPM-1: eliminate last sentence, no impact info, different level of information (Government of Germany)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-582	A	12	48	12	48	add after "poleward" "and upward in mountain regions" (Government of Spain)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-583	A	12	51	12	52	Is it correct that "warming and droughts will reduce livestock mortality"??? (Government of Finland)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-584	A	12	51	12	52	"reduce livestock productivity and mortality", it seems that mortality will be increased instead of reduced (Government of Netherlands)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-585	A	12	52	12	52	Word missing. Should read: "...reduce livestock productivity and increase mortality..." (Government of Canada)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-586	A	12	52	12	52	and increase mortality' instead of 'and mortality'. (Government of Spain)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-587	A	12	52		52	"...will reduce livestock productivity and increase mortality..." (Government of USA)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-588	A	12	54	12	54	The link between forest product output and climate change is tenuous as the influence of climate on growth will be minor compared to the economic factors controlling decisions about product output. (Government of Canada)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-589	A	12	60	12	60	Unclear why all regions show an increase in wood production other than NA which shown as a slight decline (Government of Canada)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-	A	12		13		Box SPM-1: There appears to be a discrepancy in wording between the Box SPM 1 Ecosystems bullet 8 and the equivalent box on page 23 in the TS Box TS-3 under	Boxes removed and statements reworded and reduced to just around 8-10 lines per

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
590						Ecosystems bullet 8. The SPM uses the word “extinction” when referring to the likely future impacts on polar bears, whereas the TS merely states that there will be “implications for predators such as seals and polar bears”. We suggest this discrepancy be reviewed. (Government of Japan)	sector/region – see SPM FGD pages 6-10.
G-SPM-591	A	12				Box SPM-1. For the sake of increasing the clarity of the classification of the impacts the subgroups "Water" and "Ecosystems" could be changed to "Water Resources", "Aquatic Ecosystems" and "Terrestrial Ecosystems". (Government of Finland)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-592	A	13	1			The significance of impacts to be caused by a 6m rise in sea level should be mentioned because the impacts are huge even though the probability is low.. (Government of Japan)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-593	A	13	6	13	6	Suggest use "extreme events" to replace "extreme water levels", because the former is more inclusive. (Government of China)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-594	A	13	6	13	7	Reword to "East Coast, the Caribbean, and Rio del Plata" (Government of New Zealand )	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-595	A	13	6		6	“significant extreme water levels” – extremely high, low? meaning is unclear. (Government of USA)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-596	A	13	13	13	16	For greater accuracy change to: "Increases in coastal flooding depend on the magnitude of isostatic sea level rise and socio-economic changes, most particularly the degree of protection upgrade.... (Government of Canada)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-597	A	13	13			Add to sentence: "coastal erosion and" after "Increases in" (Government of Sweden)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-598	A	13	15	13	15	For clarity, suggest "...people at risk of flooding...". (Government of Canada)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-599	A	13	17	13	17	SLR means sea level rise? Why suddenly abbreviated? (Government of Finland)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-600	A	13	18	13	18	Suggest adding a qualifier to "...costing three times more...". Is it in total, per unit area, per capita, etc? (Government of Canada)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
G-SPM-601	A	13	18		19	Is cost of flood protection considered as total cost, per person, or per sq.km.? (Government of USA)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-602	A	13	21	13	40	This chapter does not address one of the most significant second/third order impacts of climate change: the migration of people that have been hit significantly, e.g. by extreme weather events (issue of climate refugees). It is acknowledged that it is difficult to identify precise figures. However, there have been some investigations, e.g. by the UN university in Bonn. (Government of Austria)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-603	A	13	21	13	40	Box SPM-1: information in this part very general compared to other parts in Box SPM-1 (Government of Germany)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-604	A	13	21		40	Points in box are all contained in the Executive Summary section. Not clear how the bullets chosen for the box were selected over other bullets in the Executive Summary as “key”. Need to make sure the final bullets in this box are consistent with any changes made in the rewrite process (Government of USA)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-605	A	13	23	13	23	mountain areas could also be mentioned as highly risky (Government of France)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-606	A	13	23			Add to sentence: ", landslides and coastal erosion" after "areas subject to flooding" (Government of Sweden)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-607	A	13	24	13	24	Is "agroprocessing" the same as "agriculture"? If yes, please say so. Otherwise, please explain. (European Union)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-608	A	13	24			Should this be "agriprocessing" ? (Government of New Zealand )	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-609	A	13	26			Delete comma after "change" (Government of New Zealand )	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-610	A	13	35			Comment: not inevitable, but needs: - research to identify correct policies to make risk sharing possible, - product development addressed to some degree in Table SPM-1, - market developments to increase the so-called Alternative Risk Transfer (ART), - clarification of the responsibilities of individuals vis-a-vis governments (Government of Finland)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
G-SPM-611	A	13	37	13	37	Comment: start sentence; "In many areas, climate change is likely to..." (Government of Finland)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-612	A	13	41	13	41	Add a point: "The stability of ground constructions and infrastructure is negatively affected by increase in precipitation and groundwater pressure" (Government of Sweden)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-613	A	13	41			There should be a bullet devoted to cold-related deaths The first, second and fourth bullets needs to be altered to better match what is in the Executive Summary of the chapter. Points in box are all contained in the Executive Summary section. Not clear how the bullets chosen for the box were selected over other bullets in the Executive Summary as "key". Need to make sure the final bullets in this box are consistent with any changes made in the rewrite process  (Government of USA)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-614	A	13	42			Health aspects are also important for insurers and pension schemes (Government of Finland)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-615	A	13	43	13	43	The wording "by 2030 under a range of emissions scenarios" is misleading, because under this time horizon is too short to reflect differences in temperature increase due to mitigation. It is proposed to delete the following part "under a range of emission scenarios". (Government of Austria)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-616	A	13	47	13	49	Consequences for human health and ecology due to increased pollution transport in regions with increased precipitation/storms should be mentioned. (Government of Sweden)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-617	A	13	52	13	55	Reword: ...mean annual temperature (Government of Canada)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-618	A	13	55	13	55	Lines 57-61. These two features are not "impacts". (Government of Australia)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-619	A	13	55	13	55	Clarify if "daily temperature" refers to the mean or maximum daily temperature. (Government of Canada)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-	A	13		13		line 56 ( the sheet doesn't allow this line number, max 55): the bloom of shellfish potentially dangerous for people is not limited to tropical regions; we have suffered	Boxes removed and statements reworded and reduced to just around 8-10 lines per

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
620						this effect in Mediterranean coasts. So, it can be added at the end of the sentence "and some extratropical warming seas" (Government of Spain)	sector/region – see SPM FGD pages 6-10.
G-SPM-621	A	13				Box SPM-1: line 59-61 (not taken by spreadsheet), eliminate, no impact info rather than a measure (Government of Germany)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-622	A	13				Box SPM-1: line 57-58 (not taken by spreadsheet), eliminate, no impact info rather than a measure (Government of Germany)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-623	A	14	0			Taking into account that the temperature increase will be independent from the emissions scenario in the coming decades it is proposed to delete the wording "under a range of emission scenarios" in the bullet point on alpine glaciers. (Government of Austria)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-624	A	14	1	15	62	Need to check that all projected changes in SPM-2 match the summary in Figure SPM-5. eg. increases in wood exports for Africa, Asia, and Latin America not indicated and report section referenced (Government of Canada)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-625	A	14	1	15	55	Box SPM-2. gives the impression of being more a collation of impacts than a systematic and prioritised review of risks of impact by Region. For example, the impacts for N. America, there is no mention of impacts on water resources or agriculture. Should policy makers infer that those impacts that are identified for N America are more important for N America than impacts on Water resources or Agriculture? The text/Table should make clear whether it results from a process by which potential risks and impact studies have been screened to identify the most significant, or whether it is principally a collation of studies. (Government of UK)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-626	A	14	1	15	55	Box SPM-2 summarising regional impacts focuses too much on impacts on natural systems and gives too little attention to socio-economic impacts. For example, the summary on Africa does not even mention detrimental impacts on agricultural production, crop yields and food security. The summary on Europe fails to identify increased risk of droughts and flooding (apart from coastal flooding), heat waves and associated health risks. Furthermore, the outline of impacts is not in line with the Technical Summary in this respect - the TS does much better job in translating impacts to socio-economic concerns. (Government of Finland)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-	A	14	6	14	7	Taking into account that we are already committed to the climate change by 2025 (according to SPM of WG I the temperature increase by 2030 is about 0.2oC, for all	Boxes removed and statements reworded and reduced to just around 8-10 lines per

