Comment ID	From Page	From Line	To Page	To Line	Comment	Response
17948	0	0	0	0	Consider reversing the color scale of the ocean pH map, such that increased acidity (lower pH) is red [Gwenaelle GREMION, Canada]	Noted. Colour scales are provided by TSU. We will adapt these colours as soon as we receive indications.
53872	0	0	0	0	Is there a method for the user to visualize whether the models have reasonably represented that variable in that location in the past? The entire plume could be misleading if it has not been able to represent that variable in the past. [Erin Coughlan de Perez, United States of America]	Accepted. Comparison of simulations with observations is improved in the SOD.
53874	0	0	0	0	Can you also make it possible for the user to visualize climatology of the location, so they can gauge the relative importance of a variable? Right now, it is not clear when the plume is meaningful - if you are looking at the dry season or the wet season it shows a relative anomaly, without indicating that in the dry season this anomaly is bounded by 0 and not very meaningful anyway unless it relates to a late/early start of the wet season? [Erin Coughlan de Perez, United States of America]	Accepted. Observations are included in the SOD.
53880	0	0	0	0	Would it be possible to include the plots from Chapter 11 about dynamical and thermodynamic contribution to changes in extremes in the Atlas? [Erin Coughlan de Perez, United States of America]	Taken into account. Internal Atlas discussions and with Ch 11 concluded that though some information duplication was helpful this was too detailed to add to the synthesis of extremes in the Atlas regional sections.
53882	0	0	0	0	Policy makers are consistently asking how today's climate is different than the climate of the past. Can the interactive atlas allow users to visualize the observational record, with information about different trends and their decomposition by timescale for different places? For example, something simpler than the IRI timescales maproom: https://iridl.ldeo.columbia.edu/maproom/Global/Time_Scales/precipitation.html [Erin Coughlan de Perez, United States of America]	Accepted. Observations are included in the SOD. Thanks for the reference.
48038	0	0	0	0	Scoping Outline Check: All bullets from approved outline (from the regions expert meeting) are covered in the first order draft. [WGI TSU, France]	Noted. That is good news. Thank you.
28848	0	0	0	0	I like the paper intro to the onlnie material. Do the ES statements have publications that support them? If only based on ATLAS analysis, how do we give them confidence statements?It could be nice to have them though, but we need to be explcicit about where they come from [Piers Piers Forster, United Kingdom (of Great Britain and Northern Ireland)]	Accepted. ES statements revised and supported by publications.

Comment ID	From Page	From Line	To Page	To Line	Comment	Response
28850	0	0	0	0	Online stuff is great - love the layout and colour scheme. Time periods need dates. 1.5C and 2C need reference time periods. Need to be clear on variable, e.g. near-surface air temperature rather than GMST etc. Nice to have captions automatically generated with figures [Piers Piers Forster, United Kingdom (of Great Britain and Northern Ireland)]	Noted. Time periods for warming levels are displayed in the regional information time series so far (difficult to indicate in the label since they change from model to model. Automatic captions are now produced with the figures.
48056	0	0	0	0	Please check the correct use of IPCC Confidence/Uncertainty language. In some cases incorrect adjectives are being used with evidence or agreement terms, e.g., strong, growing, emerging, little, adequate, no robust, insufficient, weak, no contradictory, clear (some of them are redundant or not very precise). Please refer to the IPCC guidance note on uncertainty: https://wg1.ipcc.ch/SR/documents/ar5_uncertainty-guidance-note.pdf [WGI TSU, France]	Accepted. Use of adjectives checked and improved in the SOD and IPCC guidance has been followed.
26298	0	0	0	0	A big improvement on the AR5 Atlas. Well done. [Hennessy Kevin, Australia]	Noted. Thank you.
41216	0	0	200	0	As general comments for the Atlas, there are many confidence statements throughout the Atlas, most of them overlap with the assessments made in the other chapters. Overlaps and redundancies must be avoided. The author team of the Atlas must contact the rest of the chapter teams to avoid any redundancy. [Lucas Ruiz, Argentina]	Accepted. Consistency and coherence across chapters has been improved in the SOD.
54538	0				I would recommend listing all national climate assessment cites in the appropriate sections, not just the ones for Europe. [Linda Mearns, United States of America]	Noted. National assessments listed in regions where available.
9228	0				A section on the methodology of the IA would be good: How do you select its content? How do you select, which results from the scientific chapters go into the IA? How is the base data selected? How is the content analyzed to produce figures? [Martina Stockhause, Germany]	Accepted. A methodology section has been included.
9230	0				IA: What is the long-term perspective of the IA as an integral part of AR6 (and beyond?)? What is the versioning concept for the IA? Is github as a commercial product the right place to store IPCC IA software on the long-term? What are the update rules/versioning concepts for data and analysis scripts within the IA? Is it planned to update data and software used in the IA after the AR6 publication? If yes, how to make the separation of the IA from the AR6 Atlas chapter? [Martina Stockhause, Germany]	Noted. Those questions require guidelines from the TSU and TG-Data, which are currently under preparation. No decision has been made yet on the possibility to update the IA after the AR6 publication deadline.

Comment ID	From Page	From Line	To Page	To Line	Comment	Response
9240	0				IA: Figures are an easy way to carry information. Therefore I expect that the atlas and figures produced with the IA will become popular. And the fig might be republished without the provenance in the png in printed form. Therefore three things should be contained in the exported figure without an easy possibility to cut them: 1. All content information required to interpret the figure (incl. the legend and a reference to the AR6 ch. or fig.); 2. all information required to track the origin of the figure (when and with which attributes and with which version of the atlas was the figure created?); 3. license information for data usage. For 2. a code like the review code might be sufficient. [Martina Stockhause, Germany]	Accepted. Context, tacking and license information will be included in the final version of the IA.
54040	0				This preliminary version is already looking promising. However, I think that the menu system should be less intrusive, so that the map is not obscured. That way, changes in the map following selection of a new variable will be more readily identifiable. The AR5 atlas offers a ghood model for how to organise a menu system without interfering with the map functionality. I would also like to see absolute values as well as anomalies. There's a problem in specifying regions automatically in Robinson projection once the map is in a stereographic (south) projection. Is it possible to compare two equivalent maps for the same variable but different time periods or models (as anomalies)? The menu should have a default map projection and size that it returns to at the press of a button. Scatter plots could have a bolder line at the zero anomaly on both axes. It might also be instructive to plot the model-median and/or model mean value. [Timothy Carter, Finland]	Noted. Thank you for all the interesting comments; we will take them into account when producing new versions. However, the overall design is still to be agreed with the TSU.
9244	0				IA: Is it planned to add a possibility to export the dataset underlying a figure together with the figure? Thus getting the precise numbers for the figure. [Martina Stockhause, Germany]	Taken into account. Thank you for this comment. We will take it into account when designing the final version.
54300	0				Some of the items in the interactive atlas (e.g. the quantile matching information) need more explanation, e.g. through a reference in the instructions. [Blair Trewin, Australia]	Accepted. Some information was missing in the FOD. More detailed information has been included in the revised version.
9246	0				IA - time series - scenario tab: ° -> °C [Martina Stockhause, Germany]	Accepted. Changed.

Comment ID	From Page	From Line	To Page	To Line	Comment	Response
9248	0				IA: Extend the documentation as not every user of the IA reads the atlas ch. Documenting and giving assistence for different users or use cases would be great. E.g. give a recommendation when to use CMIP and when CORDEX data for users unfamiliar with model data their resolutions. [Martina Stockhause, Germany]	Accepted. More detailed information has been included in the revised version.
9250	0				IA: time series, scenario tab: add basic information. It is not clear, why 'warming 1.5°' appears under 'future period' and not under scenario? [Martina Stockhause, Germany]	Rejected. The warming levels can be defined for any of the scenarios (RCP85, or RCP45). Therefore, for each scenario we can select either a fixed time slice (near, …) or a warming level one.
26418	0				A big improvement on the AR5 Atlas. Well done. [Hennessy Kevin, Australia]	Noted. Thank you.
28218	0				At this stage, there are clearly numerous parts of the Atlas where limited or no text has been prepared, and there is a wide difference in the range of material covered between different regions. I expect this will be partially addressed by SOD, but if all regions are covered at the depth of, say, Europe, the chapter might be too long? A summary table or image across the regions might be helpful in consolidating some material. [Blair Trewin, Australia]	Taken into account. Regional sections have similar length and structure in the SOD.
28220	0				At this stage, many of the figures are drawn directly from the literature. Whilst some are appropriate, for others (e.g. time series from regularly updated data sets) it may be better to get the data and bring these up to date - our approach in Chapter 2 is that we are prepared to produce our own results from a data set as long as that data set has an appropriate peer-reviewed citation. [Blair Trewin, Australia]	Taken into account. Many figures in the FOD were illustrative and are removed and replaced by common figures, directly prepared for the Atlas. Other figures directly from the literature are used when appropriate.
28222	0				A number of figures are drawn directly from the interactive atlas. Some thought needs to be given to appropriate scales here - for example, in some maps of changes in extreme warm days, the very large % signal over the tropics (particularly the oceans) dominates and detail at higher latitudes is lost. (-100% is also a lower bound). [Blair Trewin, Australia]	Accepted. More appropriate scales have been included in the SOD.
54604	0				General observation: I am quite impressed with the structure and orientation of the Atals. It is such an improvement from the one for AR5. The efforts (and successes) regarding making the atlas more relevant to WG2 needs and interests is a pleaseure to see. Kudos to the authors for their progress so far. [Linda Mearns, United States of America]	Noted. Thank you for this encouraging comment.

Comment ID	From Page	From Line	To Page	To Line	Comment	Response
28320	0				There is very limited use of paleoclimate information across the Atlas - section 5.10.1 is one of the few sections which integrates it (whereas it's heavily integrated in Chapter 2). [Blair Trewin, Australia]	Noted. Atlas authors are happy to explore collaboration with Ch 2 to expand presentation of paleo information in the (Interactive) Atlas.
8652	0				Looks like it should be useful for quick view by scientists, by journalists and by students. Assume that all the MIPs will be added in due course although I do not immediatly see this mentioned in the accompanying chapter? [Julia Hargreaves, United Kingdom (of Great Britain and Northern Ireland)]	Rejected. Only data from CMIP5, selected MIPs in CMIP6 and CORDEX will be included in the Interactive Atlas. It would not be possible to include more with the resources available and to the traceability and transparency standards required of IPCC products.
43498	0				Excellent introduction but there could be (will be?) more content. [Peter O'Neill, Ireland]	Accepted. Additional content is included in the SOD.
9198	0				Please add citations of the underlying data in the text/figure captions and include data references in the references section. [Martina Stockhause, Germany]	Accepted. Data citations are added when available.
9206	0				It would be a step towards traceability of the IPCC AR6 results, if the linkage not only between atlas chapter and interactive atlas are documented in the report. But also linkage between source data (like CMIP), applied analysis scripts and data archived in the IPCC DDC were better referenced by PIDs or persistent urls. This is a discussion to be carried out by TG-Data and applies for the whole AR6. [Martina Stockhause, Germany]	Noted. Looking forward to further discuss this in TG-Data.
9208	0				As far as I understand, the Atlas collect information and data from the chapters. Then there should be references to the original chapter. Reuse of figures should be avoided and replaced by references as well. [Martina Stockhause, Germany]	Accepted. Cross-referencing to other chapters improved in the SOD.
9212	0				For the SOD a hormonization of the figure design would be good. Fig. Atlas.25 is not readable. [Martina Stockhause, Germany]	Accepted. Many figures in the FOD were illustrative and are removed and replaced by common figures, directly prepared for the Atlas.
9214	0				For the SOD when more information gets available, the summary region sections should be harmonized in content and their lengths in balance which each other. A statement on RCP4.5 and RCP8.5 results should be given for every region. [Martina Stockhause, Germany]	Accepted. Regional sections have similar length and structure in the SOD.
15404	1	1	242	1	Atlas is incorrect from geographical point of view for some regions. For example: N-W Asia covers the main part of Eastern Europe (Regional chapter Europe in WGII) and a small part of Western Siberia (Asia). W. Asia contains South-East part of Europe. Please correct boundaries or rename regions to make them geographicall adequate and relevant for regional chapters' work. [Oksana Lipka, Russian Federation]	Accepted. The WGI reference regions have been revised including Eastern Europe and redefining West Asia regions.

Comment ID	From Page	From Line	To Page	To Line	Comment	Response
26156	1	1	242	1	You have not adequately separated observed data from projections from models. For example Fig Atlas.61 shows slight increased in rainfall. It is very difficult to find! Therefore the reader cannot easily find observed data, its just all mixed up with climate projections. [Stephen Taylor, United Kingdom (of Great Britain and Northern Ireland)]	Common figures on observed changes are now included in the SOD.
26158	1	1	242	1	It seems this entire Atlas chapter is intended to show the rigour of the models. Where you have shown past data it is being used to prove the rigour of the models, not climate change. Of course just because the models have been arranged to fit past data does not mean they will fit the future data. [Stephen Taylor, United Kingdom (of Great Britain and Northern Ireland)]	Noted. The treatment of observations has been extended both in the Atlas chapter and in the Interactive Atlas.
26160	1	1	242	1	The chapter / facility should be called “World Climate Model Predictions: Interactive Atlas.” [Stephen Taylor, United Kingdom (of Great Britain and Northern Ireland)]	Rejected. The SOD version of the Interactive Atlas includes observations.
41852	1	1	300	70	Guidance: Does the Atlas chapter (Section 7) describe clearly the use of the Interactive Atlas? YES [Christophe Deissenberg, Luxembourg]	Noted. Thank you.
41854	1	1	300	70	Scope: Is the scope (datasets, reference regions and reference periods – including warming levels) clearly described in the Atlas chapter (in particular Sections 2 and 3)? YES [Christophe Deissenberg, Luxembourg]	Noted. Thank you.
41856	1	1	300	70	Content: Does the Interactive Atlas effectively complement the Atlas chapter material (in particular Sections 4 and 5)? YES [Christophe Deissenberg, Luxembourg]	Noted. Thank you.
41858	1	1	300	70	Provenance: Do you find suitable the provenance information provided by the Atlas (including examples of metadata and code for reproducibility provided)? FIRST CLASS [Christophe Deissenberg, Luxembourg]	Noted. Thank you.
41860	1	1	300	70	Usefulness: Do you find useful this new product developed for AR6 (e.g. for developing policy or practice relevant to climate change)? EXTREMLY USEFUL BUT AS OF NOW UNDERDEVELOPPED. SEE MY OTHER COMMENTS [Christophe Deissenberg, Luxembourg]	Noted.
41862	1	1	300	70	Development: I very much miss the possibility of juxtaposing several graphs on a same screen. [Christophe Deissenberg, Luxembourg]	Accepted. This functionality has been included in the SOD.
41864	1	1	300	70	Development: It might be useful to have the possibility to download the data underlying any graph (time series e.g.) with a simple click to import them in the user’s own models. How is this data formatted.? [Christophe Deissenberg, Luxembourg]	Noted. Thank you for this comment. We will take it into account when designing the final version.

Comment ID	From Page	From Line	To Page	To Line	Comment	Response
41866	1	1	300	70	Development: The hovers are very useful. In addition, multi-level hovers might allow to access relevant additional information, narratives, and comments: How were the results obtained, what is the associated uncertainty, what are the sources of uncertainty, is a given result strongly correlated with other ones not shown on the specific map, etc. This would allow to access comprehensive information interactively without having to consult other documents. It might be good to remind at each selection/output that near term means 2016-2035, etc [Christophe Deissenberg, Luxembourg]	Rejected. Thank you for the comment. Hovers will be used to display further help for users, but will not support narratives or comprehensive information.
41868	1	1	300	70	Development: As mentioned elsewhere, I think that adding quantitative information on the uncertainty and the sources of uncertainty would be very valuable. [Christophe Deissenberg, Luxembourg]	Noted. Thank you for this comment. Uncertainty is now displayed for observations and model projections in terms of significance and/or model agreement.
41870	1	1	300	70	Development: Showing how the local climate may be affected by different land uses would be great. [Christophe Deissenberg, Luxembourg]	Rejected. We also think land use would be an important piece of information, but this is out of the scope of the Atlas. It would better fit in previous regional chapters (Chapter 10-12).
41872	1	1	300	70	Design: The banner is too large and not intuitive. The important aspects are not stressed enough by the graphic design. Too much room and importance is given to the “credits” part (top). It is not necessary to show the credits part anywhere save on the welcome screen. I find unfortunate that the controls are not bundled together. Currently we have “Data set, …,season” on the banner, references regions below, projection elsewhere … This is confusing. [Christophe Deissenberg, Luxembourg]	Noted. Thank you for the comment. The logic of the current implementation is that the main banner defines the dataset to be visualized, whereas the secondary ones specify visual elements (projections, regions, zoom, etc.). The final design will be done in coordination with TSU.
41874	1	1	300	70	Design: The designation “AR6 reference regions” is confusing for an outsider. Would “Domain” or “Geographical Domain” be acceptable? Since there are only two choices, why not have them both apparent and chose the relevant one by selecting a bullet? [Christophe Deissenberg, Luxembourg]	Rejected. Alternative regionalizations are available so they must be clearly identified by the label. The label "reference regions" is adopted in all the report.
41876	1	1	300	70	Design: More generally, I favor limiting as much as possible the number of drop-down menus. The user should not have to search its options among many drop-down menus, they should be immediately visible whenever possible. [Christophe Deissenberg, Luxembourg]	Noted. Thank you for the comment. We will take it into account, but the final design of the Interactive Atlas will be done in agreement with TSU.
41878	1	1	300	70	Design: It is very easy to select a region by clicking on the map (it would be even easier if hovering over a region showed its name). Why not simplify the design by suppressing the alternative selection in the menu bar? [Christophe Deissenberg, Luxembourg]	Noted. Thank you for the comment. We will take it into account, but the final design of the Interactive Atlas will be done in agreement with TSU.

Comment ID	From Page	From Line	To Page	To Line	Comment	Response
41880	1	1	300	70	Design: Show ALL selected parameters in a box besides the map/plume etc. [Christophe Deissenberg, Luxembourg]	Noted. Thank you for the comment. We will take it into account, but the final design of the Interactive Atlas will be done in agreement with TSU.
41882	1	1	300	70	Design: The button “return to global map” is very useful. Maybe it would be better if it brought back to the default map (settings) and not to the map with options selected. Alternatively, a button “Restore all options to default” might be useful. [Christophe Deissenberg, Luxembourg]	Noted. Thank you for the comment. We will take it into account, but the final design of the Interactive Atlas will be done in agreement with TSU.
41884	1	1	300	70	Design: It would be useful if the browser command “Go back to previous screen” was operative [Christophe Deissenberg, Luxembourg]	Noted. Thank you for the comment. We will take it into account, but the final design of the Interactive Atlas will be done in agreement with TSU.
41886	1	1	300	70	Design: What happens with (e.g.) the plumes when one simultaneously selects several regions? Are the plumes then constructed as an average? Is that meaningful? If not, why not disable the possibility of selecting several regions? [Christophe Deissenberg, Luxembourg]	Rejected. When selecting several regions, the regional information is displayed for the composite region, so users can select several sub-continental domains to create regions of interest (e.g. continental-like). This functionality is maintained.
41964	1	1	300	70	It is difficult to make a deep assessment of the Interactive Atlas and the accompanying text without a better knowledge of who are going to be the main end users. It may be a truism to say that only an appropriate user-engagement process guarantees that the information can be displayed in a form that is suitable to be employed in real-life decision making. However, it was not clear whether such a process has been conducted, and with whom. [Christophe Deissenberg, Luxembourg]	Noted. Thank you for this comment. The audience is the same as for the whole report (the Atlas extends and complement the findings in other AR6 chapters). There are plans to test the usability with a users group.
41966	1	1	300	70	The interactive Atlas is doubtlessly a very important and useful piece. The accompanying chapter is very heterogenous and, although its purpose is stated clearly, its value for end users is not always evident. Except for section 7, it is more of an internal document providing guidance for further development and useful information for WG2 than a help for decision-makers. It would be worth considering placing section7 at the beginning of the chapter, or as a stand-alone document. [Christophe Deissenberg, Luxembourg]	Rejected. Thank you for the comment, but the Atlas chapter is intended to provide region by region synthesis information and the Interactive Atlas is just one component for this (although and important one, we agree).