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
627						SRES scenarios) the following language is proposed: The proportion of the African population at risk of water scarcity is likely to increase from 47% in 2000 to 65% in 2025, when ca, 370 million African people are likely to experience increased water stress. (Government of Austria)	sector/region – see SPM FGD pages 6-10.
G-SPM-628	A	14	13	14	13	reduce catches by what time period or CO2 level equivalent? (Government of Finland)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-629	A	14	13	14	13	It is strongly proposed to indicate the year by when reduction in catch by around 30% is expected to happen. (Government of Austria)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-630	A	14	13	14	13	If possible, indicate the time period for "...reduce catches by around 30%" (Government of Canada)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-631	A	14	17	14	18	Box SPM-1: eliminate, no impact info, different level of information (Government of Germany)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-632	A	14	20	14	32	We recommend that bullet 9 "Indonesia's forest could benefit from carbon fertilization..." from Box TS-4 on page 26 of the TS be added to the Asia bullets for Box SPM-2. (Government of Japan)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-633	A	14	20	14	32	Qinghai-Tibet Plateau is one of the regions most at risk in Asia. A paragraph about the expected impacts for Qinghai-Tibet Plateau needs to be added. (Government of China)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-634	A	14	20	14	32	(Box on Asia): The impacts of air pollution on Asian mega-cities should be mentioned. (Government of Japan)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-635	A	14	21	14	22	The current population corresponding to the areas of deltas should be mentioned to help understand the impacts. As it stands, the text is insufficient. (Government of Japan)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-636	A	14	21	14	22	Impacts to the desertification in China and other relevant Asian countries should be mentioned here. (Government of Japan)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-637	A	14	21	14	21	If possible, provide a percentage of the river delta areas that would be flooded relative to current conditions. (Government of Canada)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-	A	14	21	14	22	A time-scale reference for a 1 meter sea-level rise is necessary. Without it, the	Boxes removed and statements reworded and

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
SPM-638						<p>policy maker reader has no idea of when the referred impact will occur. It is also critical that time-scale references are consistent with the findings published by WG1. (Government of Japan)</p>	reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-639	A	14	21			<p>Hectare (ha) is already a square measure. Would be useful to have the Red River and Mekong River examples using the same units i.e. either both in ha or both in square km. (Government of New Zealand)</p>	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-640	A	14	25	14	26	<p>Is the drop in per capita water availability a consequence of climate change or of population growth? (Government of Netherlands)</p>	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
-641	A	14	25	14	25	<p>How much of the drop per capita availability of water is climate change related? (Government of Canada)</p>	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-642	A	14	25		25	<p>Provide more context for this statement. Is this drop in availability due to populations increase? (Government of USA)</p>	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-643	A	14	27	14	28	<p>This is a very drastic conclusion. Should have a supporting reference otherwise need to be deleted. (Government of India)</p>	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-644	A	14	27	14	27	<p>Taking into account that we are already committed to the climate change by 2025 (according to SPM of WG I the temperature increase by 2030 is about 0.2oC, for all SRES scenarios) the following language is proposed: The Himalayan glaciers are likely to decay at very rapid rates, shrinking from the present 500,000 km<sup>2</sup> to 100,000 km<sup>2</sup> by the 2030s. (Government of Austria)</p>	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-645	A	14	36	14	36	<p>If possible, provide a date for the expected loss in biodiversity. (Government of Canada)</p>	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-646	A	14	36	14	36	<p>An example of the comment above is that the finding that there is likely to be "a substantial loss of biodiversity" needs to include a temperature range or state under what scenario this is based and should quantify what "substantial impacts" include. (Government of Australia)</p>	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-647	A	14	38	14	39	<p>Taking into account that we are already committed to the climate change by 2025 (according to SPM of WG I the temperature increase by 2030 is about 0.2oC, for all SRES scenarios) it is proposed to delete "under SRES A1 and B1 scenarios." (Government of Austria)</p>	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
G-SPM-648	A	14	41		41	Economic trauma – This is vague. What is meant? (Government of USA)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-649	A	14	45	14	47	This dot point concerns the possible benefit to agricultural producers in New Zealand and Tasmania, this does not match the findings of Chapter 11 as it excludes the caveat concerning water availability. The statement also leaves other producers in Australia with the implication that climate change will be detrimental, but provides no explicit guidance on the issue. Suggest a specific finding for the rest of Australia, at 2050 is provided. (Government of Australia)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-650	A	14	45			Insert "concentrations" after CO2 (Government of New Zealand )	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-651	A	14	46	14	46	Effect on agriculture for this region differs from that shown in FIG SPM-5 (Government of Canada)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-652	A	14	49	14	49	The impacts for the different parts of Europe are unbalanced. Please add a new bullet related to the projected increasing of drought over the Southern and Mediterranean Europe and the adverse impacts associated on crop yields, water resource quantity and quality and risk of forest fires. (Government of Spain)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-653	A	14	50	14	51	The text ought to specify where in Europe this coastal flooding is expected. Table 20.3 in section [20.6] states a range of 0.2-1.6 million *additional* people in Europe being affected by coastal flooding in the 2080s. Does this indicate that 0.9 million Europeans are already affected by coastal flooding? The text should reflect the additional number of people being affected. (Government of Norway)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-654	A	14	50			What is the confidence in the various statements or percentage changes? (Government of USA)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-655	A	14	54	14	55	Due to the significant contribution of run off from glaciers it would be interesting to learn whether or not retreat of alpine glaciers has been fully taken into account in those estimates. It could be expected that river discharge might even be lower compared to current level assuming that all alpine glaciers might have disappeared by 2080. (Government of Austria)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-	A	14	55	15	55	Box SPM 2- the authors should ensure that consistent time scales and scenarios are	Boxes removed and statements reworded and

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
SPM-656						used for each of the regional impacts, or if this is not possible specify the scenario and timescale used for each dot-pointed impact. In addition the authors should ensure that each impact has a likelihood estimation that follows the IPCC standard, (use of the words "could", "will", "may" and "expected" are not helpful). Finally terms such as "substantial" need quantification to be of use to the broader SPM readership. (Government of Australia)	reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-657	A	14	56			line 56 This statement is based on the results of one study with certain assumptions. While this is based on a valid modelling approach it needs putting in a broader perspective or have some caveats. (Government of UK)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-658	A	14		14		line 61 (the sheet doesn't allow this line number, max 55): there are many others mountain areas in Europe with glacier systems, and some of them are very valuable and relictic. So, instead "Small Alpine glaciers", it can be said "Small high mountain glaciers across Europe" (Government of Spain)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-659	A	14		15		Box SPM-2: There appears to be a discrepancy in wording between the Box SPM 2 Polar Regions bullet 4 and the equivalent box on page 29 in the TS Box TS-4 under Polar Regions bullet 5. The SPM uses the word “extinction” when referring to the likely future impacts on polar bears, whereas the TS merely states that there will be “implications for predators such as seals and polar bears”. We suggest this discrepancy be reviewed. (Government of Japan)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-660	A	14				The statement that 'increases in crop yeald are only expected in Northern Europe' is not true in this general formulation. It would be better to add 'parts of' Northern Europe. (Government of Germany)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-661	A	14				Box SPM-2. Social and economic sustainability aspects might be highlighted more in the text of the box. (Government of Finland)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-662	A	14				"Europe": The issue of seasonal ice and snow cover is not discussed here. Perhaps it should, because it will change much and this will affect especially traffic, recreation, and animal and plant populations in Europe. (Government of Finland)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-663	A	15	2		3	Do these projections include any climate changes? (Government of USA)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