Comment ID	From Page	From Line	To Page	To Line	Comment	Response
41968	1	1	300	70	Among others, the chapter puts much emphasis on accessibility and reproducibility of the background work and data. This is crucial for the scientific integrity of the IPCC and the trust one places in its output. However, is of no direct interest to most users, who have neither the resources nor the capability to check what was been done. Regional planers and industries e.g. are arguably less concerned with reproducibility of the results then with their stated reliability. Similarly, elaborating on contradicting opinions on the origins of this or that phenomenon is not directly helpful for most applications. [Christophe Deissenberg, Luxembourg]	Noted. Accessibility and reproducibility of results is described in one sub-section (Atlas.7.3). We think a minimum information about this is needed in the chapter.
41970	1	1	300	70	From an applied user's perspective, the chapter lacks quantitative indication of the associated uncertainty, and of the relative weight of the different sources of uncertainty. [Christophe Deissenberg, Luxembourg]	Noted. The treatment of uncertainty was limited to model agreement in the FOD. This has been revised in the SOD. Chapter 1 planned to include an analysis of uncertainty separation for the SOD and potential extensions in the Atlas might be considered.
48094	6	1	6	1	The Executive Summary (ES) is longer than recommended (2 pages). Also, it lacks of an introductory paragraph. In a first block, ?regional statements? are shown. Then, ?general statements? are discussed in a second block. The second block should be moved to the begging of the ES, and reformat it as introductory paragraph(s). Moreover, some kind of common structure should be preserved in the ?regional statements? done for each region. For instance, a first sentence about the observed trends and a second statement about the projected changes. In addition, links to particular sections are missing at the end of each statement/paragraph [WGI TSU, France]	Accepted. The ES is shorter and more clearly structured with an introduction in the SOD.
51030	6	1	9	55	The order of the headline statements is not very logical: should move from past to future, and have a separate category on the generic conclusions on data availability, scientists engagement etc [Bart Van den Hurk, Netherlands]	Implemented in FGD. Agreed. ES statements now grouped under specific headings.
31746	6	7	6	7	"Future temperature increases over most of Africa are likely to increase more than the global mean." -- change to "increases .... are likely to be larger ...", rather than increase of increase. [Martin Juckes, United Kingdom (of Great Britain and Northern Ireland)]	Taken into account.
31748	6	7	6	7	Does this refer to the global mean land surface increase (which would be the most relevant quantity for comparison here) or the full global mean? [Martin Juckes, United Kingdom (of Great Britain and Northern Ireland)]	Rejected. Full global mean. This is most relevant when comparing regional changes with warming levels.

Comment ID	From Page	From Line	To Page	To Line	Comment	Response
8218	6	11	6	11	It is worth considering including here that there is not necessarily a lack of observational data in the past (as might be assumed), but the lack of observation stations is a recent issue. See drop of an order of magnitude in number of stations in East Africa since 1980 on fig6 in https://journals.ametsoc.org/doi/full/10.1175/JCLI-D-15-0140.1 Access to records can also be difficult as they are not all digitised. But if this old data can be collated, and new stations reintroduced from a number of decades there will be the opportunities to look at trends again. [Declan Finney, United Kingdom (of Great Britain and Northern Ireland)]	Taken into account.
26204	6	17	7	17	Should be spatially comprehensive. Here summaries for North Asia, West Asia and Central Asia are missing. Also reduce bullets for East, Southeast and South Asia. [Akio Kitoh, Japan]	Accepted. ES statements revised to ensure better and more balanced regional coverage.
41888	6	22	6	24	The models' projections consistently predict a positive trend for both mean temperature and extreme events over East Asia. Thus, it is likely that both will continue to increase. However, the magnitude of the projected changes differs from model to model. [Christophe Deissenberg, Luxembourg]	Noted.
28224	6	30	6	38	The statements at lines 30-32 and 37-38 seem to overlap and could be consolidated. [Blair Trewin, Australia]	Taken into account.
54484	6	38	6	38	It would be good to provide and example in the text here of how added value is not present [Linda Mearns, United States of America]	Taken into account.
41890	6	47	6	47	are less spatially coherent over Southeast Asia. [Christophe Deissenberg, Luxembourg]	Taken into account.
28226	6	50	6	50	The term "annual total wet-day rainfall" is presumably a reference to amount of rain from (very) wet days but could be misinterpreted as meaning all days with rain by a reader unfamiliar with ETCCDI indices. Suggest rewording. [Blair Trewin, Australia]	Taken into account.
54486	6	52	6	53	It might be preferable to start with the 4.5 results and then have the 8.5 results at the end [Linda Mearns, United States of America]	Taken into account.

Comment ID	From Page	From Line	To Page	To Line	Comment	Response
48012	6		10		Executive summary formatting: Consider reversing the order so Global statements come beofre regional statements. Please provide an introductory paragrah explaining the purpose of the chapter (see SR1.5 for guidance). Finally, kindly consider preserving some kind of common structure in the “regional statements” done for each region. For instance, a first sentence about the observed trends and a second statement about the projected changes. In addition, links to particular sections are missing at the end of each statement/paragraph. [WGI TSU, France]	Accepted. The ES is shorter and more clearly structured with an introduction in the SOD.
26300	7	18	7	18	summary for Australasia is missing [Hennessy Kevin, Australia]	Taken into account.
41892	7	21	7	21	There has been an increase in both the mean temperature (medium confidence) and the frequency of [Christophe Deissenberg, Luxembourg]	Taken into account.
28228	7	28	7	29	"Both increases and decreases" is confusing. Suggest "increases and decreases in different parts of South America" or similar. [Blair Trewin, Australia]	Taken into account.
15406	7	31	7	31	What is the boundary of "Europe"? Readers and decision makers need to see gographical boundaries of regions, where Ural mountains are the Eastern boundary of Europe and Caucasus Mountains and the Caspian Sea - South-East. Plese explain why the tradidtional geographycal boundaries were neglected and how to understand the Eastern Europe in Asia? Region Central Asia is irrelevant at all. It is impossible to use Atlas for Europe in WGII [Oksana Lipka, Russian Federation]	Taken into account. A new region of Eastern Europe has been included in the WGI reference regions.
54488	7	52	7	54	It should be made clearer in this statement what models are being talked about GCMs? RCM? Driven by reanlayses, or GCM current simulations? [Linda Mearns, United States of America]	Taken into account.
57682	8	9	8	9	It is likely that the associated ….associated to what? [Alessandro Dosio, Italy]	Taken into account.
9216	8	12	8	20	Though comments on resources are important, this part of the summary should be shortened and focus on the consequences for the level of confidence. The paragraph about climate programs should be deleted. The related atlas section or section in the original chapter should discuss these aspects. [Martina Stockhause, Germany]	Taken into account.
54490	8	21	8	36	Obviously the section on North America needs a lot more work, which, with the additional CAs brought on board, will be accomplised for the SOD [Linda Mearns, United States of America]	Taken into account.

Comment ID	From Page	From Line	To Page	To Line	Comment	Response
48100	8	45	8	45	In several places along the chapter, the text makes reference to statistically significant results, but no information about the level of significance is given. [WGI TSU, France]	Taken into account.
41894	8	45	8	46	For the Indian Himalayan region, the CORDEX South Asia regional climate models project a statistically significant strong rate of warming (0.03–0.09 °C yr−1) across all the seasons and RCPs. [Christophe Deissenberg, Luxembourg]	Taken into account.
54606	8	55	9	2	And are these RCM results different from those of the GCMs. This should be noted. [Linda Mearns, United States of America]	Taken into account.
9218	9	4	9	41	General section in summary: Could you give a bit more detail on how these statements affect especially the Atlas (chapter and/or IA)? [Martina Stockhause, Germany]	Taken into account. ES statements revised to better reflect their implications.
28230	9	6	9	6	Many readers will interpret "regional climate data" as referring to observations only. If it is also intended to refer to models then best to say so explicitly. [Blair Trewin, Australia]	Taken into account.
32408	9	6	9	8	This text needs to characterise what it meant by «explosion». How many more observation points are we talking about? 20% increase or 80% increase. Why is the quality and applicability questioned? Are the stations not put up to normal standards? [Martin Hovland, Norway]	Taken into account.
32410	9	6	9	8	Will there be a map on each Atlas page, to show the observation points and their names and characteristics? If not, - why? [Martin Hovland, Norway]	Not applicable. Text refers to model data which is clarified in SOD.
41896	9	10	9	12	Significant progress is made in the evaluation of downscaled climate data over multiple regions. However, the level at which this activity is conducted is subject to significant regional variations. Not enough results are available to do a comprehensive assessment at the global scale. [Christophe Deissenberg, Luxembourg]	Taken into account.
57684	9	14	9	14	Projections of large scale features such as heatwaves: are 'heatwaves' considered large scale features? And why? Do you mean the large scale circulation (eg blocking) associated to heatwave, or that temperature is less affetced by convection? [Alessandro Dosio, Italy]	Not applicable. Text does not refer to heatwaves.
41898	9	14	9	15	There are many good examples of the integration of physical climate science information into adaptation policy and action, as demonstrated by a few case studies taken from a broad range of available ones. [Christophe Deissenberg, Luxembourg]	Taken into account.
32412	9	17	9	20	The meaning of this statement is difficult to understand. Please re-formulate the statement! [Martin Hovland, Norway]	Taken into account.

Comment ID	From Page	From Line	To Page	To Line	Comment	Response
41900	9	17	9	20	There has been a significant increase in the range of (especially, regional) scientists engaged in understanding regional climate and in developing and assessing regional climate information across multiple regions, often through the formation of regional teams and with significant representation from developing countries. [Christophe Deissenberg, Luxembourg]	Taken into account.
41902	9	22	9	25	Significant improvements in technical infrastructure and open source tools ands methodologies for accessing and analysing observed and simulated climate data have broadened the community able to interact with these data, from fundamental climate research to providing inputs for assessing impacts, building resilience, and developing adaptations. [Christophe Deissenberg, Luxembourg]	Taken into account.
41904	9	27	9	29	Tools to analyse and assess climate information have improved to allow development of information beyond averages (e.g. future climate thresholds and extremes) relevant for regional climate risk assessments. [Christophe Deissenberg, Luxembourg]	Taken into account.
41906	9	31	9	33	Significant advances in technological tools and social methodologies in communicating science information means that scientific findings are now reaching a much broader audience. Using effectively these new opportunities for communicating their results requires that the scientists acquire appropriate new skills. [Christophe Deissenberg, Luxembourg]	Taken into account.
41908	9	35	9	37	Whilst the range of data available and their ease of access has significantly increased, there remain often significant gaps in understanding the context in which the data is to be used. Thus, more effort is required to develop multidisciplinary teams in relevant areas of research and practice. [Christophe Deissenberg, Luxembourg]	Taken into account.
41910	9	39	9	39	Calculating observed climate changes, evaluating of models and developing bias correction, and [Christophe Deissenberg, Luxembourg]	Taken into account.
54608	10	3	10	14	The purpose section is actually pretty good, but I think it could be a little more detailed regarding its value to WG2, for example referring to informing the climate projection sections of the regional chapters in WGII. [Linda Mearns, United States of America]	Taken into account.
54492	10	7	10	7	By different scales, is it also meant to refer to the different sources, i.e., CMIP5, 6, snf CORDEX. Make this explicit. [Linda Mearns, United States of America]	Taken into account.

Comment ID	From Page	From Line	To Page	To Line	Comment	Response
57686	10	13	10	14	Finaly, the atlas assess apporaches to communication… Two issues here; 1) check overlap and consistency with chapter 10, and 2) wheere in the Atal are the 'case studies and guidances to how interpret them'? Are they supposed to appear in the SOD? [Alessandro Dosio, Italy]	Taken into account. Consistency and coherence across chapters has been improved in the SOD. Case studies are included in the SOD.
30856	10	51	10	51	what is "cross-chapters papers"? [Annalisa Cherchi, Italy]	Taken into account. WG II products, clarified in the SOD.
57688	11	3	11	5	Where are the examples on constucting clear messages ad the assessment of comunication methods? Also, check consistency with Ch10 [Alessandro Dosio, Italy]	Taken into account. Consistency and coherence across chapters has been improved in the SOD. Examples are included in the SOD.
41912	11	27	11	31	Chapter 1 has extensively explored this topic in Section 1.5.3 and in Cross-Chapter Box 1.3, while a summary of the main points relevant to the Atlas are provided here. There is no standard baseline in the literature although the WMO recommends using 30-year baselines and the current official climate normal period is 1981–2010. However, it will retain 1961–1990 as the historical base period for long-term climate change assessments (WMO, 2017). The AR6 WGI has established the period 1995–2014 [Christophe Deissenberg, Luxembourg]	Noted. The baseline periods have been revised in the SOD.
41914	11	31	11	31	WHO IS "it"? [Christophe Deissenberg, Luxembourg]	Taken into account. The text has been revised for Second Order Draft.
9222	11	35	12	3	As different definitions for long-, mid- and nearterm are used, it would be good to add time periods to figures (e.g. Fig. Atlas.15, page 173). [Martina Stockhause, Germany]	Taken into account. The text has been revised for Second Order Draft. The cross-chapter team are working together to avoid overlaps and check consistency and coherency.
54494	11	47	11	47	relevant to work on impacts' seems vague. Do you mean these same baselines are also used for imapcts work? [Linda Mearns, United States of America]	Taken into account. Yes! These baselines are used for impacts work. The text has been revised for clarify.
28232	11	49	11	49	1971-2000 has never been a WMO climatological standard normal period (WMO went directly from 1961-1990 to 1981-2010), so this needs rewording (assuming that you are committed to using 1971-2000 in this context). [Blair Trewin, Australia]	Accepted. This has been clarified. Thank you.
30858	11	49	11	49	what is the difference between this "standard baseline"and the wmo climate normal period defined above? [Annalisa Cherchi, Italy]	Taken into account. It is the same. It was a typing error. The text has been revised for clarify.
30860	12	1	12	3	so what are the standard periods used for present climate? Maybe useful to have a summary in a Table [Annalisa Cherchi, Italy]	Noted. Some bullets with the periods are defined on page 11.
30862	12	20	12	20	"nine CMIP5": and what about 11 GCMs in Table 1 below? [Annalisa Cherchi, Italy]	Taken into account. Preliminary datasets were used in the Atlas FOD. The text has been revised for Second Order Draft.

Comment ID	From Page	From Line	To Page	To Line	Comment	Response
32414	12	20	12	23	In order of preventing the Atlas to be mis-used to demonstrate absurd and highly unlikely scenarios of future conditions, it is strongly suggested that IPCC refrains from using the most extreme (and highly unlikely) results of their modeling. Therefore it is advised to only use the results from the SR1.5 report +1.5, +2, and refrain from using RCP8.5, especially. By using the most extreme scenarios, the IPCC is in danger of not being taken seriously, at all. The pictures of the most ulikely scenarios will help alarmists to counjur up scenes that are highly unlikely with the new interactive atlas. It is these alarmist pictures that will by used by newsmakers and this will further damage the credibility of IPCC, in total. [Martin Hovland, Norway]	Rejected. The Atlas considers all the available information in a comprehensive form.
57690	12	20	12	32	the metghod used to define GWL is of course legittimate; however, it is not the only one. When using RCMs, for instance, other approaches may be used (e.g. Dosio, A., and Fischer, E. M. (2018). Will Half a Degree Make a Difference? Robust Projections of Indices of Mean and Extreme Climate in Europe Under 1.5°C, 2°C, and 3°C Global Warming. Geophys. Res. Lett. 45, 935–944. doi:10.1002/2017GL076222.). It must be noted that tha apporach by Nikulin et al (2018) is (in my opinion) not suitable to compare the effect of eg 1.5C against the present climate (eg 1971-2000). I aknowledge the fact that "the procedure will be upadated in the next draft" but I would be careful in decinign which figures to plot, depending on the approach used to calculate GWL. [Alessandro Dosio, Italy]	Noted. GWLs are now coordinated across chapters and the Atlas use the agreed procedure.
28234	12	24	12	24	The 1861-1890 period used for preindustrial here differs from the 1850-1900 used both in SR1.5 and in AR6 Chapter 2 (and possibly elsewhere). If you are committed to using 1861-1890 then this requires some explanation in the text. [Blair Trewin, Australia]	Noted. The method to define GWL has been aligned to the standard 1850-1900
26304	12	26	12	26	After this point, the emphasis is on RCP4.5 and RCP8.5, but it would be good to state up-front which RCPs are included in the Atlas, e.g. RCP2.6, RCP4.5, RCP6.0 and RCP8.5. The interactive Atlas only has RCP4.5 and RCP8.5 - could others be added? [Hennessy Kevin, Australia]	Noted. The curated AR5 dataset has been included in the SOD.
30864	12	27	12	27	only ESMs? [Annalisa Cherchi, Italy]	Taken into account. No. For the FOD we used a subset of CMIP5 ESMs and CORDEX RCMs.
27112	13	3	13	19	More emphasis is needed in fig 4 and fig 5 caption to highlight that the number of stations is multiplied by 10000 [Edoardo Cremonese, Italy]	Accepted. The text has been be revised for clarify.