<b>Chapter-Comment</b>	<b>Batch</b>	<b>From Page</b>	<b>From Line</b>	<b>To Page</b>	<b>To line</b>	<b>Comments</b>	<b>Notes of the writing team</b>
G-SPM-664	A	15	5	15	6	Taking into account that the temperature increase will be independent from the emissions scenario in the coming decades it is not appropriate to justify for the year 2025 differences in number of people suffering from lack of adequate water supplies by different SRES scenarios. (Government of Austria)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-665	A	15	5	15	5	Replace "will" with a likelihood reading. (Government of Australia)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-666	A	15	12	15	12	The following language is proposed: In particular sea level rise will affect: (i) Mesoamerican .... This is because it cannot be excluded (due to gaps in knowledge and uncertainties) that other (second, third) order effects might also harm e.g. Mesoamerican coral reefs. (Government of Austria)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-667	A	15	13	15	13	Fig SPM-5 indicates wood export to increase, but not shown or referenced in this section (Government of Canada)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-668	A	15	22	15	22	One more sentence that is not clear due to lack of use of agreed confidence language. (European Union)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-669	A	15	22	15	22	"cordillera" is a Spanish word? (Government of Finland)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-670	A	15	23		23	Add "risk of" before flooding. (Government of USA)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-671	A	15	24		24	Replace "complicate" with "necessitate changes in". Phrases like "Supply and demand mismatches" are common in the press but they make no sense. Along a given set of supply and demand curves, there is only one point where supply and demand are not mismatched. That point is the equilibrium point – which is also the point that is observed. Suggest replacing, "Supply and demand mismatches" with "Decreases in supplies of water coupled with increases in the demands for water".  (Government of USA)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-672	A	15	25		25	Suggest replacing "disturbances from" with "patterns of disturbances related to". (Government of USA)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
G-SPM-673	A	15	28	15	29	This might be a generic enough statement to apply for all regions. In that case it might be misleading to mention it for some specific region only. (Government of Sweden)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-674	A	15	28	15	29	The observation that investments in adaptation based on historical experience rather than projected future conditions increasing vulnerability is a condition that would apply to any region not just NA alone. This comment would be very useful to be repeated in the main text. (Government of Canada)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-675	A	15	31	15	44	Unexpected, rapid changes have been observed recently both in Greenland and WAIS. [see chapter 19, page 26, lines 6 - 17] This underscores the inadequacy of existing models in predicting the warming impacts in Greenland and WAIS and reminds about the possibility of much faster changes than previously assumed. Paleoclimatic evidence suggests 1-2 degrees global warming as a limit beyond which both ice sheets may be vulnerable to at least partial deglaciation causing sea level rise of at least 4 - 6 meters. [same reference] This uncertainty relating to the Greenland and WAIS should be reflected in the SPM. (Government of Finland)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-676	A	15	31	15	44	This section lacks information on peoples from the north and how they will be impacted by climate change (health, infrastructure, livelihoods...). Please draw information from Chapter 15 (Government of Canada)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-677	A	15	31	15	31	Fig SPM-5 indicates transport to increase but not shown or references in this section (Government of Canada)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-678	A	15	33	15	33	Suggest "Northern Hemisphere permafrost area..." for clarity. (Government of Canada)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-679	A	15	39	15	39	If possible, provide approximate dates and regions for impacts on polar bears. (Government of Canada)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-680	A	15	48	15	48	There is little reference in SPM to damage from hurricanes/cyclones (except line 48, page 15, in reference to Small Islands). Cyclones affect coastal areas in general and not only Small Islands (including in developed countries like in case of New Orleans) and SPM should include more on this. (Government of India)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-	A	15	48			Suggest spelling out "1/50" i.e. "one in 50 year..." (Government of New Zealand)	Boxes removed and statements reworded and reduced to just around 8-10 lines per

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
681							sector/region – see SPM FGD pages 6-10.
G-SPM-682	A	15	50	15	51	Taking into account that the temperature increase by 2050 will be almost independent from the emission pathway as reflected in the SRES scenarios it is proposed to delete "under SRES A2 and B scenarios". (Government of Austria)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-683	A	15	52		54	Many factors play a role beach erosion. As written, sentence implies climate change is sole factor causing reduced beach area. Rewrite sentence to read: "... bleached from increased sea surface temperatures and reduced beach erosion from sea level rise and other non-climate factors." (Government of USA)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-684	A	15	57	15	58	Delete sentence on lines 57-58 as it is not an impact or adaptation to climate change itself. (Government of Canada)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-685	A	15	57	15	58	BOX SPM 2 lines 57-58 : the renewable energy in small island is not impact but adaptation: delete? (European Union)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-686	A	15				Box SPM-1: line 59-60 (not taken by spreadsheet), eliminate, no impact info (Government of Germany)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-687	A	15				Box SPM-1: line 57-58, eliminate, no impact information. (Government of Germany)	Boxes removed and statements reworded and reduced to just around 8-10 lines per sector/region – see SPM FGD pages 6-10.
G-SPM-688	A	16	0	18		There is a disconnect between the TS and the SPM on material relevant to Adaptation, Adaptation and Mitigation, and Sustainability. We would expect what is in the SPM to be in the TS. Maybe not a requirement, but seems practical. (Government of USA)	This is regarded as very much a requirement, and we have worked harder in the new drafts to ensure it is the case.
G-SPM-689	A	16	0			The structure of section D seems difficult to understand. Basic information about the economic valuation of impacts is duplicated and/or spread in the chapters. (Government of Belgium)	D has been restructured, every effort has been made to ensure it is reader friendly
G-SPM-690	A	16	1	16	46	Section D - need to mention institutional and governance barriers to adaptation, not just socio-economic ones. (Government of UK)	The policy environment is included on page 16 line 27
G-SPM-691	A	16	1	16	2	Proposal : to change the header into "Responding to climate change" (Government of Switzerland)	Header remains unchanged
G-SPM-	A	16	1	16	1	Considering TAR of IPCC WG II, it is suggested to use "adaptation" to replace "responding". This section should focus on current knowledge about adaptation to	The response also includes mitigation so it would be inappropriate to include only

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
692						climate change. (Government of China)	adaptation in the tsection title
G-SPM-693	A	16	1	18	16	There is also a greater need to draw lessons from impacts and adaptation observations for adaptation policies. Research published on Hurricane Katrina and the European Heatwave of 2003 suggests that the impacts of these extreme events were highly unequally distributed accross socio-economic and ethnic groups, and that these groups also had quite differential capacities to adapt (as is noted in the text here). This surely suggests that the policy challenge of dealing with climate change related extreme weather events face a difficult task of establishing measures which take differential impacts and adaptation capacities into consideration. For example, heat wave warnings may work with a part of the population but may not really help the most vulnerable groups such as elderly who are not well and live alone. Other, complementary interventions would be needed to foster their adaptation. The general lesson here is that porfolios of complementary measures are likely to be needed in different areas of adaptation to deal with differential impacts and adaptation capacities. (Government of Finland)	This is dealt with extensively in the ST and the chapters (see 6, 7 and 14). However, space constraints preclude extensive discussion in the SPM.
G-SPM-694	A	16	1			Section D: the whole section seems to have difficulties to address the key topics here. This may be due to the fact that there is no closed community on this topic compared to climate system or climate impact research. There is no clear message for policy makers in this section justifying the term "Summary" (see also comment 1). (Government of Germany)	Every effort has been made to address the key topics pertaining to the response to cliamte change
G-SPM-695	A	16	6	16	13	Introduce a second example from an industrialised country (Government of Switzerland)	Australia and Europe now included
G-SPM-696	A	16	8	16	13	Section D: examples too specific for a general SPM (Government of Germany)	These are illustrative examples
G-SPM-697	A	16	8	16	13	Avoid using country specific examples, aim for a global/regional presentation in this summary. (Government of Finland)	These are illustrative examples
G-SPM-698	A	16	10	16	10	Rather a poor example to show what warmining has had on transport in the Polar regions. One impact of reduced time for ice roads providing annual supplies to arctic communitieshas been to increase the number of vehicles during the time the roads are open. (Government of Canada)	Example removed

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
G-SPM-699	A	16	15	16	16	It is worth noting that some countries have prepared National Adaptation Strategies. Please note, that Finland has submitted as specific comment concerning the Finnish National Adaptation Strategy (for Chapter 12: "National plans are not covered in this section, but are becoming increasingly important (e.g. Finnish examples: Ministry of Agriculture and Forestry, 2005. Finland's National Strategy for Adaptation to Climate Change [Marttila, V., Granholm, H., Laanikari, J., Yrjölä, T., Aalto, A., Heikinheimo, P., Honkatuki, J., Järvinen, H., Liski, J., Merivirta, R. and Paunio, M. (eds)], Helsinki (available in Finnish, 276 pp., Swedish 212 pp. and English, 280 pp.) <a href="http://www.mmm.fi/sopeutumisstrategia/">http://www.mmm.fi/sopeutumisstrategia/</a> " (Government of Finland)	Considered but not incorporated
G-SPM-700	A	16	19	16	22	The statement about high or low adaptive capacity seems to judge ecosystem adaptability in terms of whether the system will remain the same. While individual species may or may not have high adaptive capacity, all ecosystems are highly adaptable even if humans judge the outcome to be negative. It is also meaningless and potentially misleading to compare / contrast adaptive capacity of natural and human systems. None of the determinants of adaptive capacity for human systems are applicable to ecosystems. (Government of Canada)	Text removed
G-SPM-701	A	16	19		19	Replace "industrial sectors" with "human and social systems." (Government of USA)	No longer present in SPM
G-SPM-702	A	16	30	18	17	Find this section has a negative tone. Perhaps it would be worth discussing the benefits of social capital, and comprehensive and integrated planning in enhancing adaptive capacity at all levels. (Government of Canada)	Every effort has been made to balance the tone of section D
G-SPM-703	A	16	32	16	32	Write : "Adaptive capacity can be increased by introducing and co-ordinating adaptation measures ..." (Government of Switzerland)	Text rewritten
G-SPM-704	A	16	32	16	33	the parenthesis "(sometimes termed 'mainstreaming')" should be placed at the end of the sentence, after "international, regional or national level". Rationale: the term mainstreaming is applying not only for the coordination of the adaptation measures but mainly for the integration of these measures into the sectoral and development planning at all levels (Government of Spain)	Text rewritten and (sometimes termed 'mainstreaming') placed at the end of the sentence
G-SPM-705	A	16	33	16	33	the subnational level should also be mentioned, unless the term "regional" used here applies to that. In fact, it seems well established also that the local level is most important for adaptation	Regional does refer to sub-national. Text rewritten