Comment ID	From Page	From Line	To Page	To Line	Comment	Response
26302	13	35	13	39	Having only 2 broad sub-regions over Australia and New Zealand limits utility for risk assessment in WG2. National projections used in Australia have 8 sub-regions https://www.climatechangeinaustralia.gov.au/en/climate-projections/about/modelling-choices-and-methodology/regionalisation-schemes, but these could be combined into 5 sub-regions: southwest, southeast, central east coast, tropics, and central Aus, each of which is similar in size to Atlas sub-regions SAM, SSA, SWS and SWN. National projections used in New Zealand have 15 regions https://www.mfe.govt.nz/publications/climate-change/climate-change-projections-new-zealand, and while these are much smaller than feasible for the Atlas, it would be helpful for the Atlas to consider east and west sub-regions for New Zealand [Hennessy Kevin, Australia]	Rejected. Thanks the reviewer of the comment. An updated version of the reference regions has been considered for AR6. However, since this topic will be covered in other chapters we have taken your comment for discussion.
57692	13	44	13	44	Figure 2: 1) what do the * mean (eg WIO*)? 2) some labels (eg NWS and BOB in panel b) do not fit into thie respective boxes. They should be placed correctly, maybe by reducing the font size or adding an arrow. [Alessandro Dosio, Italy]	Not applicable. This figures has been deleted.
41916	14	4	14	5	In the case of South America the new regions were selected based on the criteria: having a consistent climate change response signals and being climatically consistent regions (Barros et al., 2015; Neukom et al., [Christophe Deissenberg, Luxembourg]	Accepted. The text has been revised.
30866	14	4	14	7	rephrase: english form not correct [Annalisa Cherchi, Italy]	Accepted. The text has been revised.
30868	14	10	14	10	"acceptable" but changed in AR6? [Annalisa Cherchi, Italy]	Accepted. The text has been revised.
30870	14	19	14	23	english form to revise [Annalisa Cherchi, Italy]	Accepted. The text has been revised.
30872	14	48	14	52	english form to revise [Annalisa Cherchi, Italy]	Accepted. The text has been revised.
30874	15	9	15	9	in the figure the acronyms should be expanded, what do the numbers for biome stand for? NAF is not the appropriate name, as monsoon it is known in the literature as west african monsoon [Annalisa Cherchi, Italy]	Accepted. The text has been revised.
30876	15	25	15	25	is bias-correction applied by default? [Annalisa Cherchi, Italy]	Editorial. Not as default. Subsequent information has been added.

Comment ID	From Page	From Line	To Page	To Line	Comment	Response
54496	15	30	15	31	Combining the information from the different sources is to my mind one of the greatest challneges for the atlas. While it is said that this will be discussed in the final section, I think it would be useful to at least provide an adumbration of how this could be done in this section here. [Linda Mearns, United States of America]	Taken into account. Our current goal is at least to show how assessment could change depending on different datasets or model simulations, which can be interpreted as uncertainty. It is highly likely that regional assessment would face much more challenge due to this. In the next version, more thorough comparison has been provided.
30878	15	37	15	37	section Atlas3.1 to better organize: (i) issue of observations uncertainties; (ii) example of precip, degradation, why?; (iii) example of SST, improvements, why?; (iv) refer to annex I for observations; (v) provide list of all observations used in the Atlas (if different from annex I) [Annalisa Cherchi, Italy]	Taken into account. We are overhauling the section 3.1.
41918	15	39	15	40	I COULD NOT UNDERSTANT THE EXACT MEANING OF THE SENTENCE [Christophe Deissenberg, Luxembourg]	Editorial. Sentence is revised.
53876	15	42	15	42	While it is nice to display maps of station density, for this to be a "policy relevant" document we need to show the consequences of such a network. Can you create a map that shows an example of how the station density causes a huge uncertainty range in certain variables? For example, if you do a map of temperature reanalysis datasets, you can show how the datasets do not agree on temperatures in tropical Africa, and therefore the uncertainty bounds on the temperature datasets we are using should be much larger in some regions than others. This would be hugely helpful to policy-makers, who are unable to assess the consequences of a map of station density. (This is similar to Figures 11 and 12, but you would make a map of the world and show uncertainty bounds and how they differ from region to region. It can be placed next to a map of station data to show how this happened.) [Erin Coughlan de Perez, United States of America]	Taken into account. We are preparing figure(s) that could show uncertainty as reviewer suggested. Newer fig/data are used now.
30880	15	47	15	51	refer to annex I and/or list observations used (only) here [Annalisa Cherchi, Italy]	Editorial. Yes.
41920	15	48	15	48	and precipitation. There are many datasets available. Commonly used ones include CRU, GISTEMP and [Christophe Deissenberg, Luxembourg]	Accepted. More datasets are being used in the figure and assessment and revised accordingly.

Comment ID	From Page	From Line	To Page	To Line	Comment	Response
28236	15	48	15	49	At present this contains a mix of specific data set names and institution names - suggest doing one or the other. Note that many of the major global data sets are going through major version changes - Chapter 2 are anticipating shifting to new versions for most major temperature data sets in SOD. Can also link to data set annex. [Blair Trewin, Australia]	Editorial. Fixed.
30882	15	53	15	54	is there any documented reason for declining in precip from stations available in recent decades? [Annalisa Cherchi, Italy]	Taken into account. There are a couple of potential reasons. We have added that in the next version.
28238	16	9	16	13	It may be worth having some discussion about possible causes for this decline (one cause is covered at p17 line 26) [Blair Trewin, Australia]	Taken into account. There are a couple of potential reasons which have been added.
28240	16	24	16	27	In addition to the issues identified in this paragraph, another issue with satellite precipitation observations is their relatively short record. [Blair Trewin, Australia]	Taken into account. We added this in the revision.
41922	16	55	16	55	2006). The difference in the number of observations and their irregular distribution in space and time introduces [Christophe Deissenberg, Luxembourg]	Editorial. Fixed.
57694	17	17	17	17	The correct reference is Indasi, V.S., Jack, C., Hewitson, B., Wolski, P., Dosio, A., Pinto, I.: Genealogy of Gridded Precipitation Datasets over Southern Africa, submitted to Earth and Space Science [Alessandro Dosio, Italy]	Editorial. Fixed.
41924	17	22	17	23	insufficient resources but also to a tendency by country meteorological services to restrict free access, to the increasing relevance of satellite data, and to significant relationships between some of the datasets (Figure [Christophe Deissenberg, Luxembourg]	Taken into account. We noted this as potential cause for such decrease in # of stations.
57696	18	9	18	9	Is there a missing title or subsection here? The paragraph starts with "in this section" but seems detached from the previous text. [Alessandro Dosio, Italy]	Editorial. Fixed.
54498	18	16	18	18	It would be good to provide and example in the text of regions where this is particulalry true. Second, l. 18, it is stated that this is true in certain regions, not most. [Linda Mearns, United States of America]	Taken into account. Yes, it is revised
41926	18	19	18	19	WHAT DOES "this" REFER TO EXACTLY? [Christophe Deissenberg, Luxembourg]	Editorial. Revised
57698	18	36	18	36	Figure 12: 1) Is this a plot of annual mean daily prcipitation ? It should be mentioned. 2) Also, could you please whow all relevant observational datasets? (eg CRU is missing). 3) Could you please use the same colors and scale for all panels? [Alessandro Dosio, Italy]	Taken into account. Fixed.
57700	18	49	18	56	All this section seems out of place here. Also, there is a placeholder for a figure from Sylla et al which is not shown as figure. [Alessandro Dosio, Italy]	Taken into account. Fixed

Comment ID	From Page	From Line	To Page	To Line	Comment	Response
30884	19	1	19	1	list of ocean and atmospheric reanalyses used in the atlas should be detailed, reference to annex I [Annalisa Cherchi, Italy]	Editorial. All the list of observation and models are in Technical Annex now.
41928	19	14	19	15	Inconsistency among different ocean reanalysis datasets will be primarily treated in Chapter 9 but expanded in the Atlas. ALSO: WHAT DO YOU MEAN WITH “Inconsistency … is expanded”? Elaborated upon? [Christophe Deissenberg, Luxembourg]	Taken into account. Yes, we are coordinating with Chapter 9 about data issue.
9220	19	18			Section Atlas3.3: An additional table comparing the difference in CMIP5 (rcp) and CMIP6 (ssp-rcp) projections would be helpful in this section. [Martina Stockhause, Germany]	Taken into account. All the list of observation and models are in Technical Annex now.
30886	19	25	19	25	what do you mean by "recent"? Only ESMs? [Annalisa Cherchi, Italy]	Not applicable. All CMIP5 models are used in the SOD.
9200	19	26	19	27	The fully curated CMIP5 data snapshot underlying the AR5 is long-term archived in the IPCC DDC. For consistency over different assessment cycles. If you reuse the AR5 Altas data please check the relation of the data to the IPCC WGI AR5 subset at: http://www.ipcc-data.org/sim/gcm_monthly/AR5/WG1-Archive.html . [Martina Stockhause, Germany]	Noted. This is used in the SOD.
30888	19	38	19	43	colors could be used instead of "yes" (different for the different variables considered) [Annalisa Cherchi, Italy]	Noted. The design of the table has changed (yes/no is no longer used).
9202	19	38	19	43	Table Atlas.3: For a specification of the datasets underlying the Atlas additional information to identify the datasets should be added: dasets with full DRS (including version) and tracking_id. This additional information could be stored in a separate table. Data references should be added, too, to give credit to data providers. Same comment for other tables with data overviews. [Martina Stockhause, Germany]	Accepted. Full information is provided in Technical Annex III (models) and it is now properly cross-referenced.
57702	20	0	20	0	What does the symbol "-" mean in the second column of the ECEARTH_r12i1p1_rcp45 ? [Alessandro Dosio, Italy]	Noted. It was a typo (it was supposed to be a blank). The design of the table has changed.
9210	20	13	20	14	It is unclear how the information contained in Table Atlas.4 is connected to the key results of this chapter. Is this information on MIPs endorsed by WGCM-CMIP6 required? I suggest to delete it. [Martina Stockhause, Germany]	Accepted. The table has been deleted.
48102	21	12	21	12	Section Atlas.3.4 (Regional Model Data (CORDEX)) complements the evaluation of global models done in Chapter 4 extending it to regional climate models. There is a need to make sure that results shown in Chapter 4 and in the Atlas are not duplicated (and are consistent). [WGI TSU, France]	Noted. Results will be checked with Chapter 3 (model evaluation) SOD.
30890	21	14	21	15	remove lines [Annalisa Cherchi, Italy]	Not applicable. Table has been removed.

Comment ID	From Page	From Line	To Page	To Line	Comment	Response
57704	21	34	21	34	It would be interesting to show also the number of CORDEX runs available for each domain. This was shown in e.g. Spinoni, J., Barbosa, P.,[…], Dosio, A.: Future global meteorological drought hotspots. A study based on CORDEX data, Journal of Climate,submitted [Alessandro Dosio, Italy]	Taken into account. Added in SOD.
30892	21	34	21	35	in figure Atlas.13 letters in the different boxes and names of the relative models should be given [Annalisa Cherchi, Italy]	Not applicable. Figure has been replaced.
30894	22	3	22	3	is era-interim the only reanalysis used? [Annalisa Cherchi, Italy]	Noted. It has been the CORDEX reference.
57706	22	9	22	13	I understand that this is only the FOD, and figures are based on a very small ensmble of model runs only. However, I am wondering what will be done for the future drafts. It would be interesting to have the figures made by all available runs (GCMs, and CORDEX and for Europe even EUR-11). The problem of 'conflicting messages and overlapping regions" is exactly what the Atlas could help to solve, especially if it can be shown that for some variables or indices, the results do not depend on resoluution, ensemble size or overlapping of the regions. [Alessandro Dosio, Italy]	Noted. The Atlas will use all published simulations by the cut-off deadline. However, the comparison of different datasets (particularly CMIP5 and CORDEX) will be as consistent as possible (with the potential of filtering only the driving models, when comparing CMIP5 and CORDEX). The priority is to have an homogeneous 0.44º CORDEX dataset worldwide. The added value of higher resolution in particular region (e.g. EUR) is treated in regional chapters.
57708	22	18	22	18	Table: again, I undesrand this is only the FOD. But the RCM ensemble so far is very much biased toward the same RCM (RCA4). Again, the Atlas could be the perfect place (in collaboration with other chapters) to explore the influence of sub-sampling/wweighting etc on the results. [Alessandro Dosio, Italy]	Not applicable. The Atlas cannot produce new science, but needs to rely on published methods. There is no indication from other chapters on a solid methodology to do this.
57710	24	1	24	14	Figure 14 and related description: First there is something wrong with the ranges (numbers) in the left colorbar. However, my point is: do you really need this figure to say that over overlappinp CORDEX regions model results can be different? You could first at least plot th eCORDEX domains over teh figure (to show teh overlap) and , much more importantly, showing that effectively model results difer (if they do so). As such, this figure and teh sentence 'EUR-44 and AFR-44 could produce conflicting results' is of not much use, to me. [Alessandro Dosio, Italy]	Accepted. A more comprehensive treatment of overlaps has been made and the figure has been removed.
30896	24	20	24	20	about section Atlas.4: ch4 and ch9 are quite exhaustive on global variables either for land/atmosphere and oceans/glaciers. Probably this section could be used to include variables used in ch 4 and ch 9 but (i) comparing different periods baselines; and (ii) use the warming levels as reference [Annalisa Cherchi, Italy]	Accepted. Section expands on Ch 4/9 findings as introduction to what can be further explored in the Interactive Atlas.

Comment ID	From Page	From Line	To Page	To Line	Comment	Response
48104	24	20	24	20	Section Atlas.4 (Global synthesis) combines findings from Chapters 2-9 with a focus on messages that are relevant to WGII and WGIII contexts. The material in this section consists of examples which are cross-cutting and of relevance to the handshake with WGII. Strong coordination between the Atlas and WGII and WGIII is needed. [WGI TSU, France]	Accepted. Section expands on global chapter findings as introduction to what can be further explored in the Interactive Atlas with a focus on findings relevant to the other WGs.
28242	24	43	24	43	Replace "principle" with "principal". [Blair Trewin, Australia]	Accepted. Corrected.
26306	24	44	24	45	beyond temperature and precipitation, which other surface variables are considered? For impact assessments we also need variables such as evapotranspiration, solar radiation, wind, and derived variables such as soil moisture and fire-weather. [Hennessy Kevin, Australia]	Taken into account. Additional variables added consistent with assessment of Ch 12 informed by requirements of WG II assessment.
26308	24	47	24	47	which RCPs? [Hennessy Kevin, Australia]	Noted. Clarified in the SOD.
57712	24	55	24	55	I struggle a bit to understand the reason why this figure is shown; is it just to show the potential of the interactive atlas to plot maps of eg temperature warming under different GWL and/or RCP/timing ? Or do you want to point that mi-term warming under RCP4.5 is similar (in pattern and magnitude) to that of 2C GWL? the [Alessandro Dosio, Italy]	Noted. The former, and is clarified in the SOD.
27114	25	4	25	5	Is not clear which are “the other three map” [Edoardo Cremonese, Italy]	Noted. The RCP-based maps, clarified in the SOD.
57714	25	22	25	22	Figure 16: I think that in addition to this kind of plot, you should/could also show maps of model uncertainty. The geographical distribution of tehunceratinty is not visible in figure 16 [Alessandro Dosio, Italy]	Accepted. Additional results added to display uncertainty ranges.
41930	25	33	25	34	“(note that stippling indicates those gridboxes where less than six out of the nine models do not agree on the sign of the projected change).” DO YOU MEAN: “ (stippling indicates those gridboxes where less than six out of the nine models agree on the sign of the projected change). ????? [Christophe Deissenberg, Luxembourg]	Editorial. Yes, corrected.
41932	25	42	25	43	SEE PREVIOUS COMMENT [Christophe Deissenberg, Luxembourg]	Editorial. Yes, corrected.
41934	25	50	25	50	runoff and, if appropriate, derived quantities such as river flow and indices relevant to drought. If [Christophe Deissenberg, Luxembourg]	Not applicable. Placeholder text removed.
41936	25	56	25	56	magnitude or likelihood are often influenced by global climate drivers and understanding the relevant links can be [Christophe Deissenberg, Luxembourg]	Editorial. Edited as suggested.
57716	26	6	26	8	Understanding…goals. This sentence is correct, but I don't understand how the atlas can help in achieving this goal. [Alessandro Dosio, Italy]	Rejected. The statement is about how an analysis of how modes of variability are linked to hazards can help quantify their likelihood which is useful for resilience building/risk reduction.

Comment ID	From Page	From Line	To Page	To Line	Comment	Response
54500	26	13	26	14	Actually this is a pretty successful diagram: complex but clear. [Linda Mearns, United States of America]	Noted. Thanks.
26310	26	13	26	17	Figure 18 is innovative but very busy. It could be simplified into a colour-coded matrix with modes of variability on one axis and region on the other axis. [Hennessy Kevin, Australia]	Rejected. The figure is effective in conveying the message, visually appealing and from a published paper thus does not need revising.
48098	26	15	26	15	Too many adjectives accompanying the terms ?evidence? and ?agreement? (some of them are redundant or not very precise). With ?evidence?: robust, medium, strong, limited, growing, low, emerging, little, adequate, no robust, insufficient, weak, no contradictory, clear. With ?agreement?: high, low, medium, limited, poor, consistent. [WGI TSU, France]	Not applicable. Comment is not clear.
41938	26	33	26	33	threat presented by ocean acidification to ecosystem services and its socio-economic consequences are [Christophe Deissenberg, Luxembourg]	Editorial. Edited as suggested.
28288	26	36	26	38	There is a slight inconsistency with the draft SROCC here: the Atlas says no coral will be preserved at 2C, SROCC says > 99%. (SROCC also says 70-90% loss at 1.5C, not 70%). [Blair Trewin, Australia]	Noted. Test is consistent with SRCCL.
48106	27	8	27	8	Section Atlas.4.3 (Extremes) analyzes the implications of global warming for high-impact extreme climate events. This topic is a focus for Chapter 12 in its treatment of hazards relevant to risk assessment and Chapter 11 is devoted entirely to extreme events, so the results presented in this section are intended to complement these more in-depth treatments whilst providing synthesis material relevant to the WGII assessment. Strong cross-chapter coordination is needed here. [WGI TSU, France]	Accepted. Relevant assessment of extremes/hazards moved to Ch 11/12 and a synthesis retained in the Atlas.
54502	27	13	27	17	Not clear how a less indepth treatment is going to complement the more indepth treatments in Chapter 12. [Linda Mearns, United States of America]	Noted. The section provides a synthesis of material in Ch 12 relevant to further exploration in the Interactive Atlas.
41940	27	23	27	23	from raw output from the models and those in the right column after a bias correction has been applied to these model [Christophe Deissenberg, Luxembourg]	Editorial. Edited as suggested.
41942	27	34	27	35	???????????? bias corrected (EQM method) data (right column). Regions are stippled where less than six out of the nine models agree on the sign of the change (note that this assessment does not take into [Christophe Deissenberg, Luxembourg]	Editorial. Edited as suggested.

Comment ID	From Page	From Line	To Page	To Line	Comment	Response
57718	27	46	27	46	The impact of bias adjustment (and not 'correction' to be consisten with ch10) on threshold based indices has been investigated by e.g. Dosio, A. (2016). Projections of climate change indices of temperature and precipitation from an ensemble of bias-adjusted high-resolution EURO-CORDEX regional climate models. J. Geophys. Res. Atmos. 121, 5488–5511. doi:10.1002/2015JD024411. which you may want to add to the refernce list. [Alessandro Dosio, Italy]	Taken into account. "Adjustment" now used and reference added.
41944	27	50	27	51	10) the results in Figure Atlas.20: should be taken as indicative of the direction of change and of the relative impact of different future scenarios, with low confidence in the absolute values. In order to provide an idea of [Christophe Deissenberg, Luxembourg]	Editorial. Edited as suggested.
54504	27	52	27	54	I recommend that one instance of results using two different bias corrections be included in the text. [Linda Mearns, United States of America]	Accepted.
57720	28	8	28	8	There is a problem in my opinion of balance between the different regional sub-sections in section5. Although I undersrtand the willingness to have an uniform structure for each region (Observation trends and attribution; Assessment of model perfomances; assessment of projections) each regional section develops the structure in its own un-coordinated way, with Europe (5.6) having many sub-sub-sections, and other regions none. In addition, even when subsubsection exists (eg Africa5.2.1.1 and 5.2.1.2) they differ from those of other regions (EU 6.1.1-6.1.4). I think that a common structure shoudl be followed, possibly following that of Europe, that is the more developed one. [Alessandro Dosio, Italy]	Noted. A common structure is being followed now.
30898	28	8	28	8	a list of the regions (table or figure) is mandatory [Annalisa Cherchi, Italy]	Taken into account. It has been updated.
41946	28	25	28	25	data sets, reanalysis, and satellite based) and on observed trends, extremes ,and variability, and also on how they are [Christophe Deissenberg, Luxembourg]	This has been relooked at in the new structure.
30900	28	39	28	39	why not ETCCDI definition? [Annalisa Cherchi, Italy]	Noted. Interactive Atlas allows for a flexible season definition to include monthly values.
30902	28	45	28	45	for Africa you need to identify specific regions (explaining why those regions). But some parts of Africa are assessed in other chapters so you need to specifiy what is assessed here and what elsewhere [Annalisa Cherchi, Italy]	Noted. Specific regions have been assessed.

Comment ID	From Page	From Line	To Page	To Line	Comment	Response
30904	28	47	28	50	maybe better in terms of "Africa is a wide continent spanning many latitudes from north the equator to about 35S and it is interested by different types of climate (Atlas.21 Koppen-Geiger classification)" [Annalisa Cherchi, Italy]	Taken into account. This classification is changed.
8924	28	48	30	4	In West Africa, the unimodal rainfall in the Sahel and the bi-modal rainfall in the Gulf of Guinea should clearly be mentioned. The bi-modal rainfall (e.g. Magana et al., 1999 and Lamptey, 2008) shows what is called Mid Summer Drought in Central America and the Caribbean. It is sometimes called the Little Dry Season in West Africa. In the section on the Americas and Small Islands (Mexico and Central America), mention should be made that the MSD is also be observed in West Africa. [Benjamin Lamptey, United Kingdom (of Great Britain and Northern Ireland)]	A correction has been effected.
54148	28	49	28	50	"Temperatures are hottest in the north and coolest across the south and at elevation within the topography 50 across the continent." This is a terrible oversimplification, there is no gneral south-north temperature gradient over Africa - this sentence should be removed. [Francois Engelbrecht, South Africa]	The sentence is removed.
54506	28	55	28	55	Any particular reason for Koppen-Geiger classification as opposed to others avaialble? [Linda Mearns, United States of America]	The classification has been changed.
54150	29	13	29	24	This discussion on observed trends in temperature in Africa is not adding any value to the corresponding discussion in Chapter 12. In fact, it is inconsistent with that section and does not do justice to the vast body of literature available on this topic. For a start, observed trends in temperature increases in Africa are not limited to the regions adjacent to the Indian Ocean, but this section creates that impression. The authors need to update this section by firstly making it consistent with the Chapter 12 discussion. Secondly, they need to strengthen the discussion and making it consistent with SR1.5, by considering Section 3.3.2.1 of Chapter 3 of SR1.5. [Francois Engelbrecht, South Africa]	This has been addressed in the new Atlas structure.
41948	29	20	29	20	I WOULD DELETE THE WHOLE LINE. SPEAKING HERE OF ANTHROPOGENIC CHANGES IS UNNECESSARY AND OPENS THE PANDORA BOX OF ATTRIBUTION, WHICH IS NOT ADDRESSES IN THE FOLLOWING LINES, CREATING AN INCONSISTENCY IN THE FLOW OF THOUGHT [Christophe Deissenberg, Luxembourg]	Changes have been implemented.

Comment ID	From Page	From Line	To Page	To Line	Comment	Response
57722	29	20	29	24	This is an example of the lack of structuring; should this part (attribution) go into section 5.2.1.2? [Alessandro Dosio, Italy]	The line has been removed.
57724	29	20	29	24	What about IPCC previous finding on precipitation? [Alessandro Dosio, Italy]	A summary of previous IPCC reports has been included.
30906	29	20	29	25	hard to find works for whole continents, consider regions [Annalisa Cherchi, Italy]	Noted. Regional assessment has been done.
30908	29	29	29	32	revise legend: pos and neg have to be easily identify. Thresholds where values are statistically significant [Annalisa Cherchi, Italy]	Noted. The figure has been changed based on the new structure.
54508	29	29	29	32	The 'blank' boxes on the figure need to be explained. [Linda Mearns, United States of America]	Noted.
57726	29	29	29	45	Should Figures 22 and 23 go into the 'observed trends' subsection 5.2.1.1? [Alessandro Dosio, Italy]	Common figures on observed changes are now included in the SOD.
28244	29	29	29	46	Is there any reason to use CRUTEM4v for Figure 22 but CRU TS 3.22 for Figure 23? [Blair Trewin, Australia]	No longer relevant - common dataset are used now for displaying regional trends.
30910	29	44	29	45	west africa is extensively assessed in ch 10. Eventually consider to include here values with alternative baseline or warming levels. Also consider to expand more other regions of Africa not assessed in the rest of the report [Annalisa Cherchi, Italy]	Noted. The structure of the session is changed after LAM3.
30912	29	50	29	50	remove line, it seems a repetition [Annalisa Cherchi, Italy]	Noted. This has been updated.
28246	30	2	30	4	Can this be placed in context of multi-decadal variations in Sahel mean rainfall? (In general, observed Sahel rainfall is a gap here, and is not really covered in Chapter 8 either). [Blair Trewin, Australia]	This is no longer relevant. Sahel is treated as a special region in another chapter.
57728	30	9	30	9	Figure 24: What is the meaning of this figure? If you are talking about trends, why not show trends in Tx90 and Tn90 instead of their mean (which does not say much)? [Alessandro Dosio, Italy]	Atlas is focusing on mean trends and not extremes after LAM3. The figure has been modified.
31714	30	10	30	10	The correct reference for EWEMBI is: http://doi.org/10.5880/pik.2019.004 [Martin Juckes, United Kingdom (of Great Britain and Northern Ireland)]	Noted.
54152	30	15	30	32	It is once again not clear how the discussion here adds value to that of Chapter 12, but at the very least it needs to be consistent with the Chapter 12 discussion. This section and the corresponding Chapter 12 section on temperature trends do not even rely on the same references, which is very concerning. [Francois Engelbrecht, South Africa]	This is no longer relevant. Assessment on extreme is not treated in Atlas after LAM3.

Comment ID	From Page	From Line	To Page	To Line	Comment	Response
57730	30	31	30	31	there are other studies apart Sylla et al 2013 investigating uncertainties in observation dataset for Africa. At least Panitz, H.-J., Dosio, A., Büchner, M., Lüthi, D., and Keuler, K. (2014). COSMO-CLM (CCLM) climate simulations over CORDEX-Africa domain: analysis of the ERA-Interim driven simulations at 0.44° and 0.22° resolution. Clim. Dyn. 42, 3015–3038. doi:10.1007/s00382-013-1834-5. and Nikulin, G., Jones, C., Giorgi, F., Asrar, G., Büchner, M., Cerezo-Mota, R., et al. (2012). Precipitation Climatology in an Ensemble of CORDEX-Africa Regional Climate Simulations. J. Clim. 25, 6057–6078. doi:10.1175/JCLI-D-11-00375.1. [Alessandro Dosio, Italy]	It has been addressed as appropriate.
53878	30	35	30	49	Consider also Uhe et al. 2018 Attributing drivers of the 2016 Kenyan drought. [Erin Coughlan de Perez, United States of America]	Noted.
30914	30	37	30	37	how many monsoon seasons are experienced in Africa? And where? [Annalisa Cherchi, Italy]	Taken into account. The sentence meant 'for every monsoon season'.
8926	30	37	30	37	Specify which part of Africa. If you are referring to West Africa, say West Africa and not Africa. [Benjamin Lamptey, United Kingdom (of Great Britain and Northern Ireland)]	The drying trends referred to from Hoerling et al. (2006) is for some parts of Africa. The sentencing following that explains the parts of Africa experiencing the drying trend. A correction has been effected.
8220	30	47	30	47	Rowell et al. 2015 has a lot to say on the topic of East Africa rainfall trends and should be included here. https://journals.ametsoc.org/doi/full/10.1175/JCLI-D-15-0140.1 [Declan Finney, United Kingdom (of Great Britain and Northern Ireland)]	Noted. Rowell et al 2015 has been assessed and included in the section.
30916	30	54	30	55	remove up to "In particular," included [Annalisa Cherchi, Italy]	Noted. Corrected.
30918	31	1	31	1	what "jump"? [Annalisa Cherchi, Italy]	Taken into account. West Africa monsoon jump is the migration of the WAM into the continent which occurs in a discrete step and is now clarified in the text (referring to Cook, 2015; Sultan and Janicot, 2000; Thorncroft et al., 2011, Im and Eltahir 2017).
28248	31	9	31	9	What periods are the -0.013 and -0.003 trends over? [Blair Trewin, Australia]	This was a study over 1900 to 2010. This is corrected in the text.

Comment ID	From Page	From Line	To Page	To Line	Comment	Response
57732	31	15	31	17	Also Figure 25; I understand this is the FOD but my questions are: 1) Will the SOD include all RCMs and CMIP5/6 models? And what about GCM driven runs? See for instance Dosio, A., Jones, R., Jack, C., Lennard, C., Nikulin, G., and Hewitson, B. (2019). What can we know about future precipitation in Africa? Robustness, significance and added value of projections from a large ensemble of regional climate models. Clim. Dyn. doi:Submitted. and Dosio, A., Panitz, H.-J., Schubert-Frisius, M., and Lüthi, D. (2015). Dynamical downscaling of CMIP5 global circulation models over CORDEX-Africa with COSMO-CLM: evaluation over the present climate and analysis of the added value. Clim. Dyn. 44, 2637–2661. doi:10.1007/s00382-014-2262-x. and references within. My main question is, however, what do we learn from this figure (apart that models have biases)? Can/will this figure used for selecting/exluding models runs? and according to what methodology? Or, at least can we use this kind of figure to cluster models according to their skills in present climate? I cannot see how you intend to plot a similar figure for all CORDEX-Africa runs, CMIP5 and CMIP6. [Alessandro Dosio, Italy]	Evaluation included both RCMs and the driving GCMs to provide appropriate context. This is based on a number of performance indices (to be discussed with regional chapters, in particular CH10).
57734	31	30	31	30	all this section is a it confusing, lacking structur. It wouls be better, in my opinion to separate subregions (WAF, CAF, etc) and for ecah of them describe separately preocjtions of temperature ad precipitation. As it is, regions, variables and also scenarios (RCPs vs GWL) are mixed, which can be confusing. [Alessandro Dosio, Italy]	Noted. This has been addressed in the new structure of the Atlas.
54154	31	32	31	32	"Projected rainfall changes over sub-Saharan Africa in the mid and late 21st century is uncertain". This sentence is misplaced, since the rest of the paragraph is about temperature changes. However, such general statements should also not be made for sub-Saharan Africa, since for the southern African region AR4, AR5 and SR1.5 have assessed that rainfall decreases are likely under low mitigation futures. [Francois Engelbrecht, South Africa]	Noted. This has been addressed in the new structure of the Atlas.
30920	31	32	31	32	why this first sentence on specific region? Assessment should be done for the whole continent and then for the regions selected [Annalisa Cherchi, Italy]	Noted. This has been addressed in the new structure of the Atlas.

Comment ID	From Page	From Line	To Page	To Line	Comment	Response
54156	31	32	33	27	The discussion in this section jumps randomly between reporting on projected changes in rainfall, temperature and rainfall, and between results from CORDEX and CMIP5. Moreover, the discussion is inconsisent with the discussion of trends and projected changes for Africa as represented in Section 12. The discussion should be organised variable by variable, and should use the same set of core references used in Chapter 12. [Francois Engelbrecht, South Africa]	Thank you. The structure is changed after LAM3.
28250	31	36	31	37	"Temperature increases of a certain magnitude" - is this with respect to a certain baseline? (presumably not pre-industrial, since this would be impossible to define observationally for West Africa). [Blair Trewin, Australia]	This is based on AR5 and is clarified in the SOD.
30922	31	39	31	39	when this exceeding is supposed to happen? [Annalisa Cherchi, Italy]	Taken into account. This is expected by the end of the century (IPCC 2014). Correction has been effected.
54510	31	44	31	50	And are any of these uncertainties explained. The paragraph as it stands is not very satisfiying. [Linda Mearns, United States of America]	Noted. This has been addressed in the new structure of the Atlas.
57736	31	47	31	47	As far as I know, Gobaniyi et al (2014) deals with present climate ERA-interim driven runs, not projections. As such it does not belong to this section. Analysis of the large CORDEX-africa RCMs ensemble are provided by Dosio, A. (2017). Projection of temperature and heat waves for Africa with an ensemble of CORDEX Regional Climate Models. Clim. Dyn. 49, 493–519. doi:10.1007/s00382-016-3355-5. for temperature and Dosio, A., Jones, R., Jack, C., Lennard, C., Nikulin, G., and Hewitson, B. (2019). What can we know about future precipitation in Africa? Robustness, significance and added value of projections from a large ensemble of regional climate models. Clim. Dyn. doi:Submitted, for precipitation. [Alessandro Dosio, Italy]	This is noted. It is corrected as appropriate.
30924	32	6	32	14	is the warming over horn of africa than the rest of africa, that is warming faster than the globe? [Annalisa Cherchi, Italy]	Accepted. According to Maure et al 2018, parts of Southern Africa, Namibia and Botswana will experience warming higher than the global mean warming in September–October–November season. Osima et al 2018 confirms a warming higher than the global 1.5 and 2 over the greater horn of Africa.

Comment ID	From Page	From Line	To Page	To Line	Comment	Response
57738	32	10	32	10	reaching 0.8C' compared to what? Is this the difference in warming whena.5C and2C GWL are compared? [Alessandro Dosio, Italy]	According to Osima et al 2018, difference in warming over the greater horn of Africa between 2 ◦C and 1. 5 ◦C GWLs is higher than 0.5 ◦C and particularly up to 0.8 ◦C for over Sudan and northern Ethiopia.
57740	32	29	32	29	Figure 26: Is this supposed to be an example? Will the SOD contain the same figure made with all available (GCMs and RCMs) runs? And why using grey literature (Daron 2014a) when similar figures are available from peer-reviewed works (eg Dosio, A. (2016). Projections of climate change indices of temperature and precipitation from an ensemble of bias-adjusted high-resolution EURO-CORDEX regional climate models. J. Geophys. Res. Atmos. 121, 5488–5511. doi:10.1002/2015JD024411.)? [Alessandro Dosio, Italy]	This has been considered in the new structure.
57742	33	11	33	11	The problem with thisfigure is hat when/if you plot more model runs (eg GCMs and all CORDEX) the layout (model by model) won't be adeuqte. So, either you show the inter model variability (eg standard deviation) or, even better, you could try to clusetr models (eg 'dry' and wet'. See eg Monerie, P.-A., Sanchez-Gomez, E., and Boé, J. (2017). On the range of future Sahel precipitation projections and the selection of a sub-sample of CMIP5 models for impact studies. Clim. Dyn. 48, 2751–2770. doi:10.1007/s00382-016-3236-y. [Alessandro Dosio, Italy]	This has been considered.
57744	33	22	33	22	Should it be figure 28 instead of 53? [Alessandro Dosio, Italy]	This is corrected.
30926	33	22	33	22	figure atlas.53 is not about africa [Annalisa Cherchi, Italy]	Noted. This is corrected.
57746	33	28	33	28	A category of models that is coimpletely missing in the analysis is the CP4Africa (convection permitting runs). Some papers are already published showing increased skill in eg diurnal cycle of convective precipitation. Are you going to lok at those runs as well? [Alessandro Dosio, Italy]	This has been considered in the new structure.
26206	33	30	52	1	Provide information for North Asia and West Asia. [Akio Kitoh, Japan]	Accepted. The region definitions for Asia are modified and North Asia and West Asia are considered.
6840	33	30	53	1	Scope of the 'Asia' chapter: Only East Asia, South Asia, Southeast Asia and Central Asia are analysed in the text, which leaves parts of the continent missing. Would short sub-chapters on West Asia or the northern part of the continent not be relevant? [Eva Yvonne Pfannerstill, Germany]	Taken into account. The region definitions for Asia are modified and North Asia and West Asia are considered.
30928	33	35	33	36	is this true only for Asia? [Annalisa Cherchi, Italy]	Accepted. This general sentence is now removed in the text for this subsection on Asia.

Comment ID	From Page	From Line	To Page	To Line	Comment	Response
30930	33	44	33	44	maps or table with these regions well identifed should be given [Annalisa Cherchi, Italy]	Taken into account. A table on these regions is added.
30932	33	47	33	47	East Asia is a case study for CH 10, avoid overlapping [Annalisa Cherchi, Italy]	Taken into account. The overlap with CH 10 is avoided through coordination of the Asian regional team.
15724	33	47	40	28	This sub-chapter describes East Asia. But it seems that just several references are utilized to describe EA climate. I would like to suggest that more references should be summarized. [YOUNG HWA BYUN, Republic of Korea]	Accepted. More references are added.
43798	33	49	40	28	For East Asian, part, China Sub. Continent has been mainly focused. However, we have both Korean Peninsular and Japan Archipelago. The climate response for these two area is a bit different from China Sub. Continent, thus much more referecnes of those area shold be referred here. [Izuru Takayabu, Japan]	Accepted. More references for Korean Peninsular and Japan Archipelago are added.
15726	33	54	33	55	The authors focuses that it is likely that surface ozone has stongly increased after the other phenomena which has many proofs and researches are described. Also next phrases support the authors's ments except for surface ozone. I would like to suggest that there should be more sentences about surface ozone increase. [YOUNG HWA BYUN, Republic of Korea]	Not applicable. These statements have been removed because the focus in Atlas 5.3 is temperature and precipitation.
43800	34	2	34	2	"dry cold norhterly flow in winter": For Japan Isls., it become wetter as it crosses the Japan Sea. It brings about a heavy snow fall to the Island. For example, "Kawase H., M. Hara, T. Yoshikane, N. Ishizaki, F. Uno, H. Hatsushika, and F. Kimura, 2013: Altitude dependency of future snow cover changes over Central Japan evaluated by a regional climate model. J. Geophys. Res. Atmos., 118, 12,444–12,457, doi:10.1002/2013JD020429. [Izuru Takayabu, Japan]	Accepted. "dry cold northerly flow in winter" has been deleted.
13332	34	2	34	21	There is an inconsistent between an 'inter-decadal weakening from the 1960s to the 1980s' and 'a weakening of the East Asian summer monsoon since the 1920s'. It is encouraged to clarify what variable used to reflect the trend of east asian summer monsoon. [Feng SHI, China]	Not applicable. The context has been removed.