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
						(Government of France)	
G-SPM-706	A	16	33	16	33	Should be reworded to "...planning at the international, national, regional and local levels;..." (Government of Canada)	Text rewritten
G-SPM-707	A	16	34	16	34	Here, reactive adaptation is highlighted as an example of mainstreaming. It would be better to refer to anticipatory adaptation like co-ordinating adaptation measures into land use planning as an efficient means of reducing societies' vulnerabilities. (Government of Finland)	Adaptive capacity and coordination measures are mentioned on line 32 p16 of the previous version of the SPM. In the new version this text has been rewritten. Mainstreaming examples provided on page 18
G-SPM-708	A	16	40	16	42	The sentence "For very large temperature increases, adaptation may not be possible due to technological limitations or excessive cost" might be completely misleading. This is because there are other barriers as well, e.g. for natural ecosystems, for those even with the current temperature increase, it gets difficult for some species in some locations to survive. The example of hurricane Kathrina also demonstrates that in a very high developed country like the US it is not possible to adapt fully sensitive elements of a human system to even current climate change impacts Furthermore, also people prefer already at the current climate impacts to migrate instead of to adapt. Or is migration seen as another form of adaptation? It would be interesting to learn more about that. In light of that the following wording is suggested: The larger the temperature increase, the more difficult or even impossible adaptation becomes. Clearly, we have to learn more about the limits of adaptation of natural and human systems. (Government of Austria)	Text rephrased
G-SPM-709	A	17	0			Water markets would be good to include as adaptation options in table SPM-1. These have particular relevance in the four boxes for Drying/Drought, increased flooding-Agriculture, forestry; Water Supply and are discussed in depth repeatedly in the full report. Drought insurance also has relevance for these boxes. Seasonal forecasts are relevant for adaptation to most of the boxes in the table but are only mentioned for the flooding/water supply, so it would be good to include forecasts in additional boxes. Somewhere in the human health column, add the following: "Improve the capacity to implement existing and new methods to treat and prevent climate-sensitive diseases." One option that should be added (maybe under the warming row and the settlements column) would be the gradual minimization of coastal development in areas that are vulnerable to sea level rise and related phenomena. From Table SPM-1, selection among crop lines for CO2 responsiveness is not	Table removed

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
						mentioned as a possible adaptation option. (Government of USA)	
G-SPM-710	A	17	0			Table SPM-1: It seems strange that insurance is mentioned only as an adaptation option in the context of flooding. However, in Austria (and probably other countries as well) insurance industry offers also some protection in teh case of drought or storms. (Government of Austria)	Table removed
G-SPM-711	A	17	0			Table SPM-1: It is noted that seasonal weather forecast is not mentioned as an adaptation option. However, this might be a very useful option to be better prepared for extreme climatic events. Sesonal weather forecast are already available for some regions and with a stronger research and monitoring efforts it might become practical for more and more regions. (Government of Austria)	Table removed
G-SPM-712	A	17	0			Table SPM-1: It is noted that for some regions other extreme climatic events might be even more relevant in terms of damage to crops or infrastructure (e.g. heavy hail, thunderstorms). (Government of Austria)	Table removed
G-SPM-713	A	17	1	17	47	The exclusion of fisheries from the column on Agriculture and Forestry should be explained. In addition, the authors should consider whether this table could include adaptation measures for the protection of biodiversity against climate change impacts. The inclusion of another column on "un-managed systems" could facilitate this. (Government of Australia)	Table removed
G-SPM-714	A	17	1	17	47	The authors should provide some explanation as to how this table was derived and at what level of climate change the adaptation options included become necessary or cost-effective. (Government of Australia)	Table removed
G-SPM-715	A	17	1			Table SPM 1 Useful to use systems and sectors from Box SPM 1 to give consistency and coherence. (Government of UK)	Table removed
G-SPM-716	A	17				Table SPM-1: Lists of adaptations are not particularly useful - if searching for space, the authors may want to consider deleting this table and adding more text to provide more fulsome statements elsewhere in the SPM. This would free up space to expand the section on page 16, lines 44-46 to discuss factors influencing which response is appropriate for a given place and time. (Government of Canada)	Table removed
G-	A	17				table SPM-1, cell Drought x Water Supply: Replace "Increased storage capacity for	Table removed

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
SPM-717						groundwater" by "Increased groundwater recharge". Rationale: The capacity of the aquifers depends on some geological and geomorphological features and there is no option to increase it. Instead, there are many options to increase the groundwater recharge into the aquifers as an adaptation measure (Government of Spain)	
G-SPM-718	A	17				SPM-1 Table Column Human health and Drought: What indigenous knowledge could be used and in which area? In Column Settlement/other and Warming: Investment in snow making equipment is not sustainable. New attractions have to be planned for tourists, not skiing at any cost, when there is no snow! (Government of Finland)	Table removed
G-SPM-719	A	17				In row 4 column 1 of Table SPM-1, "wind speed" is not appropriate to describe the natural disaster and is hard to project. It is better to use "strong wind". (Government of China)	Table removed
G-SPM-720	A	17				In line 'Warming' last column (Settlement/Others) is as an adaptation option for tourism 'investment in snow-making equipment' mentioned. Because of the ecological impacts of artificial snow-making on the mountain environments, more emphasis should be laid on 'development of alternative tourism concepts responding to decrease in snow availability'. (Government of Germany)	Table removed
G-SPM-721	A	17				Comment: Table SPM-1: How about climate warming and eutrophication effects on water systems and supplies? Is it likely that in some regions problems linked to eutrophication will increase as the climate warming proceeds? (if it does, effects on fishery, recreational activities, water supplies can be substantial; it should be mentioned briefly) (Government of Finland)	Table removed
G-SPM-722	A	17				Comment Table SPM-1: Are seed banks for cultivators and wild plants a realistic adaptation option? (in general, is there any knowledge to what extent seed banks could sustain the plant biodiversity); some mentioning could be made here (Government of Finland)	Table removed
G-SPM-723	A	18	2	18	2	The use of the word cognitive is odd in this context as it appears that the intent is to say that people may not know how to respond to the information. (Government of Canada)	Cognitive removed
G-SPM-724	A	18	2	18	2	A definition of "cognitive limits" is necessary. (Government of Australia)	Cognitive removed
G-SPM-	A	18	2			Substitute "constraints" for "limits" "Informational and cognitive limits are currently the most severe." No support for	We now use both 'barriers' and 'limits', because the literature supports the existence of