Comment ID	From Page	From Line	To Page	To Line	Comment	Response
13076	34	8	34	8	To clearly show the link of the decadal changes in East Asia summer monsoon with rainfall changes, one supportive evidence should be added. Specific text will be added after '...local station records (Wang et al., 2006).': [The summer rainfall frequency and intensity over East Asia show significantly decreasing and increasing trends, respectively (Zhou and Wang, 2017a). Accompanied by the recovery of summer monsoon, the summer rainfall characteristics exhibit enhanced trends in recent decades, based on highly-resolved in-situ observations and eight current reanalysis products (Zhou and Wang, 2017b).] References: Zhou, C., and Wang, K., (2017a). Quantifying the sensitivity of precipitation to the long-term warming trend and interannual-decadal variation of surface air temperature over China. J. Clim., 30, 3687-3703. doi: 10.1175/JCLI-D-16-0702.1. Zhou, C., and Wang, K., (2017b). Contrasting daytime and nighttime precipitation variability between observations and eight reanalysis products from 1979 to 2014 in China. J. Clim., 30, 6443-6464. doi: 10.1175/jcli-d-16-0515.1. [Zhou Chunlüe, United States of America]	Accepted. The text has been added in Observation part.
43802	34	45	34	45	"Haet wave in Central Eastern China in July 2017" has been studied by weather@home: Extreme weather in Japan Isls. In July 2018 have been estimated by using d4PDF (Mizuta et al, 2017) data. d4PDF is also a many ensemble experiments by using both GCM and RCM. They appeared in "Imada, Y. et al. (2019) The July 2018 high temperature event in Japan could not have happened without human-induced global warming, Scientific Online Letters on the Atmosphere, doi:10.2151/sola.15A-002". [Izuru Takayabu, Japan]	Taken into account. In the updated structure (LAM3), the case study has been removed from Atlas 5.3.1, and the heat wave is not mentioned here.

Comment ID	From Page	From Line	To Page	To Line	Comment	Response
13078	34	50	34	50	To balance the statement in the current text, one stronger evidence will be placed after '...(Sparrow et al., 2018).': [However, using highly-resolved in-situ observations and CMIP5 models, Zhou et al. (2019) suggested approximately 23% (equivalent to an increase by a factor of 1.3) of attributed risk of such extremes as the record-breaking heatwave in Central Eastern China in 2017 to the global warming, after respectively accounting for approximately 58% and 32% of the risk attributed to the urban heat island effect and the abnormal western Pacific subtropical high.] [(replace 'Both results' in the following sentence by 'These results')] Reference: Zhou, C., and Wang, K., Qi, D., and Tan, J., (2019). Attribution of a record-breaking heatwave event in summer 2017 over Yangtze River Delta. Bull. Am. Meteorol. Soc., 100, 97-103. doi: 10.1175/BAMS-D-17-0090.2. [Zhou Chunlüe, United States of America]	Not applicable. In the updated structure (LAM3), the case study has been removed from Atlas 5.3.1, and the heat wave is not mentioned here.
30934	37	19	37	22	stay focused on the regions of interest [Annalisa Cherchi, Italy]	Accepted. The text has been modified and the other regions have been removed here.
43804	37	19	37	26	5.3.1.3 Assessment of model performance: Only one model results is reffered here. Thus th econfidence or evidence of looked not enough. [Izuru Takayabu, Japan]	Taken into account. It is modified to the synthesis of projections, based on available results from more models.
15432	37	23	37	26	It is encouraged to clarify whether this intensified summer monsoon and precipitation is independent of the scenario, the definition of monsoon index, and the regional range of precipitation. [Feng SHI, China]	Taken into account. The definition of monsoon index and the specific monsoon changes is coordinated by the monsoon group from global to regional, across chapters, instead of Atlas.
30936	38	7	38	22	are these results shown in this report for the first time and never published elsewhere? [Annalisa Cherchi, Italy]	Not applicable. These results have been removed.
43806	38	43	38	43	For extreme phenomena, we should stess what happened in Korean Pninsular or in Japan Isls. [Izuru Takayabu, Japan]	Not applicable. Relevant content from this section has been moved to CH 11.
43808	38	45	38	45	For example, we have a paper "Contributions of GCM/RCM Uncertainty in Ensemble Dynamical Downscaling for Precipitation in East Asian Summer Monsoon Season: Asuka Suzuki-Parker, Hiroyuki Kusaka, Izuru Takayabu, Koji Dairaku, Noriko N. Ishizaki, Suryun Ham (2018) (DOI https://doi.org/10.2151/sola.2018-017), which compared inter-GCM and inter-RCM differences around Japan archipelago. Here RCM has respond to the mounatins in each models and bring about a relatively large differecne in precipitation. [Izuru Takayabu, Japan]	Accepted. This paper has been included in the Atlas.5.3.1.

Comment ID	From Page	From Line	To Page	To Line	Comment	Response
15728	39	2	40	15	Figures ATLAS.39 and 40. Thre is no futher explanation with these figures near pages. What are purpose of these figures? It should be clarified. [YOUNG HWA BYUN, Republic of Korea]	Not applicable. The projection of extreme phenomena is moved to CH 11. Figure ATLAS 40 is removed.
15730	39	17	40	15	Figure ATLAS.40 and Table Atlas.8. These two provides similar information. I would like to suggest that one of them should be proposed including proper information to integrate these two. [YOUNG HWA BYUN, Republic of Korea]	Accepted. Figure ATLAS 40 and Table Atlas 8 have been removed.
43810	39	19	39	19	Please add EA11 RCM==> NHRCM Resolution= 2/5km [Izuru Takayabu, Japan]	Not applicable. The table has been removed.
15732	40	24	40	28	Table Atlas.9. It is difficult to understand why this table should be included. I would like to suggest to delete it. [YOUNG HWA BYUN, Republic of Korea]	Accepted. This table has been deleted.
28252	40	28	40	28	The concept of Table 9 is good in theory, but I suspect it will not be practical to do a comprehensive count of literature in practice. [Blair Trewin, Australia]	Accepted. Table 9 has been removed.
30938	41	7	41	7	maritime continent if referred to the specific region has to be upper case [Annalisa Cherchi, Italy]	Taken into account. The text has been revised.
30940	41	30	41	30	not much in this section about attribution (to verify overlapping of regions selected as case studies in ch 10) [Annalisa Cherchi, Italy]	Taken into account. This is considered in the new structure and we have included assessment of attribution of means.
43812	41	32	42	46	5.3.2.1 Observations, trends and attributions: Almost all analysis are using observation data. However, the resolution of these data is not clearly described. Do we have really enough obs. points to discuss on the climate change in such a small space area? [Izuru Takayabu, Japan]	Taken into account. We have modified the text to explain that all these studies are using stations observation to draw their conclusions and include uncertainty.
41950	41	36	41	37	studies have indicated an increasing trend in the mean temperature, the extreme maximum, and the minimum temperature. Cheong et al. (2018) analysed stations data from 1972-2010 over Southeast Asia and [Christophe Deissenberg, Luxembourg]	Taken into account. The text has been modified as suggested.
26210	41	37	41	48	Lines 37-39 shows that minimum temperature rises faster than maximum temperature, while lines 47-48 shows the opposite. What is the overall assessment? [Akio Kitoh, Japan]	Taken into account. The statement on Jakarta is removed.
41952	41	47	41	48	MAYBE IT WOULD BE BETTER NOT TO MENTION DJAKARTA SINCE THE WARMING IS ARGUABLY STRONGLY RELATED TO URBANISATION PHENOMENA [Christophe Deissenberg, Luxembourg]	Taken into account. The statement on Jakarta is removed.
26214	42	5	42	28	Most of the results here lack information on the period analyzed. [Akio Kitoh, Japan]	Taken into account. The period analysed has been added to the text.
28254	42	18	42	23	What periods are the trends reported in this section over? [Blair Trewin, Australia]	Taken into account. The period of the trends analysed in the reports has been added to the text.

Comment ID	From Page	From Line	To Page	To Line	Comment	Response
30942	43	9	43	10	should this be answered in previous sections? [Annalisa Cherchi, Italy]	Taken into account. We have moved the text to the last paragraph of Atlas.5.3.2.1 .
28256	43	20	43	20	"wet bias magnitude" - does this mean that all models are too wet? If biases are both positive and negative, suggest replacing with "rainfall bias magnitude". [Blair Trewin, Australia]	Taken into account. The text has been revised and we have used "rainfall bias magnitude".
43814	43	39	43	39	"quantile mapping": Here A method of BA has been appeared. It should be explaind a bit somewhre in CH12. [Izuru Takayabu, Japan]	Taken into account. The text has been revised to refer to Ch10 for the methodology on bias adjustment.
30944	43	41	43	48	are these models results? Indices for extremes should be coordinated with ch 11 and a table or cross-chapter box should be provided with definitions well detailed and listed [Annalisa Cherchi, Italy]	Taken into account. We have taken this into account in the new structure of the Atlas regional sections and relevant material on extremes has been moved to Ch11.
30946	43	53	43	53	what is the "similarity index omega"? [Annalisa Cherchi, Italy]	Taken into account. We have modified the text to include a very brief non technical description of the similarity index.
30948	44	10	44	18	figures atlas.43 and atlas.44 could be joined into a single figure [Annalisa Cherchi, Italy]	Not applicable. We have modified the text and streamlined the figures.
43816	44	25	45	7	5.3.2.3 Assessment of projections: Here COREDEX-SEA's results have been reffered. I wonder if they have enough confidence or evidence, because they have done it in about the same research group. If we could get support from other group's research, it may be much better. [Izuru Takayabu, Japan]	Taken into account. We have included additional references from other studies in the region.
41954	44	27	44	28	DO YOU MEAN: Only few published studies on future climate projections for Southeast Asia are based on multi-model regional climate simulations. ? [Christophe Deissenberg, Luxembourg]	Taken into account. We have modified the text to clarify the statement.
41956	44	35	44	35	the region by the end of the century under RCP 8.5, with a maximum increase of 2ºC under RCP 4.5. [Christophe Deissenberg, Luxembourg]	Taken into account. The text has been revised.
28258	44	36	44	36	In most of southeast Asia, 30C is not a very meaningful indicator of hot days - 35C would be better. [Blair Trewin, Australia]	Taken into account. We have modified the text.
28260	45	20	45	20	"more pronounced in the Maritime Continent" - this wording is unclear (does it mean that under RCP4.5 the Maritime Continent has a larger increase than other regions, or that the Maritime Continent has a larger increase under RCP4.5 than RCP8.5? [Blair Trewin, Australia]	Taken into account. We have modified the text and clarified the statement.
28262	46	13	46	13	I suspect "(decreased)" should be "(increased)". [Blair Trewin, Australia]	Accepted. The text has been revised.
41958	46	17	46	17	in large parts of few continents including Asia: CAN YOU BE MORE PRECISE? AFTER ALL, THERE ARE ONLY 7 CONTINENTS [Christophe Deissenberg, Luxembourg]	Accepted. The text has been revised.

Comment ID	From Page	From Line	To Page	To Line	Comment	Response
41960	46	28	46	28	over a recent-past decade: CAN YOU BE MORE PRECISE? [Christophe Deissenberg, Luxembourg]	Accepted. The text has been revised.
30950	46	39	46	39	Asian region or South Asia? [Annalisa Cherchi, Italy]	Taken into account. The sentence is true for Asia and the text is removed in the South Asia subsection.
30952	46	43	46	52	as for monsoon properties refer to ch 8 [Annalisa Cherchi, Italy]	Noted. There is a cross chapter group on monsoon for closer coordination. The relevant CLA/LA are reviewing the relevant text throughout AR6.
41980	47	2	47	3	The scaling relationship between extreme precipitation and dew point temperature showed a super Clausius−Clapeyron (C−C) relationship (more than 7% increase per unit rise in dew point temperature) during the [Christophe Deissenberg, Luxembourg]	Accepted. The text has been revised.
41982	47	47	47	47	between è within ??? [Christophe Deissenberg, Luxembourg]	Noted.
30954	48	9	48	9	in the section results about South Asian monsoon should be coordinated with ch 8 [Annalisa Cherchi, Italy]	Noted. There is a cross chapter group on monsoon for closer coordination. The relevant authors (CLA/LA) are reviewing the relevant text throughout AR6.
30956	48	11	48	21	rewrite and re-organize: distinguish variables and within distinguish regions (avoid to mix up) [Annalisa Cherchi, Italy]	Accepted. The text has been revised.
28266	48	23	48	47	This section seems to depend heavily on the SRES scenarios - is there not much literature using the RCPs? [Blair Trewin, Australia]	Taken into account. New references with RCPs has been added.
41984	48	26	48	26	The would be a????? [Christophe Deissenberg, Luxembourg]	Accepted. The text has been revised.
41962	48	26	48	26	The would be a ???? [Christophe Deissenberg, Luxembourg]	Accepted. The text has been revised.
41986	48	33	48	33	as ==> are [Christophe Deissenberg, Luxembourg]	Accepted. The text has been revised.
26212	48	38	48	39	I doubt whether the statement "frequency of extreme minimum temperature is projected to increase" is real or not, because this reads as lower temperature in the warming world. Probably, you want to say something different. [Akio Kitoh, Japan]	Taken into account. The text has been revised to clarify this statement.
30958	49	1	49	2	do you mean that extreme monsoon years will be exhacerbated? [Annalisa Cherchi, Italy]	Taken into account. The text has been revised to clarify this statement.
30960	49	21	49	52	this paragraph is a list of results, it should be transformed into an assessment [Annalisa Cherchi, Italy]	Taken into account. The text has been revised to assessment statements.
28264	49	35	49	35	Noting for reference (no response required) - presumably there will be a central IPCC style guide about the use of potentially controversial placenames? (e.g. Azad Kashmir). [Blair Trewin, Australia]	Noted.
41988	49	41	49	42	projects that 1-day duration of rainstorm over Indus basin in India will increase in intensity but decrease in frequency HOW CAN 1-DAY DURATION INCREASE IN INTENSITY …? [Christophe Deissenberg, Luxembourg]	Accepted. The text has been revised.
41990	49	41	49	48	THE FORMULATION NEEDS TO BE IMPROVED [Christophe Deissenberg, Luxembourg]	Accepted. The text has been revised.

Comment ID	From Page	From Line	To Page	To Line	Comment	Response
28268	50	21	50	21	This section is headed "Central Asia" but the tables refer to Northwest/Northeast Asia - there may be some confusion of definitions here (not helped by the rather misleading Central Asia region in the SREX definitions). In general there is not much material here on either Central or North Asia - very little on the Asian part of Russia, for instance. [Blair Trewin, Australia]	Taken into account. New subregions with proper naming is in the SOD and additional material is provided and assessed.
30962	50	21	50	21	assessment for this regions is likely to expand as not well considered in other chapters, right? [Annalisa Cherchi, Italy]	Accepted. For this region including subregions the assessment in the SOD follows the same way as for other regions.
28270	50	32	50	32	Table 11 covers material within the brief of the Observations Annex, so may be a duplicate. [Blair Trewin, Australia]	Accepted. The information from the table is in the corresponding place in the SOD.
30964	50	32	50	32	just a portion of central asia in the table? Why? [Annalisa Cherchi, Italy]	Taken into account. Assessment for this region is expanded accordingly with available literature.
28272	53	3	54	18	At present there is very little material for Australasia other than a restatement of AR5 findings. I note that there is no LA or CA from the region - I can look for a CA if you are interested (one of the authors of the Australian State of the Climate report would probably be suitable if they are interested). [Blair Trewin, Australia]	Noted. Lead author appointed, and more material added to this section
26312	53	5	53	26	This could be updated with the latest information from the WG2 Australasia chapter, but how does the Atlas analysis add value? [Hennessy Kevin, Australia]	Taken into account. For this region including subregions the assessment in the SOD follows the same way as for other regions in the Atlas and has been expanded accordingly with available literature.
28274	53	26	53	26	Replace "Snow" with "Snowy". [Blair Trewin, Australia]	Accepted. The text has been revised.
26314	53	29	53	30	Information about CMIP5 model performance in the Australasia region is available from CSIRO and BoM (2015). https://www.climatechangeinaustralia.gov.au/en/publications-library/technical-report/ and MfE (2018) https://www.mfe.govt.nz/publications/climate-change/climate-change-projections-new-zealand. How does the Atlas analysis of performance add value? [Hennessy Kevin, Australia]	Taken into account. For this region including subregions the assessment in the SOD follows the same way as for other regions in the Atlas and has been expanded accordingly with available literature.
26316	53	32	54	6	This could be updated with the latest information from the WG2 Australasia chapter, but how does the Atlas analysis add value? [Hennessy Kevin, Australia]	Taken into account. For this region including subregions the assessment in the SOD follows the same way as for other regions in the Atlas and has been expanded accordingly with available literature.

Comment ID	From Page	From Line	To Page	To Line	Comment	Response
26420	53	36	53	36	replace "Australia" with "Australasia" [Hennessy Kevin, Australia]	Accepted. The text has been revised.
48108	54	22	54	22	Summary features of climate change in Central and South America are described in Chapter 10. More specific information is given in Section Atlas.5.5 (Central and South America). There is a need to make sure that results shown in Chapter 4 and in the Atlas are not duplicated (and are consistent). [WGI TSU, France]	Noted. Chapter 10 includes the Central American and Caribbean midsummer drought as a case study, and the Atlas treat it as a climatic issue. We see no overlapping nor contradiction. No issue was found with chapter 4.
31764	54	24	54	24	Ch10 does not describe summary features of climate change in Central and South America. [Anna Sörensson, Argentina]	Accepted. Text revised.
30966	54	24	54	24	coordination needed with ch 10, and specify exactly who is assessing what (table, cross-ch box, etc) [Annalisa Cherchi, Italy]	Accepted. This problem is being addressed in the inter-chapter CAM_SAM regional group.
31796	54	24	74	9	The region Andes can be better covered in the Sub-section on South America. I suggest the following references: Domínguez-Castro et al., 2018: Wet and dry extremes in Quito (Ecuador) since the 17th century (10.1002/joc.5312), Heidinger et al., 2018: A new assessment in total and extreme rainfall trends over central and southern Peruvian Andes during 1965–2010 (10.1002/joc.5427),Neukom et al., 2015: Facing unprecedented drying of the Central Andes? Precipitation variability over the period AD 1000–2100 (10.1088/1748-9326/10/8/084017), Ohmura, 2012: Enhanced temperature variability in high-altitude climate change (10.1007/s00704-012-0687-x), Vuille et al. 2015: Impact of the global warming hiatus on Andean temperature (10.1002/2015JD023126), Wang et al., 2014: Recent warming amplification over high elevation regions across the globe (10.1007/s00382-013-1889-3), Zazulie et al. 2018: Regional climate of the Subtropical Central Andes using high-resolution CMIP5 models. Part II: future projections for the twenty-first century (10.1007/s00382-017-4056-4) [Anna Sörensson, Argentina]	Accepted. The regional handshake team are working together to avoid overlaps and check consistency and coherency. These references will be added as appropriate in the next draft (FGD).
54512	54	30	54	30	There needs to be a resolution regarding the defintion of central America in WGs I and II. In WGII, Mexico is part of North America, whereas in WGI it is part of central America. Should be a fun discussion! [Linda Mearns, United States of America]	Noted. Several sub-continental reference regions can be selected together in order to obtain regional results. This allows joining North and Central America regions in order to build the desired region.