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
725						this statement in the underlying chapter.  (Government of USA)	limits. The text beginning 'informational and cognitive limits' has been removed.
G-SPM-726	A	18	2			page 18 line 2. 'The statement that informational and cognitive limits are currently the most severe (for adaptation) is a most interesting one that needs to be further developed both in the text and in the Table SPM 1 Some adaptation options. In that Table a main measure related to these limits are information campaigns, a measure that is known to be slow in changing behaviour, if any effect at all is achieved. It is of substantial importance that IPCC strengthen their arguments here and that a more innovate approach is used than now. One gets the impression that issues such as cognitive and informational ones are so far not dealt with in the same authoritative manner as issues related to the natural sciences.  (Government of Sweden)	Table 1 and 'Cognitive' have been removed
G-SPM-727	A	18	6	18	17	The discussion of the costs of adaptive strategies at section 17.2.3 highlights the uncertainties inherent in assessments of costs. The provision of such specific examples in the SPM implies a certainty is such assessments that is misleading. Suggest the deletion of the two dot point examples.  (Government of Australia)	Examples are given based on the information available. The new SPM states what the uncertainties are. The two examples have been removed
G-SPM-728	A	18	6	18	6	The authors should explain "less" than what is known about the costs and benefits of different adaptive strategies.  (Government of Australia)	Unclear what this means
G-SPM-729	A	18	8	18	9	Insert "for some" behind "higher latitudes" and "for most" behind "lower latitudes".  (European Union)	Not clear what section of the text this refers to
G-SPM-730	A	18	9	18	12	Costs of protection against sea level rise should be clarified with regard to the time horizon covered, the assumed emissions scenario and the associated average (global) sea level rise. Assuming that the figure of 0.2%GDP relates to figure 17.2 it has to mentioned that this study only examined sea level rise by 2080. There is no indication of the expected sea level rise. Also the much more relevant issue of damage by storm surges has not been considered in those studies. Therefore their relevance seems to be quite limited and it is proposed not to include such misleading figure in the SPM at all.  (Government of Austria)	Example removed
G-SPM-731	A	18	9			less than 0.2% GDP' as an estimate of costs of protection against sea level rise ist too rough to reflect the real national situations. Unless there is a wide range of factors influencing this estimate which differ from country to country (GDP per capita, affected area...), the costs	Example removed

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
						should be described better as a range specified by examples for single countries. (Government of Germany)	
G-SPM-732	A	18	13	18	16	This statement (with it's quantifications) is difficult to understand. Rephrase it in such a way that it is very clear to all readers what these numbers refer to. (European Union)	Example removed
G-SPM-733	A	18	13		16	How significant (in a practical sense) are these changes? Should we care? Are there other non-climate factors which are much more important? (Government of USA)	Text removed.
G-SPM-734	A	18	18	18	29	The title sentence of this part should be "Impacts can be reduced or delayed by adaptation". "Emission control" should be discussed in the report of WG III. (Government of China)	Impacts assessments have been carried out based on stabilisation scenarios so it is valid to include these in the WG2 assessment
G-SPM-735	A	18	18	18	29	It would be very relevant to inform the reader about a.) the assumptions with regard to emissions of other GHGs, b) the likelihood of stabilisation at the levels indicated, e.g. building on the recent energy scenarios prepared by the IEA, and taking into consideration the current trend on increase in CO2 concentration (1.8 ppm per year or (given the inertia of the energy system) 18 ppm per decade. (Government of Austria)	On the whole, stabilisation scenarios are based on CO2 concentration
G-SPM-736	A	18	20	18	21	Why is this sentence in italics ? Are they part of the SPM or will they not be part of the final version of the SPM ? (Government of Switzerland)	Italics have been removed
G-SPM-737	A	18	23	18	29	There are two problems with this text. Firstly, because impacts are dependant on an increase in temperature, the linking concentration of CO2 with impacts is misleading and rather incorrect. We recommend that the temperatures at which the impacts will potentially occur be listed here. Further, it is critical that the writers ensure that stabilization levels, and temperatures all be consistent with the assessment of climate sensitivity in WG1. Otherwise the references to stabilization should be deleted. (Government of Japan)	Temperatures related to CO2 concentrations are provided in Table 1
G-SPM-738	A	18	23	18	23	The authors should make it clear that stabilisation refers to "stabilisation of atmospheric concentrations of GHGs" and should explain for what concentration this refers to. (Government of Australia)	It is clear in the text p18, lines 18-19 that these scenarios relate to atmospheric concentrations of GHGs
G-SPM-739	A	18	23	18	29	Suggest linking this section to the emissions profiles used in figure SPM-3 on page 8. (Government of Canada)	Table SPM-1 is referred to in this section
G-SPM-	A	18	23	18	29	It is not clear whether these stabilisation levels should be regarded as CO2 only or equivalent CO2, even with the footnote (experts would probably conclude that it	Table SPM-1 includes both CO2 and CO2 equivalent. Text has been rewritten

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
740						means equivalent CO2, but others would think that these are pure CO2 sbabilization levels). The references provide little evidence for this summary : T20.4 is only for one study, with limited account for uncertainties. Section 18.4.3 is questionable (it is mainly refers to the lower impact estimates and conflicts with parts of chapter 20). It may be more clear to link impacts with pre-industrial temperatures rather than concentrations. (Government of Belgium)	substantially
G-SPM-741	A	18	23	18	23	Error in the text? Please verify whether the year is 2200 or 2100. (Government of India)	Text removed
G-SPM-742	A	18	23	18	29	As such these bullet points are not helpful. They include huge generalisations of complex issues, leaving out the fact that for many the 450 ppm CO2 [that could lead to exceedind 2,7 degrees warming from pre-industrial levels, see chapter 19, page 3, lines 34 - 37] can already bring serious wealfare problems, depending on e.g. the climate sensitivity along with many other factors. As it is a summary for policy makers, it should also be explained what 450 ppm CO2 would approximately mean in CO2 equivalents. (Government of Finland)	Text substantially rewritten
G-SPM-743	A	18	23		29	These comments are not precise, do not use confidence levels, and are better suited to the WG III SPM. They make sweeping generalities that do little to prove the point of the heading and are not contained in the referenced chapters. Please verify that these bullets are supported in the underlying chapters and change or delete accordingly. (Government of USA)	Text removed
G-SPM-744	A	18	23		29	As a reference point, give the pre-industrial concentrations and current concentrations of GHGs in the atmosphere. (Government of USA)	Text removed
G-SPM-745	A	18	23			2200? Should it be 2100? If not, the cross-walk to WG3, Ch.3 2100 stabilization discussions will be complicated. (Government of USA)	Text removed.
G-SPM-746	A	18	25	18	29	Given the uncertainty with regard to climate sensitivity it is proposed to include the assumptions with regard to the temperature increase associated with the stabilisation levels. It should also be clarified what the major impacts on human welfare are that are associated with the stabilisation levels below 450 ppm and at 550 ppm. In addition any assumptions with regard to GHG concentrations of non-CO2 gases should be included. In making the asumptions with regard to non-CO2 GHG gases more transparent it is suggested to relate the stabilisation levels	This text has been removed.

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
						investigated to current levels of total GHG concentration. (Government of Austria)	
G-SPM-747	A	18	25	18	29	Delete "major impact" replace with "the most severe impacts". (Government of Australia)	'major impact' no longer used in SPM
G-SPM-748	A	18	25		25	Major impact – What is a “major impact”? (Government of USA)	'major impact' no longer used in SPM
G-SPM-749	A	18	31	18	44	Some parts in Chapter 18 are not written consistent with the authorized outline. There is no enough description about adaption. The relationship between adaptation and mitigation hasn't been described properly. (Government of China)	Noted
G-SPM-750	A	18	31	18	50	Need to include in this section something about how measures can be complementary but can also create a negative feedback. For example, adaptive strategies to provide air conditioning for sensitive populations could produce increased GHG emissions from power generation, unless mitigative strategies are undertaken to reduce the carbon intensity of power generation. (Government of Canada)	We tried this but in the end this text was removed as not being sufficiently insightful. Given space constariants there are other messages which are considered more important. No action.
G-SPM-751	A	18	31	18	32	Change bolded title to: Adaptation and mitigation are both required to alleviate the impacts of climate change. (Government of Canada)	Title has been changed to ‘A portfolio of adaptation and mitigation measures can further diminish the risks associated with climate change
G-SPM-752	A	18	31		32	Modify the heading to read as follows: “Over the long term, both adaptation and mitigation are needed to fashion a comprehensive approach to dealing with climate change.” As lines 41 through 42 note, in the near term the effects of mitigation will be minimal. (Government of USA)	Headline removed and replaced by one which talks of the need for a portfolio of adaptation and mitigation measures.
G-SPM-753	A	18	31			delete "potentially". (European Union)	Title has been changed to ‘A portfolio of adaptation and mitigation measures can further diminish the risks associated with climate change
G-SPM-754	A	18	34	18	35	this statement is not substantiated by any demonstration; adaptation and mitigation actions are usually very independent, and sometimes in conflict or in synergy. It would be more proper to say: "Adaptation and mitigation efforts are complementary" (Government of France)	Text removed
G-	A	18	34	18	35	This statement is inconsistent with the main text. It suggests that adaptation and	Text removed