Comment ID	From Page	From Line	To Page	To Line	Comment	Response
28276	54	32	55	30	This looks like "textbook" material (also parts of P56), which is being discouraged in other chapters, although the Atlas does play a somewhat different role. It is somewhat out of balance with the material provided for other regions. For IPCC the main interest is how some of these phenomena are changing (or not changing), not that they exist. [Blair Trewin, Australia]	Accepted. Text revised. The purely descriptive text have been reduced, putting emphasis in climate change.
30968	54	34	54	35	too old reference, what about likely recent changes? [Annalisa Cherchi, Italy]	Accepted. New references have been considered.
30970	55	33	55	33	what about in AR5? [Annalisa Cherchi, Italy]	Noted. A synthesis of previous findings in AR5 and special reports have been included in the SOD.
28278	56	9	56	9	Does "ENSO" here mean "El Nino"? [Blair Trewin, Australia]	Accepted. Text revised.
41992	56	12	56	13	summers with high PDO and El Niño condition favours warmer temperature (Pavia et al., 2006) for the Caribbean, in particular. [Christophe Deissenberg, Luxembourg]	Accepted. Text corrected.
30972	56	45	56	45	"tropical cyclones" issues to be coordinated with ch 11 and ch 8. Quite old reference in the section here, what about more recent changes? [Annalisa Cherchi, Italy]	Noted. Text revised. According to inter-chapter agreement, the assessment of observations, trends, attributions and future projections is transferred under the scope of Chapter 11 but the assessment of model evaluation must remain in the Atlas. Consequently, most of the issues will be transferred to Chapter 11.
41994	57	9	57	11	As a conceptual basis for these considerations, the works of Emanuel and Holland (Emanuel, 1995; Holland and Webster, 2007) can be taken as a theoretical basis. TOO MANY BASES HERE???? [Christophe Deissenberg, Luxembourg]	Noted. These issues have been transferred to Chapter 11.
41996	57	11	57	14	Some authors (Holland and Webster, 2007; Hoyos et al., 2006; Mann et al., 2007; Webster et al., 2005) have argued that the tendency towards increased SST detected during the last century is due to anthropogenic causes. Increased SST, in turn, is the fundamental cause of the increased frequency of TC in general and, in particular, of major hurricanes. [Christophe Deissenberg, Luxembourg]	Noted. These issues have been transferred to Chapter 11.
41998	57	40	57	40	PRECIS system simulations have not improve at all with the dimensions of the domain, as important [Christophe Deissenberg, Luxembourg]	Rejected. The comment seems to be incomplete. It is not clear what revision is requested.
28280	58	16	58	17	"were also observed" - was this in observations, models or both? [Blair Trewin, Australia]	Accepted. Text revised. It was in observations and was successfully reproduced by the model.
28282	58	20	58	23	I don't really understand this section - may need rewording. [Blair Trewin, Australia]	Accepted. Text revised and reworded.

Comment ID	From Page	From Line	To Page	To Line	Comment	Response
54514	58	38	58	39	Here's an example of where there are problems regarding splitting the NAM region, which is both in Mexico and the American Southwest. Where should the Monsoon be discussed? In both? [Linda Mearns, United States of America]	Not applicable. The mentioned regions have been redefined in the SOD.
28284	58	40	58	40	Should "known by" be "known as"? [Blair Trewin, Australia]	Accepted. Text corrected.
30974	58	46	58	46	role of resolution and coupling processes? To coordinate with ch 8 and ch 11 [Annalisa Cherchi, Italy]	Noted. The paragraph has been sent to the regional group for comments.
42000	59	13	59	13	greater sensitivity to physics schemes was determined than resolution. ???? [Christophe Deissenberg, Luxembourg]	Noted. The answer is yes.
30976	59	36	61	10	mostly a list of results, not a real assessment [Annalisa Cherchi, Italy]	Noted. Discussion notes have been added. Part of the text regarding extremes is proposed to ass to Chapter 11.
54516	59	42	59	45	Bukovsky et al., 2013, 2015 need to be cited here regarding the NAM. These are analyses of the NARCCAP simulations, but these should be cited, since they are really good process level analyses of RCMs in terms of their credibility. And here we have the same problem about splitting up the NAM region. [Linda Mearns, United States of America]	Accepted. The suggested sources have been considered in the text.
28286	59	53	59	53	Which baseline is being referred to here? [Blair Trewin, Australia]	Accepted. 1971–2000. Added in the text.
54518	60	12	60	12	It isn't clear if and how statistical downscaling is to be discussed in the Atlas. There needs to be a clear statement up front in the Atals about the role of statistical downscaling in the projections assessed in the Atals. [Linda Mearns, United States of America]	Noted. Statistical downscaling is assessed in Chapter 10 together with dynamical downscaling and region and regional studies (extending on the assessment made on Chapter 10) are reported in the Atlas regional sections (when available).
42002	60	35	60	35	There is very high confidence, almost certitude, in increased temperature projections on small islands. [Christophe Deissenberg, Luxembourg]	Accepted. Text corrected.
28290	60	37	60	37	"Very likely" around 20% seems an overconfident assessment to me given experience of this type of projection. Probably better to give a confidence interval if you can. [Blair Trewin, Australia]	Accepted. Text corrected.
28292	60	49	60	49	"Applying the 1971-2000 baseline" makes little sense in this context since it's being compared with 1.5C since pre-industrial. If the point is to look at post-1971-2000 warming at the point when global warming reaches 1.5C, we should probably also list a global change from 1971-2000 for comparison [Blair Trewin, Australia]	Accepted. Text corrected.
42004	60	51	60	52	Under the 1.5ºC target the region would annually experience more than additional 100 days of warm spells, and significantly more under the 2ºC target. [Christophe Deissenberg, Luxembourg]	Accepted. Text corrected.

Comment ID	From Page	From Line	To Page	To Line	Comment	Response
28294	61	28	61	47	The TC intensity/frequency projection results quoted are from CMIP3 - is there anything more recent? [Blair Trewin, Australia]	These issues have been transferred to Chapter 11.
30978	61	33	61	37	how is cllj linked to tropical cyclones? [Annalisa Cherchi, Italy]	Tropical cyclone issues have been passed to Chapter 11.
40334	61	52	62	21	The South American Monsoon System is missing here. Useful references to describe it are: https://doi.org/10.1175/JCLI3896.1, https://doi.org/10.1002/joc.2254 [Carolina Vera, Argentina]	Taken into account. South America Monsoon features is addressed somewhat in Chapter 2-4, primarily in Chapter 8, but also in Chapter 11, and potentially in 12. Atlas summarized key findings.
39744	61	52	74	10	Check consistency and coherency with the assessment performed in section 12.4.4 of chapter 12 [Carolina Vera, Argentina]	Noted. The regional handshake team are working together to avoid overlaps and check consistency and coherency.
39746	61	52	74	10	Regarding the assessment of southeastern South America (SES) region, check consistency and coherency with the assessment made in the case study of the SES summer wetting in chapter 10 [Carolina Vera, Argentina]	Noted. The regional handshake team are working together to avoid overlaps and check consistency and coherency.
31766	62	3	62	11	These lines does not include any references at all. Do you consider it too general? [Anna Sörensson, Argentina]	Taken into account in the FGD. Text revised and cross-references added.
28296	62	14	62	14	Replace "stripe" with "strip" [Blair Trewin, Australia]	Accepted. Text revised.
39748	62	23	62	26	The figure selected from Satyamurti et al. (1998) is not clear and might not be that useful. I would suggest to think which are the elements of the climate system in South America that could be of relevance for Atlas users. [Carolina Vera, Argentina]	Taken into account. The text/figure has been revised.
28300	62	48	62	53	Text needs to make it clearer that these are AR5 findings. [Blair Trewin, Australia]	Accepted. The text has been revised for Second Order Draft.
28298	62	49	62	49	If the high confidence is intended to refer to the warming trend over most of South America than it would be better placed after "increased warming trend". [Blair Trewin, Australia]	Accepted. The text has been revised.
31768	62	53	62	53	"…not all these changes are attributed to human activities..", do you mean that studies of attribution are missing for the region or that changes have been attributed to other factors than human influence? [Anna Sörensson, Argentina]	Accepted. The idea mentioned was that the changes were attributed to other factors than human influence. The text has been revised for clarity.
28302	63	1	63	6	Text at P16 L9 indicates that lack of updating of data is also a problem in South America. [Blair Trewin, Australia]	Noted. Unclear what revision is requested here.
31770	63	20	63	52	While in the first lines 20-26 and in the lines 33-52 changes in cliamate variables are only described, in the last two sentences of the first paragraph (26-31) an attempt to attribution is also included. This should be homogenizized (change to only describe the changes). [Anna Sörensson, Argentina]	Accepted. The text has been revised for Second Order Draft.

Comment ID	From Page	From Line	To Page	To Line	Comment	Response
28304	63	52	63	52	Does this apply to all of Chile or just a section of it? [Blair Trewin, Australia]	Taken into account. The text has been revised for Second Order Draft. The cross-chapter team are working together to avoid overlaps and check consistency and coherency.
39750	64	11	64	16	Useful articles for this description could be: Saurral, R. I., Camilloni, I. A., & Barros, V. R. (2017). Low-frequency variability and trends in centennial precipitation stations in southern South America. International Journal of Climatology, 37(4), 1774-1793. doi:10.1002/joc.4810 Vera, C. S., & Díaz, L. (2015). Anthropogenic influence on summer precipitation trends over South America in CMIP5 models. International Journal of Climatology, 35(10), 3172-3177. doi:10.1002/joc.4153 [Carolina Vera, Argentina]	Taken into account. References has been added in Second Order Draft.
31772	64	14	64	14	"mean flows" - I think you mean extreme flows? [Anna Sörensson, Argentina]	Accepted. The text has been revised.
31774	64	14	64	16	This last phrase, which of the papers from the previous phrase should be cited? Barros et al. (2015)? [Anna Sörensson, Argentina]	Noted. The phrase refers to Barros et al. (2015). The reference has been added at the end of the sentence.
31776	64	32	64	38	Check if this overlaps with Chapter 11 about extremes. [Anna Sörensson, Argentina]	Accepted. The regional handshake team are working together to avoid overlaps and check consistency and coherency.
31778	64	43	64	43	Reference is missing to this paragraph. [Anna Sörensson, Argentina]	Accepted. The text has been revised.
30980	64	43	64	48	is this about global, regional models or both? [Annalisa Cherchi, Italy]	Accepted. The text has been revised.
31798	64	43	66	4	I think that the model evaluation, not to be merely "therorethical" should aim at giving the reader some guidance to know which model to use, in which regions NOT to use the models, or answer practical questions such as "when is a model bias acceptable". This could be coordinated with the discussions in CH10 section 3. In particular for the region South America, it is not clear to me what message you want to get through with the figure of performance in simulating extreme events. [Anna Sörensson, Argentina]	Accepted. Evaluation now includes both RCMs and the driving GCMs to provide appropriate context. This is based on a number of standard performance indices. Fit for purpose evaluation and/or model selection is out of the scope of this simple validation.

Comment ID	From Page	From Line	To Page	To Line	Comment	Response
39752	65	8	65	34	An assessment of CMIP5 model errors for the different regions included in South America is made in Díaz, L. and C. Vera, 2017: Austral summer precipitation interannual variability and trends over Southeastern South America in CMIP5 models. International Journal of Climatology, 37, issue S1, 681–695. https://doi.org/10.1002/joc.5031 [Carolina Vera, Argentina]	Taken into account. Reference has been added.
31780	65	16	65	16	Should "so" be "show"? [Anna Sörensson, Argentina]	Accepted. The text has been revised.
31782	65	26	65	28	I would prefer to say that "the dry bias]……[is PARTIALLY due to" rather that "the dry bias]……[is due to" [Anna Sörensson, Argentina]	Accepted. The text has been revised.
31784	65	32	65	34	In reallity Zazulie et al. (2017) (Part 1) evaluate 15 CMIP5 models and find that 5 perform "well". [Anna Sörensson, Argentina]	Taken into account. The text has been revised.
31786	66	9	66	9	It should be made clear that Chapter 12 of WG1 is from AR5 (as it is written it is not 100% clear). [Anna Sörensson, Argentina]	Taken into account. The text has been revised.
30982	66	14	66	14	what is "urban poor"? [Annalisa Cherchi, Italy]	Accepted. The text has been revised.
42006	66	18	66	18	DELETE THE SENTENCE? IT SEEMS IRELEVANT HERE [Christophe Deissenberg, Luxembourg]	Accepted. Deleted and the text has been revised.
31788	66	31	66	32	I don't find this statement in Torres and Marengo (actually they don't mention interannual variability at all). [Anna Sörensson, Argentina]	Taken into account. The text has been revised for Second Order Draft.
31790	66	38	66	40	What do you mean by annual variability? The annual cycle? [Anna Sörensson, Argentina]	Taken into account. The text has been revised for Second Order Draft.
28306	67	1	73	1	Tables 13 to 19 are very detailed - is there scope for consolidation? [Blair Trewin, Australia]	Noted. Yes! It is part of the scope of the Atlas. However, part of the information contained in the tables has been migrated to other chapters to avoid overlap information.
31792	67	1	73	13	Isn't this an overlap with chapter 11? [Anna Sörensson, Argentina]	Accepted. The regional handshake team are working together to avoid overlaps and check consistency and coherency.
42008	67	4	67	5	Both increase and decrease are indicated whenever different change signals are found in the literature and/or the signal is mixed over the region, i.e. there are positive and negative changes in the same region and it is therefore difficult to univocally assess the climate signal. [Christophe Deissenberg, Luxembourg]	Accepted. The text has been revised for Second Order Draft.
42010	73	16	73	16	annual scale or for the austral summer; there is a lack of studies for the other seasons although they may also be of [Christophe Deissenberg, Luxembourg]	Rejected. Unclear what revision is requested here.

Comment ID	From Page	From Line	To Page	To Line	Comment	Response
31794	73	17	73	27	I miss a reference on the statement that ENSO plays an important role in August-September. Also it is not clear if what comes next in the paragraph "Concerning the temperature…." is about August-September temperature or for another season. As it iswritten it seems like it is about August-September, but i suspect it is not. [Anna Sörensson, Argentina]	Taken into account. The text has been revised for Second Order Draft.
48110	74	14	74	14	Summary features of climate change in Europe are described in Chapter 10. More specific information is given in Section Atlas.5.6 (Europe). There is a need to make sure that results shown in Chapter 4 and in the Atlas are not duplicated (and are consistent). [WGI TSU, France]	Accepted. The chapter structure of Atlas.5.6 (Europe) has been aligned with the structure in other regions. The description of the climatic features has been reworded.
54520	74	16	74	16	Really? I don't believe summaries of cliamte changes are in Chapter 10. [Linda Mearns, United States of America]	Not applicable. The chapter structure of Atlas.5.6 (Europe) has been aligned with the structure in other regions. The description of the climatic features has been reworded.
15408	74	21	85	23	The subchapter covers only Western Europe. Eastern Europe is completely ignored. Plese make the chapter relevant for the WHOLE Europe. [Oksana Lipka, Russian Federation]	Accepted. Additional literature references to studies addressing Eastern Europe have been included in the Europe section. Also the region EEU has been included in the graphs and analyses
42012	74	32	74	32	summers (Mediterranean climate). Its climate is determined by sinking motion on the [Christophe Deissenberg, Luxembourg]	Accepted. Text has been changed.
28308	74	54	75	28	Suggest using past tense here ('there was' rather than 'there is') to make distinction clearer between these (old) findings and newer ones later in the section. [Blair Trewin, Australia]	Not applicable. Section has been integrated into a single section on earlier findings and removed from Atlas.5.6.
54522	75	27	75	27	Remove part of statement referring to eastern US. [Linda Mearns, United States of America]	Not applicable. Section has been integrated into a single section on earlier findings.
54524	75	51	75	52	statement about contradicting results is very vague. An example here would be welcome. [Linda Mearns, United States of America]	Accepted. Literature describing these "contradicting results" has been added.
28310	75	52	75	52	Replace "consistence" with "consistency" [Blair Trewin, Australia]	Editorial. Done.
28312	76	21	76	22	This is a precipitation finding in a temperature section. [Blair Trewin, Australia]	Rejected. The section deals not exclusively with temperature extremes but with attribution of extreme events in general. So we feel that the current location of this reference is appropriate.
54526	76	25	76	27	this statement could do with increased clarification. [Linda Mearns, United States of America]	Accepted. Agreed, a different formulation is chosen.

Comment ID	From Page	From Line	To Page	To Line	Comment	Response
28314	77	4	77	5	Is this result specific to Europe (if so, say so) or a more global one? (I note similar results from Africa earlier in the chapter). [Blair Trewin, Australia]	Editorial. Agreed, explicit reference to Europe is made.
54528	78	12	78	26	It woould be good to specify the spatial resoltuions of the RCMs in this paragraph [Linda Mearns, United States of America]	Editorial. Agreed, spatial resolutions of RCMs are included in the text.
54530	78	36	78	36	increased resolution from what to what? [Linda Mearns, United States of America]	Accepted. Resolution jump from GCM to RCM has been explicitly described.
51050	78	42	78	45	Discussion on land-atm coupling strength in Europe overlaps with Chapter 10.3.3.6 [Bart Van den Hurk, Netherlands]	Accepted in FGD. Unnecessary repitition has been removed.
28316	79	21	79	30	This paragraph leads with a rather niche finding (snow in northern Spain). I think it would be better to lead with results on how well longer-term mean temperatures and precipitation are reproduced (something currently not done except for the Mediterranean), then move on to greater detail. [Blair Trewin, Australia]	Accepted. Agreed. Order of topics in this paragraph are changed, starting with temperature/precip, followed by aerosols and other characteristics.
51048	79	51	79	55	Discussion of convection permitting models is partly overlapping with Chapter 10.3.3.5.1 [Bart Van den Hurk, Netherlands]	Accepted in FGD. Unnecessary repitition has been removed.
28318	80	49	80	49	Not sure what "eventually contradicting" means in this context? [Blair Trewin, Australia]	Editorial. "eventually" has been changed into "sometimes" .
54532	82	13	82	15	This paragraph seems extraneous. [Linda Mearns, United States of America]	Accepted. Agreed, paragraph has been deleted.
28322	82	13	82	15	This material looks more appropriate to Working Group 2. [Blair Trewin, Australia]	Accepted. Agreed, paragraph has been deleted.
57748	82	29	82	29	You may want to add the following work analysing temperature and precipitation indices uner 15C and 2C GWL: Dosio, A., and Fischer, E. M. (2018). Will Half a Degree Make a Difference? Robust Projections of Indices of Mean and Extreme Climate in Europe Under 1.5°C, 2°C, and 3°C Global Warming. Geophys. Res. Lett. 45, 935–944. doi:10.1002/2017GL076222. Also note that the same work is reported in the text (eg pag 83 line 24) as Dosio and Fishcer 2017, but should be corrected in 2018. The same reference could be added at page 84 line 12. [Alessandro Dosio, Italy]	Accepted. Reference has been added. The citation on FOD page 83 line 24 is no longer there as the figure is deleted.
28324	82	41	82	41	"reduced frequency" seems to contradict statement at line 34-36 [Blair Trewin, Australia]	Accepted. Agreed, these statements are being aligned and the right context has been added.
28326	83	29	83	37	This material (as well as that at P84 line 15-30) seems to fit better with section 5.6.2 [Blair Trewin, Australia]	Rejected. Since this section deals with projections and section 5.6.2 deals with model evaluation we feel that the current distribution of texts is more appropriate.