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
SPM-755						mitigation must always be implemented together, while there are only few cases (in land and water management) where this is possible. Generally, the efforts are separated (in different sectors, by different actors), so the emphasis should be on the complementarity, not on the integration (as correctly described in the associated chapter). (European Union)	
G-SPM-756	A	18	34	18	34	The sentence should be replaced by - "Both adaptation and mitigation help to reduce the adverse impacts of climate change:" (Government of India)	Replacement text: Adaptation and mitigation are complementary strategies to reduce impacts
G-SPM-757	A	18	34	18	44	Adaptive means reduce vulnerability towards today's extreme weather events, too. Many means are thus beneficial regardless whether mitigative actions take place or prove effective in the future (as mentioned in 17.2.1). This should be brought up. (Government of Finland)	Text rewritten substantially
G-SPM-758	A	18	34		34	"Applied together" could be misinterpreted to imply that mitigation and adaptation should always be applied together at all locations. (Government of USA)	Phrase removed.
G-SPM-759	A	18	36	18	37	Ideally, adaptation should reduce vulnerability over the long-term as well. (Government of Canada)	
G-SPM-760	A	18	36	18	37	Adaption strategies can also reduce vulnerability to climate changes over long time scales. Therefore, suggest to delete "over short time scales". (Government of China)	Text rewritten substantially
G-SPM-761	A	18	37	18	37	the terms "over short time scales" are not clear; in fact adaptation reduces vulnerability as soon as implemented, but the risk itself is not usually at short time scale, unless we are talking about adaptation to climate variability; we suggest to clarify this sentence. (Government of France)	Text rewritten substantially
G-SPM-762	A	18	37			Because the impact is unlikely to be singular, add "s" to "impact" to read "...thus reducing the impacts..." (Government of New Zealand )	Text rewritten substantially
G-SPM-763	A	18	39	18	40	Both adaption and mitigation can delay the date of impact and its magnitude. So, "and thus delaying the date of impact and its magnitude" should be deleted. (Government of China)	Text rewritten substantially
G-SPM-764	A	18	39			Unlikely that the date of impacts will be known, and because the impact is unlikely to be singular, suggest rewording as follows "...and thus delaying the timing of impacts and their magnitude" (Government of New Zealand )	Text rewritten substantially

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
G-SPM-765	A	18	41	18	42	The SPM should highlight the point; adaptation is needed in the coming decades despite the successes of mitigation (Government of Finland)	Done
G-SPM-766	A	18	41	18	42	If this sentence refers to the effects of mitigation measures on the climate system, it may be somehow true. But it should be taken into account the fact that mitigation measures will have immediate positive effects from many points of view. One among many examples : introducing sustainable transport will reduce greenhouse gas emissions, local pollution, noise, soil use, dependence on import from fossil fuel, etc. (Government of Switzerland)	But due to the inertia of the climate system a reduced rate of temperature increase will not emerge for several decades
G-SPM-767	A	18	43		44	This is only true for some sectors and some variables. (Government of USA)	Rephrased, but with sufficient warning this statement must be true.
G-SPM-768	A	18	46	18	46	Change "is likely to be able effectively to" to "can effectively". (European Union)	Text rewritten substantially
G-SPM-769	A	18	46	18	50	A key point is missing here: probably the main link between adaptation and mitigation is through the determinants of (adaptive and mitigative) response capacity and the associated development pathways (European Union)	We discuss development pathway on page 17, and hence, as you say, the determinants of adaptive and mitigative response. Moreover, determinants are surely implicit throughout the SPM.
G-SPM-770	A	18	47	18	47	The sentence "But together they can" implies that mitigation and adaptation together can eliminate all the impacts of climate change. While it is correct that both strategies are required in an effective response to climate change, it is likely that some impacts from climate change are inevitable. Suggest deletion of "But together they can" replace with "But together they have the potential to alleviate the majority of the impacts of climate change on systems and sectors". (Government of Australia)	Text rewritten substantially
G-SPM-771	A	18	47			"But together they can." This is currently not supported in Chapter 18. (Government of USA)	Sentence removed.
G-SPM-772	A	19	1	19	28	Suggest reducing the size of section E to more accurately reflect its treatment in the WG2 report (i.e. one small chapter). At the least delete dot point 2 as this implies a certainty in the estimates of the social cost of carbon, that does not currently exist. (Government of Australia)	Section E incorporated into the rest of the SPM. Clarification of the uncertainties surrounding SCC has been included in the text on p19
G-	A	19	1	19	28	Again, not sure how to comment on this section dealing with Sustainable	This text has been moved to Section D p18.

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
SPM-773						Development. Comments can take two directions and I am not sure which is the best way to comment. For example, one could argue that the whether or not the Millennium Development Goals are met is a separate issue from climate change issues. The World Food Summit set the MDG targets in 1996 with 2015 set as their target 'achievement' date. It may seem odd to some policy makers to have this text put here and because of its irrelevance may suggest that this point, as others in this section be deleted. (Government of Japan)	The text states that the achievement of the MDGs will very likely be impeded by climate change over the next 50 years
G-SPM-774	A	19	1			Section E: This part seems to be too little elaborated especially for such an important topic as sustainability in an SPM (see also comment 1). (Government of Germany)	Section E incorporated into the rest of the SPM.
G-SPM-775	A	19	2	19	2	Proposal : to change the header into "Climate change and sustainable development" (Government of Switzerland)	Section E incorporated into the rest of the SPM.
G-SPM-776	A	19	2		28	This section is very weak and not justified for inclusion as its own section if one follows the sections in the main document. The first bullet is covered adequately by page 7 and Fig 3. And in the impacts statement, the second bullet needs more context to be meaningful; the third, fourth and fifth bullets easily fit in the adaptation section. (Government of USA)	Completely rewritten
G-SPM-777	A	19	4	19	5	Section E: What is meant by this sentence? (Government of Germany)	Section E incorporated into the rest of the SPM.
G-SPM-778	A	19	4		18	This material seems to fit better under Sec. C of the SPM. This is very impacts-oriented language. (Government of USA)	Completely rewritten
G-SPM-779	A	19	7	19	8	We question that the impact on higher latitudes are (solely) positive, and would ask the authors to consider a more balanced statement. (The same might possibly be true for the statement regarding lower latitudes. Amending the sentence to "...mixed - GENERALLY positive at higher..." might solve this.) (Government of Norway)	Text has been removed
G-SPM-780	A	19	7	19	8	This sentences seems to be too much generalized. There will be also regions in the higher latitudes with negative influences. This sentences is contradictionary to the title p.19 line 4. (Government of Germany)	Text removed
G-SPM-	A	19	7	19	10	The text refers to "net global effect". This is an inappropriate use of terminology; in this context it is rather abstract and seems to lack scientific basis as a scientific	Text removed

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
781						assessment. We recommend that concrete data based on scientific evidence and assessments replace the text in this section. (Government of Japan)	
G-SPM-782	A	19	7	19	10	It would be very relevant to inform the reader about a.) the emissions reductions necessary to keep the increase of global mean temperature below 2 degrees Centigrade, b.) the potential of technologies to allow for so-called overshooting scenarios in order to broaden the range of emission scenarios that allow to achieve that temperature goal. (Government of Austria)	Text removed
G-SPM-783	A	19	7	19	10	Given the uncertainty with regard to our knowledge of climate impacts a more cautious approach seems to be more appropriate with regard to the positive effects of global mean temperature changes up to 2oC at higher latitudes. The uncertainties relate to the poor understanding of second and third order impacts, the poor understanding of the linkage between extreme weather events and climate change but the high negative impacts associated with extreme weather events and the trend of doubling of damage due to extreme weather events every 10 years. This could lead to costs in the range of more than 1 trillion US\$ per year 2050 respectively before temperature increase of 2 degrees Centigrade has been reached. It seems unlikely that positive impacts of climate change can compensate such significant damage. (Government of Austria)	Text removed
G-SPM-784	A	19	7	19	7	Addition to text : "The NET impacts of global mean temperature changes....". (Government of Canada)	Text removed
G-SPM-785	A	19	8	19	8	How high are the high latitudes at which climate change impacts will be positive? Furthermore, this paragraph needs to be consistent with the impression given in SPM-5. (Government of Canada)	Text removed. Figure removed
G-SPM-786	A	19	8	19	10	Based on Figure 5.2 and Table 19.2, there still exists uncertainty about "the net global effect of global temperature increases 2-3°C above pre-industrial levels" in some aspects. Some effects are positive. Suggest to replace "negative" with "both positive and negative" and indicate the scientific understanding level. (Government of China)	Text removed
G-SPM-787	A	19	12	19	14	This bullet would benefit from a fuller discussion including the uncertainty issues, since it is a new concept being introduced for the first time in the SPM. (Government of Canada)	Provided now on p19
G-	A	19	12	19	14	There is a great deal of uncertainty about the estimates of the social costs of carbon	Further information provided now on p19