Comment ID	From Page	From Line	To Page	To Line	Comment	Response
28328	84	9	84	9	The Bador et al 2017 findings need to be qualified - they are for a 2100 scenario under RCP8.5 (so considerably stronger than either the 1.5C or 2C pathways). [Blair Trewin, Australia]	Accepted. Explicit reference to RCP8.5 has been added here.
57750	84	21	84	21	substantially improves projections'. Two issues here: improved compared to what, and, how can projections be 'improved' if we don't have a reference to compare them with? Unless of course 'projection' means 'simulation of present climate', but then the sentence needs rephrasing. [Alessandro Dosio, Italy]	Accepted. Agreed: "improved" has been elaborated on more explicitly, by referring to the notion of credibility and level of realistic detail.
28330	85	7	85	21	I like the use of weblinks here given that many of these may otherwise be difficult to locate, but are more formal citations also required? [Blair Trewin, Australia]	Accepted. Agreed. Reference to table of regional climate assessments in external literature has been included in Atlas.6 (on communication).
54534	86	1	86	1	The North American section is obviously incomplete, but will be worked on for the SOD. One important point - the NARCCAP simulations should be discussed along with the NA-CORDEX simulations. The literature on NARCCAP is very large, and providing a comparison of NARCCAP and NA-CORDEX would be valuable. NARCCAP was really not included in AR5. [Linda Mearns, United States of America]	Accepted. NA section has been updated before November submission. NA-CORDEX publications has been taken into account in the next version.
28338	86	1	89	44	In general the North American section is surprisingly limited. The recent US National Climate Assessment may be a useful resource. [Blair Trewin, Australia]	Taken into account. We agree that the Nort America section in the FOD needs further improvement. As the SOD is being prepared, this has been taken into account.
42784	86	5	86	18	The distinction between WG1 and WG2 definitions of "North America" is awkward here. For example, is the second sentence of this paragraph ("... well covered by the observational network ..." still valid if "North America" includes Mexico, as in WG2? [David Gutzler, United States of America]	Taken into account. Domain issue has been extensively discussed. We follow the new definition of AR6 now. However, difference between WG1 and WG2 domains is discussed.
28332	86	37	86	38	"received more rainfall" - does this refer to trends, or to these regions being climatologically wetter? [Blair Trewin, Australia]	Editorial. Sentence is revised.
42786	86	41	86	50	As the text points out, this figure (like several in this section) is based on data just from the US. However the text tends to generalize the results, which I presume means that the US results have been assessed to be valid also for Canada? Some care is needed here. [David Gutzler, United States of America]	Accepted. We agree some of the materials in the FOD is based only on the US. This was revised now in the SOD
28334	86	43	86	48	Given that these data sets are updated regularly, it should be possible to get more recent results than 2006. You can calculate trends yourself if the underlying data set has a peer-reviewed citation. [Blair Trewin, Australia]	Taken into account. Some newer results are now available and included.

Comment ID	From Page	From Line	To Page	To Line	Comment	Response
28336	87	10	87	10	Need to note which elements contribute to Himax (temperature and humidity?), and perhaps give a citation. [Blair Trewin, Australia]	Editorial. Fixed.
42788	88	8	88	42	Is more assessment planned in subsequent drafts? In the FOD, these observation-model comparisons are offered with very little interpretation so I'm not sure how much substantive value is provided by these figures. [David Gutzler, United States of America]	Accepted. Yes, we have enriched the NA section in the next version.
28340	89	7	89	9	I think the "likely" is in the wrong place here - it is in the section which deals with the offsetting factors which can increase or decrease ROS, not the net results. [Blair Trewin, Australia]	Editorial. The sentence is revised.
28342	89	26	89	26	I think this paragraph should start "Figure 72 shows"? [Blair Trewin, Australia]	Editorial. Yes.
15410	90	19	90	19	The region is very wide. How to use the information for example, for Europe in WGII? [Oksana Lipka, Russian Federation]	Rejected. We do not see the argument why we should include Europe for the Arctic region. The Arctic region has been defined for the interactive atlas and this is the definition we will follow for the Arctic Region.
31462	90	26	90	28	There are more recent studies on the causes of Arctic amplification. You might refer to the discussion is Ch 2 for example [Gerhard Krinner, France]	Accepted. The text is revised. References are added.
31460	90	36	90	36	Consortium et al., 2013: Strange reference... [Gerhard Krinner, France]	Accepted. The text is revised. The reference is erased.
31464	90	46	90	46	Why is "sufficiently strong evidence" in italics? Is that a new expression in the IPCC uncertainty-speak dictionary? [Gerhard Krinner, France]	Accepted. The text is adjusted.
28344	91	4	91	27	The broader issues affecting many global data products (especially global temperature data sets) in the Arctic may be worth mentioning here, although forthcoming new versions of data sets may reduce these issues. [Blair Trewin, Australia]	Not applicable. It is not clear what this reviewer means concretely with "broader issues affect global data products". Does he ask for the uncertainty and/or homogeneity of these data? See response to comment 28350.
28346	91	30	91	30	Replace "examinated" with "examined" [Blair Trewin, Australia]	Accepted. Is fixed in the text.

Comment ID	From Page	From Line	To Page	To Line	Comment	Response
31466	91	54	92	3	As a regional model, HIRHAM cannot possibly *not* simulate the observed large-scale trend: it is given that information by its driving data (reanalyses). This does not say much about the quality of the simulation. Same remakr applies to other instances where RCMs are evaluated. [Gerhard Krinner, France]	Accepted. We agree that the large-scale forcing impact the RCM. However, if the RCM runs unnudged in a large circum-Arctic domain, the model is relatively independent from the lateral forcing. Therefore, it is important to determine the skill of the model to reproduce the observed temperature spatiotemporal patterns and its trend. But, we agree that the added value of the RCM is at the regional scale. If not two-way then the RCM cannot feed back to the large scale. The text regarding the RCM were written more carefully.
28348	92	11	92	11	A 20C increase in what, and compared with what? [Blair Trewin, Australia]	Accepted. For March between 2003-2012, the calculated temperature trend over the Kara-Barents Seas is 2 degC/year, i.e. an increase of up to 20.5 degC during this 10-yr period.
28350	92	41	92	52	You may want to consider giving more attention to observational uncertainty in discussions of model bias in the Arctic. [Blair Trewin, Australia]	Accepted. Yes, this is an important point, because of the sparse observations in the Arctic, particularly for precipitation. We have taken this into account, and have included according references, which discuss the observational uncertainty in the Arctic.
28352	93	11	93	21	Are these results specific to the Arctic, or for northern hemisphere snowfall more generally? (some of the wording suggests the latter). Also, are the biases at lines 19-21 consistent with precipitation biases in this area? [Blair Trewin, Australia]	Accepted. Yes, this study reports on the Northern Hemisphere snowfall. We have include this information in the sentence to make it clear. This study estimates the fraction of total precipitation that falls as snow based on the monthly mean 2-m temperature, Thus, it is the cold bias in the models that contributes to the positive snowfall bias seen in this analysis.
31468	93	13	93	13	It is not always obvious that a cold bias contributes to a positive snowfall bias. This can be true around the southern limits of the snowfall area (that is, around 0°C), but in cold regions the opposite is often the case. [Gerhard Krinner, France]	Taken into account. This study reports on the Northern Hemisphere snowfall and estimates the fraction of total precipitation that falls as snow based on the monthly mean 2-m temperature, Thus, it is the cold bias in the models that contributes to the positive snowfall bias seen in this analysis. The sentence was erased.

Comment ID	From Page	From Line	To Page	To Line	Comment	Response
28354	93	33	93	35	If possible, it would be better to link these statements to specific scenarios (RCP or SRES) rather than just say "plausible", or it may be better to use the specific results currently at line 49. [Blair Trewin, Australia]	Accepted. This should read: Base on CMIP5 models, the winter warming over the Arctic Ocean is 3–5°C by mid-century and 5–9°C by late century under RCP4.5 (SWIPA, 2017). The second sentence (Bintanja & Krikken, 2016) refers to RCP8.5. Both have been corrected/improved.
28356	93	40	93	40	The use of "surprisingly" is unnecessary here. [Blair Trewin, Australia]	Accepted. Yes, the word is erased.
28358	94	3	94	14	This paragraph mixes up region-wide and local results and would benefit from some reworking. If "central Arctic" refers to the highest latitudes then it might be worth saying "at the highest latitudes" instead (or give a specific latitude boundary) - the term "central Arctic" might confuse some readers. [Blair Trewin, Australia]	Accepted. This results is based on Bintanja & Andry (2017) and they mean the area north of ca. 80N if they talk about the central Arctic; this reference and this meaning have been explicitly included in the text to avoid confusion.
28360	94	30	94	30	Should "relatively" be "relatively low"? [Blair Trewin, Australia]	Editorial. Yes, thank you, corrected.
28362	94	31	94	31	It's not clear what a "rare anomalous snowfall event" is in this context - if it links to the discussion of atmospheric rivers on P95 line 33-38 then it might be better to make that link explicit. [Blair Trewin, Australia]	Taken into account. The sentence has been rewritten with the language employed by Lenaerts et al (2013) as 'Regionally extreme anomalous snowfall events …'.
31470	94	36	94	39	It would be good to refer to Chapter 9 on this particular topic (similar also later in the discussion of observed temperature and precipitation trends) [Gerhard Krinner, France]	Accepted. Reference to Ch9 have been added wherever needed and possible.
28364	94	44	95	3	I think it would be better to lead with the region-wide results, then move on to stations. [Blair Trewin, Australia]	Rejected. we prefer to start from stations and then summarise over the region.
42014	95	11	95	11	observations from Queen Maud Land, East Antarctica, show snowfall increases unprecedented over [Christophe Deissenberg, Luxembourg]	Editorial. Rewritten as '… observations from Queen Maud Land, East Antarctica, show unprecedented snowfall increases over …'.
28366	96	45	96	47	This statement appears to be inconsistent with that at P96 lines 8-10. [Blair Trewin, Australia]	Taken into account. While we don't see any problem, since the statement clearly evident from Fig. 3 of Scott et al., 2019, the statement has been updated.
31472	97	23	97	25	These numbers probably exclude the peninsula? [Gerhard Krinner, France]	Taken into account. Yes, they exclude the Antarctic Peninsula.
28368	98	3	98	9	ID is probably not a good index to use in the Antarctic (also affects figure 76), as it is effectively an index of extreme warmth there, and regional averages will be dominated by the permanent 365 days per year values over most of the plateau (masking out results on the coast). Tx90p may be a better option. [Blair Trewin, Australia]	Taken into account. ID is no longer used and the text and figures now discuss only temperature, surface melt, precipitation and surface mass balance
28370	98	23	98	23	"snow accumulation anomalies" - positive, negative or both? [Blair Trewin, Australia]	Taken into account. It is about positive that is discussed further.

Comment ID	From Page	From Line	To Page	To Line	Comment	Response
28376	99	32	102	10	Is it planned to add more typological domains to 5.11 in SOD? [Blair Trewin, Australia]	Taken into account. Yes.
28372	100	11	100	22	You may wish to acknowledge the uncertainties in such a data set when the underlying observations are sparse (linking to discussion on p102) [Blair Trewin, Australia]	Accepted.
28374	102	5	102	6	Are there any data sets available which are homogenised or exclude urban stations? [Blair Trewin, Australia]	Accepted. Details added in SOD.
41978	102	13	106	1	Section 6 is good but very generic. Its operational value is very limited. [Christophe Deissenberg, Luxembourg]	Noted. The SOD version of this chapter is strongly restructured.
54536	102	13	106	55	It is great to have this section in the Atlas, although I am a little concerned with it not being particularly noticed. But really, it is a great step forward for the IPCC reports and for WG1 [Linda Mearns, United States of America]	Noted. Thanks.
50536	102	13	106	55	The review of communication approaches for climate science is an interesting compilation of the latest understanding surrounding climate change communication. However, while it is somewhat successful in giving good guidance to those who may be tasked with communicating the content of this report, I think that some of these approaches should be better applied to this report as well. It is essential that this report serve as a model for other practitioners. [Anton Holland, Canada]	Taken into account. Thanks. The new version does refer to examples in this IPCC assessment report, as suggested by the reviewer.
9224	102	13	107	1	Section Atlas.6: I had expected to find information about how the described requirements for the assessment of communication are met in the Atlas chapter and/or IA. E.g. principle 1. 'Trust in the source': What is does the atlas contribute to this trust or the improvement of this trust? [Martina Stockhause, Germany]	Taken into account. Thanks. The new version does refer to examples in this IPCC assessment report, as suggested by the reviewer.
9226	102	13	107	1	Section Atlas.6: The communication assessment talks about the dependence on the audience. As climate information is intersting for a variety of users (researchers from different domains, policy makers, economy, the public) the question is: Who is the targeted audience? Esp. the IA with its low barrier for non-scientists will have to deal with users with very different backgrounds and levels of knowledge in climate information. I suggest to add a paragraph on the target audience and what a user is expected to be familiar with, when accessing the IA. [Martina Stockhause, Germany]	Accepted. Agree. The new section 6.1 does include some statements on the target audience of this section.

Comment ID	From Page	From Line	To Page	To Line	Comment	Response
31802	102	13	107	1	This section is about how to communicate information. It will be necessary to coordinade better with Ch10.5 "Regional messages" since many issues touched on are similar but differently "framed". For example the issue of trust in 6.2 point 1, is brought up in Ch10.5, with the difference that in Atlas only the "Trust in the source of the science message" (the trust the recipient has in the source - that is one-way trust), while in Ch10 the issue of trust is framed as "trust among all parties" (Ch10, page 111, line 11) "relationships and trust between information users and producers" (Ch10, page 115, line 39). 6.2 point 8 is about how the values of the recipient of climate information affect the perception of the message, while in Ch10 the values of all actors is stressed: "Messaging is inherently influenced by the values of all parties; those constructing the message, those communicating the message, those hearing the message, and critically those who construct the problem statement which the message seeks to inform." (Ch10, page 110, lines 7-9). In the case of 6.2 point 4" Climate science communication can be made more effective by using a narrative format", this theme is also theated in Ch10.5 (Ch10, page 113, lines 41-47), only that it is put in a much more complete context. Also note that while 6.2 point 4 and Ch10.5 (page 113, lines 41-47) both talk about the effectiveness of the message and a narrative (or storyline) format, none of the references cited are shared. [Anna Sörensson, Argentina]	Taken into account. After the restructuring of this section between Atlas and Chapter 10 these topics (trust, values, effectiveness) have been integrated in the appropriate sections in Chapter 10.
57752	102	13	107	1	This section is very interesting and reads wery well; however, I struggle to understand why these topics are discussed in the Atlas as 1) they strongly overlap with chapter 10 and 2) they are not really applied in the atlas (despite the claims in Section 1). Do you intend to use the methodologies described (e.g. storylines) to the conytent of the Atlas (eg interactive atlas) ? And if yes, how? If not, it seems to me a very interesting but sterile discussion as the reader is somehow left with the question "where are those concepts applied (if they are) in the WGI report?" [Alessandro Dosio, Italy]	Taken into account. Thanks. The new version does refer to examples in this IPCC assessment report, as suggested by the reviewer.

Comment ID	From Page	From Line	To Page	To Line	Comment	Response
26318	102	13	107	1	This section is interesting but seems out of place. It interrupts the natural flow from section 5 to section 7. Perhaps it deserves greater prominence in WG1 chapter 1 “Framing, context and methods” or in a separate IPCC Communication Guideline. [Hennessy Kevin, Australia]	Taken into account. The scope of this section has been adjusted to fit well to the overall goal of the Atlas chapter, which is to provide (regional/societal) context to the climate information discussed in AR6. A considerable fraction of material has been moved to Chapter 10. We trust that this new scope does fit well in the Atlas chapter.
28378	102	13	107	1	Section 6 is certainly important, but I wonder if this is the right place for it? It might be a better fit with another chapter (1?), or as a box. [Blair Trewin, Australia]	Taken into account. The scope of this section has been adjusted to fit well to the overall goal of the Atlas chapter, which is to provide (regional/societal) context to the climate information discussed in AR6. A considerable fraction of material has been moved to Chapter 10. We trust that this new scope does fit well in the Atlas chapter.
31484	102	13			Large overlap with section 5 of Chapter 10. The overlap is to my opinion too large and should be sorted out in the SOD. [Rein Haarsma, Netherlands]	Accepted. Agreed. The section has been given a new name and structure. Some elements have been moved to / integrated with Chapter 10 sections, leaving a more focused section on examples of communication approaches in this Atlas chapter.
31810	102	16	102	53	Are these lines intended to be "key messages" of what follows in sub.sections 6.1 and 6.2? The title says so, and the text is written without references so it seems to be intended to be a summary of the key messages. However, I am not sure that these key messages really reflects the content of these sub-sections, so this is very confusing. For example lines 22-32 about the purpose of IPCC reports as well as 40-44 about aggregation scale - these two issues are not mentioned in the sub-sections 6.1 and 6.2. Please make sure that the key messages cover the most important points of the section. Or, on the contrary if these are not intended to be key messages, but is a stand-alone introduction to section 6, please insert references. [Anna Sörensson, Argentina]	Accepted. Agreed. The key messages now are confined to statements that are made later in the discussion of communication approaches, and indeed should be interpreted as key messages, not as part of the assessment.
14940	102	16	107	1	I find this 'new' section 6 on communication very interesting and useful [Clare Goodess, United Kingdom (of Great Britain and Northern Ireland)]	Noted. Thank you.