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
SPM-788						according to relevant chapter. Most relevant descriptions in Chapter 20 are from only one paper. Such information shouldn't be provide to policymakers in order to avoid misunderstanding. It is suggested that this bullet should be deleted. (Government of China)	
G-SPM-789	A	19	12	19	14	The standard deviation reported is so high that it shrouds the damages. It would convey high probability of net positive impacts. It is important to specify the probability distribution, else it may be assumed to be akin to Normal Distribution and this can convey significant positive impacts. Skewness of distribution should be mentioned, though in policy language. (Government of India)	This would be too technical. We have tried to improve the discussion of the SCC, but the fact remains that some estimates are negative (although small).
G-SPM-790	A	19	12	19	14	The chapter 20.6.2 provides a more complex picture of the range of estimations for the costs, and not only for carbon emissions but also for other anthropogenic greenhouse gases. The sentences as they are do not reflect this comlexity. Therefore it should be possible to deal with the social cost of emitted carbon in more nuanced ways. (Government of Switzerland)	Text has been totally rewritten
G-SPM-791	A	19	12	19	14	The authors present a discussion of the social costs of carbon (SCC), based in reviewing specific monetary findings of SCC from a range of literature. The utility of this discussion needs to be carefully considered due to the huge range in the findings presented for SCC, (+US\$10 to -US\$350 per tonne of carbon). It is also noted that other ranges of SCC span US\$1 to -US\$1500 per tonne of carbon. If the authors cannot agree on a smaller range, the use of specific figures should be carefully considered. Policy makers could confuse estimates of the social cost of carbon with estimates of the price that would be needed to be applied to carbon to generate certain outcomes (eg. deployment of renewable energy). The basic message that should be reported in the SPM is that the cost of mitigation of climate change is probably significantly lower than costs to society of inaction, this message is not clearly presented. The definition of the 'social cost' of carbon needs to be clearly explained in the summary for policy makers. (Government of Australia)	Text has been totally rewritten
G-SPM-792	A	19	12	19	12	Shouldn't Social Cost of Carbon be written with captitols (as in footnote 9 on the same page)? Or should it be written without captitols in the footnote? (Government of Netherlands)	Phrase removed from SPM
G-SPM-793	A	19	12	19	14	Are the estimates sufficiently normally distributed (i.e., is standard deviation a good measure for their spread)? (Government of Sweden)	No, but it is the only measure available from the literature.
G-	A	19	12	19	14	Policy-makers may have difficulty in understanding the meaning of "mean" and	Noted

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
SPM-794						"standard deviation" in this sentence. In particular, standard deviation greater than mean is somewhat counter-intuitive. More explanation will be needed. (Government of Japan)	
G-SPM-795	A	19	13	19	14	Social cost of carbon quoted as mean (\$43/tonne) and standard deviation (\$83/tonne). If the s.d. has been estimated assuming a normal distribution, then the implication is that some of the estimates were negative (less than \$0). Authors may wish to review the statistical basis by which the mean and s.d. are estimated, and quote a suitable mean/mode/median value, and a range that better represents the asymmetric distribution of underlying estimates. Values quoted in the SPM differ from those in the TS (see below, 6) (Government of UK)	Text has been revised. Should now be consistency between SPM and TS. Some estimates of the SCC give a (small) negative value.
G-SPM-796	A	19	16	19	16	It is proposed to qualify the impacts of climate change by introducing the words "to human systems" after "climate change" in order to improve the clarity of the text. (Government of Austria)	Section E incorporated into the rest of the SPM.
G-SPM-797	A	19	16	19	18	Given the importance of climate change interaction with other stresses as per the first sections, this issue warrants more elaboration than found in lines 16-18. (Government of Canada)	Section E incorporated into the rest of the SPM. See p16
G-SPM-798	A	19	16		18	The wording in the first sentence is confusing. Suggest: "Multiple stresses can exacerbate the effects of climate change". In reference to Fig SPM-6: While we understand that this figure illustrates the point made in the bullet and may be an excellent example of multiple stress mapping, it is the only instance where a specific country has been highlighted in the SPM. Is there a figure that illustrates the global context? If not, consider deleting the figure. It is particularly odd coming at the very end of the SPM.  (Government of USA)	Text completely rewritten – see page 16 lines 39-40 on new SPM draft.
G-SPM-799	A	19	18			Add: Figure SPM 6 - an example from India (Government of Finland)	Figure removed
G-SPM-800	A	19	20	19	22	Given the uncertainty related to the possible impacts of climate change on the Amazon forests, the likely decline of the glaciers in South America (like in most other regions worldwide) and the associated impacts on the water system there are significant doubts that achievement of the Millennium Development Goals should not also be challenged in South America. The same likely is true for Central America due to the significant climate impact on hurricanes (shift to more severe hurricanes). (Government of Austria)	Not sure what is wanted here

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
G-SPM-801	A	19	20		22	We question whether a discussion of the Millenium Development Goals is appropriate here. Chapter 20 does not currently justify this level of emphasis on any particular development goal. (Government of USA)	MDGs now only briefly mentioned – see page 18 lines 13-14 in new SPM draft.
G-SPM-802	A	19	20		28	See chapter comments to provide more comprehensive insights on sustainability. (Government of USA)	Noted
G-SPM-803	A	19	24	19	28	The current wording is ambiguous and unclear. Therefore it is proposed to substitute it by the much clearer wording of the Executive Summary of chapter 20 as follows: Sustainable development can encourage adaptation to climate change, increase adaptive capacity, and vice versa. Significant synergies could be exploited if progress were made in bringing climate change to the development community and critical development issues to the climate change community. (Government of Austria)	Text has been expanded and clarified on page 18
G-SPM-804	A	19	28	19	28	Add a sentence “Cost of adopting sustainable development path needs to be understood, particularly from the perspective of developing countries” (Government of India)	Text rewritten substantially
G-SPM-805	A	19				Chapter needs to be better elaborated and might be enlarged by addressing the points presented in column "Sustainable Development" of Fig. SPM-3 on page 8. (Government of Germany)	Text rewritten substantially
G-SPM-806	A	20	1	20	17	The authors should consider whether the inclusion of a full page on impacts in the context of existing vulnerabilities to India, is an appropriate use of space in the SPM. This figure is reproduced in the TS as well. (Government of Australia)	Figure removed
G-SPM-807	A	20	1	20	17	Figure SPM-6. Suggest showing on the map the place names mentioned in the caption; conversely, the places names that are displayed are not discussed in the caption. (Government of Canada)	Figure removed
G-SPM-808	A	20	1			The legend on SPM-6 needs to indicate what exactly is being classified as highest-lowest etc. Also, there are labels pointing to districts on the map which are not referred to in the text. These should be removed. (Government of Ireland)	Figure removed
G-SPM-809	A	20	4	20	4	Figure title to include: "Climate impacts AND ADAPTIVE CAPACITY in the context of other stresses." The figure describes a combination of both impacts and ability to adapt. (Government of Canada)	Figure removed
G-	A	20	4	20	4	Comment: Fig SPM-6; change Figure text in the following manner: "Example of	Figure removed

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
SPM-810						climate impacts in the context of other stresses (India). Districts that rank highest..." (Government of Finland)	
G-SPM-811	A	20	5		5	Globalization vulnerability – Is this defined somewhere? (Government of USA)	Figure removed
G-SPM-812	A	20	15	20	17	The part of the sentence starting with "(Except in the state of Bihar), and lower capacity.....and Karnataka." should be deleted. (Government of India)	Figure removed
G-SPM-813	A	20		20		Figure SPM 6 Avoid using country specific examples, aim for a global/regional presentation in this summary. (Government of Finland)	Figure removed
G-SPM-814	A	20				Figure SPM-6: Please develop the legend: double exposed to what? For the balloons, it would be more illustrative to add impacts/exposure instead of the names of places. Consider also splitting the text into paragraphs to increase clarity and readability. Line 9-11 add for example, as the lists are not comprehensive. (Government of Finland)	Figure removed
G-SPM-815	A	20				Figure SPM-6, Why three places (Jhalawar, Anantapur, Chitradunga) are signed separately? Please explain; If you do not know beforehand the geography of India, it is a bit hard to interpret the legends (location of Indo-Gangetic Plains and different states), states could be named in the figure. (Government of Finland)	Figure removed
G-SPM-816	A	21	1	21	1	Will also the reports from WG 1 and 3 contain such and appendix ? If the answer is yes, the the definition of key terms must be the same (Government of Switzerland)	No.
G-SPM-817	A	21	8	21	27	These are very useful definitions (Government of New Zealand )	Noted
G-SPM-818	A	21	8	21	9	In the definition of climate change should be implicated the extremes as an important and characteristic parameter of climate. (Government of Germany)	This is not the standard IPCC definition
G-SPM-819	A	21	8		27	There should be a definition for "climate variability". It's not clear whether "climate variability" includes variability under current climate or only under conditions of climate change. Need an explicit statement on this matter. Note that this is but one of many terms that require definition up front in the SPM (i.e., not just in the glossary). (Government of USA)	The definitions have been restricted to the minimum possible set, and are generally reproduced exactly from the TAR, in order not to expend much time agreeing them in the line by line approval.

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
G-SPM-820	A	21	13	21	13	Presumably the UNFCCC definition is the one used for this report. If so state so. "The UNFCCC definition of climate change is used for this report." (Government of Canada)	The UNFCCC definition of climate change is not used. The IPCC definition is given in Endbox 1
G-SPM-821	A	21	35	21	35	abbreviation NGO, please explain it (Government of Finland)	NGO no longer in the SPM
G-SPM-822	A	21	49	21	49	Comment: use abbreviation Res instead of review editors (Government of Finland)	Text removed
G-SPM-823	A	22	0			Add and apply the qualitative scale from the UGN, e.g. for issues for which there is disagreement and/or little evidence. (European Union)	Considered but not incorporated
G-SPM-824	A	22	12	22	12	"elicitation of expert views"...please simplify the wording (Government of Canada)	Text removed
G-SPM-825	A	22	27	22	27	In the various chapters, as well ? (Government of France)	Yes, in the chapters also
G-SPM-826	A	22	27		28	There should be an explicit statement noting that the confidence levels in this document have not necessarily been reviewed or endorsed by the experts and governments that have reviewed this document. Alternatively, the precise (rather than the general) methodology and procedure for each confidence level should be forwarded to all reviewers and sufficient time allotted for a detailed review. Confidence levels appear to be applied inconsistently. (Government of USA)	The confidence and likelihood language is that of the IPCC Guidance Note (referenced in the Technical Summary).
G-SPM-827	A	22	29	22	29	Replace "Degree of confidence in being correct" by "Degree of confidence in the current knowledge or modelisation" or alternatively by " Minimum degree of confidence in being correct". Figure SPM 3 illustrates the point : low confidence is attributed to the statement "global production potential decreases" for a 3 to 4 ° temperature increase. This should not be understood as we have high confidence that global pp will not decrease, although this would be implied by the statement there are 2 changes out of 10 that pp decreases. In other words, we have low confidence in the model, but even if the model is wrong, its projection might turn out to be right. (Government of France)	Text rephrased
G-SPM-	A	22				Explanation for the abbreviations used could be added to Appendix 1. The description of the scenarios A1FI, A2 and B2 would be useful.	There is a dexcription of SRES in Endbox 3

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

Chapter-Comment	Batch	From Page	From Line	To Page	To line	Comments	Notes of the writing team
828						(Government of Finland)	

**LATE COMMENTS**

G-SPM-1	LATE					There is a limited used of the concepts of likelihood in the SPM, particularly, when the timing of impacts is discussed. Considering the projection from the First Assesment Report, can something be said in terms of what was projected then and what has occurred until now? The summary looks more for South America than for Latin America (Government of Mexico)	Now used consistently throughtout the SPM
G-SPM-2	LATE	5	40	5	42	Evidence of climate impacts on morbidity and mortality caused by vector-borne diseases, such as dengue and malaria, could also be mentioned. These are among the most important health effects in some regions. (Government of Mexico)	Are now mentioned in section B and C
G-SPM-3	LATE	5	47	5	47	It is not clear what is meant by the phrase "increases in exposed value". (Government of Mexico)	This paragraph has been removed
G-SPM-4	LATE	7	31	7	36	Some information (including its uncertainty should be given in relation to the timing of the projected impacts, according to the emissions scenario. (Government of Mexico)	Further information regarding timing of events can be found in Tables 1 and 2 and the underlying chapters
G-SPM-5	LATE	8	5	8	5	Suggestion to change phrase from "Some global impacts projected for global temperature changes ..." to " Possible global impacts associated to projected global temperature changes ..." (Government of Mexico)	Figure removed
G-SPM-6	LATE	9	22	9	22	Is it possible to provide maps with projections for the regions at risk, as presented by Columbia University <a href="http://ciesin.columbia.edu/data/climate/maps.html">http://ciesin.columbia.edu/data/climate/maps.html</a> (Government of Mexico)	Considered but not incorporated
G-SPM-7	LATE	9	23	9	36	Is it possible to add low-lying coastal areas to the regions most at risk (Government of Mexico)	Yes and this has been done on p15
G-SPM-8	LATE	10	6	10	6	Suggestion to change term from "hot summer" to " heat waves". (Government of Mexico)	Text removed
G-SPM-9	LATE	10	7	10	7	What is the time frame in which vulnerability is expected to surpass critical leveles? Can something be said at regional levels? (Government of Mexico)	Tables SPM-1 and SPM-2 have been added to address this.
G-SPM-	LATE	10	10	10	11	Suggestion to delete or re-phrase "or weakened by over-exploitation". It is unclear	Text removed

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

10						what this means, and it sounds too loaded. (Government of Mexico)	
G-SPM-11	LATE	10	18	10	19	"to estimate the severity of projected impacts across..." sounds alarmist. I suggest to re-phrase to " to estimate possible impacts across..." (Government of Mexico)	Text removed
G-SPM-12	LATE	11	1	11	1	Experts should have an estimate of the impacts of CC on subsistence agriculture, based on their experience and some studies, particularly for Mesoamerica. Subsistence agriculture is practiced by millions in the region. Something should be said. (Government of Mexico)	Figure removed
G-SPM-13	LATE	11	5	11	6	Phrase "assume that climate changes have not been significantly reduced by emissions reductions" is vague. (Government of Mexico)	Figure removed
G-SPM-14	LATE	12	6	12	6	Suggestion to change "simulation of precipitation change by climate models remains uncertain" to "precipitation change, as simulated by climate models, remains uncertain". (Government of Mexico)	Box removed
G-SPM-15	LATE	12	6	12	6	WG I is proposing that at the regional level, dry regions will be drier and wet regions will be wetter. Can experts at WG II match their statements with this one from WGI? (Government of Mexico)	Box removed
G-SPM-16	LATE	13	7	13	7	it should be ...the Caribbean and the Río de la Plata" (Government of Mexico)	Box removed
G-SPM-17	LATE	13	18	13	19	Suggestion to change the phrase "flood protection costing three times more ..." to "necessary flood protection investment being three times higher...", if this is what is meant in this phrase. (Government of Mexico)	
G-SPM-18	LATE	13	26	13	26	Suggestion to change "several percent" to "a small percentage". (Government of Mexico)	Box removed
G-SPM-19	LATE	14	21	14	21	ha2 (Government of Mexico)	Box removed
G-SPM-20	LATE	15	1	15	13	Nothing for the summary on adaptation in Latin America? Use TS, pag. 35, also other examples like: Mexican ENSO early warning system [C13.P16.L41]; Caribbean and Mesoamerican multiple assesment [C13.P17.L1-4]; Mexico crop diversification [C13,P17.L37-40]; Small farmers and cattle [C13, P17.L43-47]; Natural forest conservation [C13, P18,L6-13; risk communication [C13.P19.L30-33]; (Government of Mexico)	Box removed
G-SPM-21	LATE	15	2	15	2	Is current knowledge on vulnerability so precise that it can be said "after the 2010", "2025" or "2055"? Where are the concepts of likelihood being used in this summary of projected impacts? (Government of Mexico)	Box removed

**IPCC WGII AR4 SOD \*GOVERNMENT\* Review Comments**

G-SPM-22	LATE	15	31	15	44	Nothing for the summary on Antarctic? Several sentence examples in TS usable, or short sentences in the Chap. 15 Executive summary. (Government of Mexico)	Box removed
G-SPM-23	LATE	18	47	18	47	Phrase "But together they can" gives the impression that there is absolute certainty. Suuggestion to change to "But together they have better chances of achieving that" or something along those lines. (Government of Mexico)	Text removed
G-SPM-24	LATE	18	49	18	49	Suggestion to add the word potential, to reflect the title of the section, and sound less policy-prescriptive. It would read: "This suggests the potential value of a portfolio..." (Government of Mexico)	Portfolio added to bold statement