Comment ID	From Page	From Line	To Page	To Line	Comment	Response
31800	103	1	104	45	This sub-section (6.1) needs some re thinking in my opinion. Out of the four different sub-sub sections that compose it, I find that only 6.1.3 really treats the issue of "Approaches to communicating uncertainty and confidence". The title of 6.1.1 suggests that this sub-sub-section will be about the traditional approach of communicating uncertainty with ensembles and scenarios, but really I find no content that adds to what this approach of communication implies. It is about the sources of uncertainty and about the cascade of uncertainty, but it is not about what effects this way of communicating uncertainty has on the "recipient" of the information. On the other hand, a key sentence with references about this is found in 6.1.3, page 104, line 10: "Communicating the full extent of available information on future climate for a region, including a quantification of uncertainties, can act as a barrier to the uptake and use of such information (Daron et al., 2018; Lemos et al., 2012)". This should be moved to 6.1.1 and expanded on ("why is this?", "what kind of barrier" etc). Budescu et al. (2012), cited in the next subsection, page 104, line 55 could also be a reference to use for 6.1.1. Concerning the sub-sub-section 6.1.2 I do not understand what "event attribution" has to do with "Approaches to communicating uncertainty and confidence" - and nothing in this sub-sub-section is about uncertainty nor confidence. The description of the event attribution methodology has its natural place in Ch11 and it is not clear why it should even belong in the Atlas. In the case of 6.1.4, although the discussion of Hewitson is highly relevant to the AR6, this sub-sub-section as I see does in its current form not add anything to "Approaches to communicating uncertainty and	Accepted. Thanks for these suggestions. The new structure of Atlas.6.1 has been elaborated by a better organisation of the various arguments and statements. Uncertainty information is dealt with differently when using ensembles (former Atlas.6.1.1) than when using storylines (Atlas.6.1.3) and it's one of the crucial differences between these approaches. This has been addressed. The section on attribution has been integrated in one of the other classes of information and rewritten in order to assess its value as a communication tool, rather than to discuss the outcome of various attribution studies.
39758	103	15	103	36	Check consistency and coherency with the assessment made in section 10.3.4. of Chapter 10 about managing uncertainties in regional climate projections [Carolina Vera, Argentina]	Taken into account. After the restructuring of this section between Atlas and Chapter 10 these topics (trust, values, effectiveness) have been integrated in the appropriate sections in Chapter 10.
39754	104	8	104	32	Check consistency and coherency with the introductory discussion included in section 1.2.4.3 of Chapter 1 and the assessment made in section 10.5.3 of chapter 10 regarding the use of storylines and narratives [Carolina Vera, Argentina]	Taken into account. Definition of storylines is taken from the IPCC Glossary and elaborated as such.

Comment ID	From Page	From Line	To Page	To Line	Comment	Response
20852	104	34	104	34	The description of climate services portals is only based on the paper of Hewitson et al. (2017). The article insists on the unequal distribution of climate information Web site across the world with no Web site in West Africa. It is not completely true since e are developing for two years a Web Portal of climate change and impacts projections in West Africa. The portal is public (http://retd1.teledetection.fr/climap/) and we always sent some details on the portal to lead authors who suggested us to act as reviewer and add this comment. A suggestion could be to add a box in the atlas chapter to describe quickly the Climap portal. Please find full details on the portal here: https://www.dropbox.com/s/1hasr710lpdk6fu/Climap.pdf?dl=0 [Benjamin Sultan, France]	Taken into account. This section has been transferred to section on climate services (chapter 12). The comment on the West Africa portal has been transferred to Chapter 12 as well.
20854	104	34	104	34	The description of climate services portals is very vague and does not take into account specificities of developing countries who could be an important target of climate information. From our long experience in climate research and partnerships in developing countries, we believe we could help the IPCC authors in better integrating the specificities of developing countries in the design of the Atlas (low internet access, limited computation and computer storage facilities, limited access to scientific literature, less reliable and available climate data, need for training for an optimal use of the portal). It can be done by giving an example of a national climate portal for developing countries (and host by national met services). A suggestion could be to add a box in the atlas chapter to describe quickly the Web Portal Climap dedictaed to climate change and impacts projections in Senegal (http://retd1.teledetection.fr/climap/) and the way it has been created in order to illustrate what national climate portals could be, with an emphasis on developing countries. A suggestion could be to add a sub-section on the specificities of developing countries and help to design appropriate tools. [Benjamin Sultan, France]	Taken into account. This section has been transferred to section on climate services (chapter 12). The comment on the West Africa portal has been transferred to Chapter 12 as well.
39756	104	34	104	45	Check consistency and coherency with the assessment on climate services made in section 12.6 and cross-chapter box 12.2 [Carolina Vera, Argentina]	Taken into account. The entire section is moved and integrated into Chapter 12.

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39760	104	48	107	1	Check consistency and coherency with the assessment made in section 10.5. of Chapter 10 about regional messages [Carolina Vera, Argentina]	Taken into account. A restructuring of the text has been taken place between Chapter 10 and Atlas, with the purpose to clarify the scope and improve consistency of messages.
31804	105	22	105	28	The last sentence of this paragraph contradicts both the heading and the second sentence of the paragraph. It is confusing not highlighting this in some way, the easiest way would be "Relating long-term global processes to impacts more immediate and local to the audience can overcome this psychological distancing (Polk, 2018; Wiest et al., 2015). HOWEVER there is evidence that in some circumstances localised scenarios can trigger defence mechanisms in audiences, who as a result of feeling threatened may seek to deny the messaging (Brügger et al., 2015; McDonald et al., 2015).", but there could also be more elegant ways of redacting. [Anna Sörensson, Argentina]	Taken into account. A new wording of this paragraph has been made, before it is merged into Chapter 10.5.2.2.
31806	106	33	106	42	6.2 point 7: the lines 33-42 does not seem to have much to do with the title " Combat the post--truth society". 33-37 could fit well in the section 6.1 (as I said in a long comment about 6.1, I find that very little in the content in 6.1 really addresses "Approaches to communicating uncertainty and confidence"). [Anna Sörensson, Argentina]	Taken into account. This paragraph has been rewritten and included in Atlas.6.2, a section on "technical attributes" of climate change communication.
31808	106	44	106	47	6.2 point 7: the lines 44-47 seems to fit better under the point 6, it does not have much to do with the post-truth society. [Anna Sörensson, Argentina]	Taken into account. This paragraph has been rewritten and included in Atlas.6.2, a section on "technical attributes" of climate change communication.
14942	107	14	112	32	The interactive atlas is a very welcome addition to AR6. It is strengthened by the serious consideration that has been given to issues such as metadata, provenence and reproducibility. [Clare Goodess, United Kingdom (of Great Britain and Northern Ireland)]	Noted. Thank you.
47862	107	16	107	16	The First order Draft (FOD) version of the IA includes some basic atmospheric (temperatures and precipitation) and oceanic (sea surface temperature, pH and Oxygen) variables and some illustrative derived indices (used in Chapters 11 and 12). Strong coordination with the rest of WGI chapters and with WGII is needed to not duplicate results (e.g. conclusions drawn from the analysis of particular indices) and to fully exploit the IA possibilities. [WGI TSU, France]	Noted. Coordination is ongoing with all regional and some key global chapters.

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9204	108	28	108	41	Fig. Atlas.80: Connecting the figure to the atlas is important. But be aware that the link needs to be stable and persistent as long as the report with the link exists. [Martina Stockhause, Germany]	Noted. Stable and persistent links will be maintained for the final version of the Interactive Atlas. The intermediate versions for the FOD, SOD, etc. are maintained only until the end of the review process.
28380	109	10	109	10	This line refers to RCP45 and 85, but elsewhere they are 4.5 and 8.5. [Blair Trewin, Australia]	Editorial. A consistent notation is used now for RCPs.
28382	109	19	109	19	I think the second AR5 should be AR6. [Blair Trewin, Australia]	Editorial. Changed.
43500	110	27	110	29	Curated IPCC-DDC datasets need attention. The observational data at http://www.ipcc-data.org/observ/index.html, under the heading "Observations of the climate", has "Global mean temperature data used in the AR4 assessment report". AR4! Not SR1.5, or even AR5. And even the AR4 data is not quite as described. Some data is archived as used in the AR4 report, but other data is the current (2019) version. The data used in AR6 should be archived and made available as used for future study. Having such out of date data as the latest observational data at the DDC is bad public image. The latest data used needs to be in the Atlas and at the DDC. [Peter O'Neill, Ireland]	Not applicable. Although we share the reviewer's concerns, the information stored in IPCC-DDC is not under the responsibility of the Atlas chapter.
48096	112	47	112	47	The conclusions drawn in Atlas.8 (Knowledge gaps) should be linked to previous sections within the chapter/other chapters, or to existing literature. Otherwise, they may sound too strong. [WGI TSU, France]	Accepted. Links provided to relevant chapter sections.
48044	112		114		Could the conclusions drawn in Atlas.8 (Knowledge gaps) be linked to previous sections within the chapter/other chapters, or to existing literature? [WGI TSU, France]	Taken into account. Links provided to relevant chapter sections.
9236	112				IA: The W3C PROV is the standard to describe provenance. It is not clear, why you need to extend it? Any extension requires additional maintenance/updating/versioning effort which should be avoided if possible. E.g. the ESMVal tool is able to use W3C PROV without extension. [Martina Stockhause, Germany]	Noted. METACLIP is an extension of PROV to describe climate products. The introduction of specific vocabularies facilitates the analysis of metadata information to general users.
41974	113	1	115	9	The example question itself is poorly formulated: “If results of models are uncertain, how can we trust them?” is reinforcing any doubts the reader may have. I think that a question such as “To what extend can we trust the results provided?” would be much more neutral and conducive to an understanding of the problematic. [Christophe Deissenberg, Luxembourg]	Not applicable. The topic of this FAQ has now been incorporated into the second FAQ of Chapter 3 (itself more suitably worded).

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41972	113	1	115	32	The Q&A section is not convincing. It is difficult to design a good Q&A section without first defining whom it should inform. [Christophe Deissenberg, Luxembourg]	Taken into account in the FGD. The FAQ section now focuses on and is included in the documentation of the Interactive Atlas.
41976	113	1	115	32	The example answer is, in my opinion, not appropriate. Answers usually need to be short, pregnant, and convincing. They must not open more questions than they answer. The answer provided here is, in my opinion, much too long and convoluted. I guess that many users will not read it to the end and, if they do, will end more confused than when they started. Sentences like “While explicitly discussing uncertainty is important for good climate science and the confidence assessment in model results, uncertainty about the future conflicts with individual needs for predictability and control” (p. 114 lines 48-49) are hard-to-understand, easily misleading and not helpful. They may be interpreted as contradicting the suggested strategy on “Communication on uncertainty …”, Section 6.1. See also lines 7-9 p. 115. [Christophe Deissenberg, Luxembourg]	Not applicable. The topic of this FAQ has now been incorporated into the second FAQ of Chapter 3 and the FAQ content more suitably worded.
15412	113	3	113	3	An idea for FAQ: why gerographical regions and World Map of Köppen-Geiger climate classification were not used to produce Atlas regions. How to use Atlas regions in WGII regional assessment, because the biudaries are different? [Oksana Lipka, Russian Federation]	Rejected. In table Atlas.5 describing the GCM-driven RCM runs we already cite "...on the GCMs see Table Atlas.3: for details on the RCMs see Annex III models; Table AIII.2)." Anyhow, these tables have changed in the SOD and now include more information.
29284	114	5	114	6	"Children’s play, for instance, often..." I find this sentence confusing. [Fabio D'Andrea, France]	Not applicable. The topic of this FAQ has been incorporated into the second FAQ of Chapter 3, this wording is no longer present.
28386	114	5	114	17	Spread between models could also be mentioned here as an indicator of confidence (noting that little spread doesn't always mean high confidence, but large spread usually does mean lower confidence). [Blair Trewin, Australia]	Not applicable. This is not part of the focus of the new FAQ in Chapter 3.
28388	114	48	114	51	The text here doesn't really capture the main reason for having RCPs and similar scenarios - separating out uncertainty in the climate models themselves with uncertainty in the underlying emissions pathway. [Blair Trewin, Australia]	Not applicable. This is not part of the focus of the new FAQ in Chapter 3.
28384	114				This FAQ would seem to me to fit better with Chapter 4, but that may already have been discussed. [Blair Trewin, Australia]	Accepted. The topic of this FAQ has been incorporated into the second FAQ of Chapter 3.

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14944	115	20	115	28	I would support these proposed additional FAQs - especially the one related to use of CMIP5/CMIP6/CORDEX [Clare Goodess, United Kingdom (of Great Britain and Northern Ireland)]	Accepted. New FAQs are focused on application and interpretation of Interactive Atlas.
28390	116	1	128	1	This table is far too big and needs to be simplified or consolidated. [Blair Trewin, Australia]	Taken into account. Noted. This information has been moved to an Appendix.
14946	116		128		Why just include a summary table T2.2 for South Asia? While it is potentially useful, it is very long and it does not seem feasible to include such a table for all regions. [Clare Goodess, United Kingdom (of Great Britain and Northern Ireland)]	Taken into account. Noted. This information has been moved to an Appendix.
44614	123	2	123	2	The reference for South Asia needs correction. The following two correct references are as follows (a) Krishnan et al. 2016: Deciphering the desiccation trend of the South Asian monsoon hydroclimate in a warming world. Clim Dyn (2016) 47:1007–1027. (b) Ramarao MVS, Krishnan R, Sanjay J, Sabin TP (2015) Understandingnland surface response to changing South Asian monsoon in a warming climate. Earth Syst Dyn Discuss. 6:1–34. doi:10.5194/esdd-6-1-2015. www.earth-syst-dynam-discuss.net/6/1/2015/ [Krishnan Raghavan, India]	Accepted.
28446	154	8	154	10	The citation of the paper should be "Takayabu I, Hibino K, Sasaki H, Shiogama H, Mori N, Shibutani Y, Takemi T (2015) Climate change effects on the worst-case storm surge: a case study of Typhoon Haiyan. Env. Res. Lett., 10, 064011, doi:10.1088/1748-9326/10/6/064011" [HIDEO SHIOGAMA, Japan]	Accepted.
27110	159	4	159	4	Figure Atlas.1 horizontal lines are not enough to outline the temporal occurrence of GWLs consider adding circles or horizontal colored tick lines close to the x axis [Edoardo Cremonese, Italy]	Rejected. Adding circles or additional lines will make the figure difficult to visualize.
9232	160				The definition of the regions changes between AR5 and AR6. It would be helpful to get the lon/lat information for the regions displayed in fig atlas.2. Some regions with the same name have different coverage like WAF or NEU. Consider renaming in order to avoid misunderstandings. [Martina Stockhause, Germany]	Taken into account. Information about the coordinates defining the regions has been included. Although we understand the reasons for changing the names if the regions have been modified, we prefer to stick to the geographically consistent names and use AR6-name, if necessary.
28392	163				Confirm number of temperature stations - 500,000 seems like a lot (it is also surprising that it is more than precipitation). [Blair Trewin, Australia]	Rejected. The figure has been deleted.

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28394	164				Figure 6 caption refers to temperature but figures are for both precipitation and temperature. The numbers displayed look implausible for a 0.5-degree grid - for example, Australia would have about 3000 grid points but it has less than 2000 temperature stations, so an average of less than 1 per gridpoint. (I've recently been to places in the interior of Western Australia which are more than 200km from the nearest temperature station). [Blair Trewin, Australia]	Rejected. The figure has been deleted.
28396	166				Figure 8 - does this show the total number of observations over the full 10-year period? [Blair Trewin, Australia]	Rejected. The figure has been deleted.
28398	167				Figure 9 - what definition is used for the Southern Ocean? (if it's a latitude bound then just use that). It would also be good to redo this figure using more recent generations of SST data sets. [Blair Trewin, Australia]	Rejected. The figure has been deleted.
28400	169				If the objective of Figure 11 is to compare between data sets, it might be better to mask the TRMM ocean signal. [Blair Trewin, Australia]	Rejected. The figure has been deleted.
45112	171		171		CORDEX-MENA region is missing. [Levent Kurnaz, Turkey]	Taken into account. The figures on CORDEX regions have been updated for the SOD (including CORDEX-MENA).
54540	175	6	175	7	The caption description needs to be reworded: 'stippled where less than six out of inine models do not agree on sign' is a fiarly tortured formulation. Recommend putting it in positive formulation or rewording somehow. [Linda Mearns, United States of America]	Taken into account. Thank you for the comment; we agree. The stippling used in the FOD was a very simple illustrative approach and an improved version is implemented in the SOD. Anyway, we use the positive formulation "model agreement".
57216	176	1			Figure Atlas.18: Can here really always be talked of "influence"? For instance, the NAO is apparently only an atmospheric mode. [Sonia Seneviratne, Switzerland]	Not applicable. The figure has been deleted.
29628	178	7	178	7	Figure Atlas.20: How is the bias correction applied? More details are needed (exact implementation of the EQM, calibration period, etc) [Rodrigo Manzanas, Spain]	Noted. The details on the bias correction methods were included in the Technical Annex VII, but not properly referenced. We have corrected this.
28402	178				Note that in many of the stippled areas in Figure 20 35-degree days are rare or unknown. [Blair Trewin, Australia]	Taken into account. The stippling used in the FOD was a very simple illustrative approach (just to indicate lack of model agreement). An improved version is implemented in the SOD.
28404	185				Hatching in Figure 27 needs to be defined. [Blair Trewin, Australia]	Rejected. The figure has been deleted.
26208	187	3	187	5	"top" and "bottom" are oppositely captioned, i.e., should be read as "a hypothetical natural climate without anthropogenic influence (bottom) compared to in the current climate (top)" [Akio Kitoh, Japan]	Rejected. The figure has been deleted.

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28406	187				The caption of figure 29 transposes the two images (the caption embedded in the image file is correct) [Blair Trewin, Australia]	Rejected. The figure has been deleted.
28408	188				Tx5x should be defined somewhere. [Blair Trewin, Australia]	Rejected. The figure has been deleted.
13334	193	2	193	3	A raster contour is suggested to show the different resolutions by individually assigning colors to each grid cell. [Feng SHI, China]	Rejected. The figure has been deleted.
29630	220	3	220	3	Figure Atlas.62: Some supporting text about the trends being shown in the figure should be given [Rodrigo Manzanas, Spain]	Rejected. The figure has been deleted.
29632	221	4	221	4	Figure Atlas.63: What does stippling mean? [Rodrigo Manzanas, Spain]	Rejected. The figure has been deleted.
28410	231				Arctic figures may be better as a polar projection. [Blair Trewin, Australia]	Accepted.
31474	234	1	235	11	The usual orientation of Antarctica is with the peninsual pointing towards the upper left. Would be consistent with Figures 74 and 75 [Gerhard Krinner, France]	Accepted. The figures were replaced - and all figures are now pointing towards the upper left.
9234	242	1	242	11	IPCC_TERMS: The data in the example fig. Atlas.84 uses its own terms as a kind of shortened DRS (Data Reference Syntax). Why don't you stick to the original DRS of CMIP5/6 or CORDEX? If you think the IPCC_TERMS are required, make the mapping from the project-defined vocabulary to the IPCC_TERMS more transparent. [Martina Stockhause, Germany]	Accepted. Thank you for the comment. Standard DRS terms have been used in the modified vocabulary.
8222	2sBlzww7				IA: Half of the box over eatern equatorial africa includes the Indian Ocean. I would suggest this means the averages over this box are largely useless for any application. This is apparent when looking at the seasonal cycle of the box, which doesn't show the mar-may and oct-dec peaks at all, which is worse than would be expected. If the data is actually only land only, then is is fine, otherwise, please split the box with a diagonal line along the eastern africa coastline [Declan Finney, United Kingdom (of Great Britain and Northern Ireland)]	Noted. In the FOD we didn't use a land/sea mask for the land regions or simplicity. This has been modified in the SOD and the regional information for the reference land regions is based only on land.
31740	6bxOpUpQ				IA: Please add the name of the region to the figure caption in the exported PNG file. [Martin Juckes, United Kingdom (of Great Britain and Northern Ireland)]	Accepted. Image exports have been improved, including more informative titles and captions.
9706	822kCD2j				IA: I do not understand why these are called "plumes". Perhaps time series is a better term? What is the reason for the gray shaded box around years 2046-2065? [Brian Magi, United States of America]	Noted. The final terminology is still to be decided. The grey shaded box corresponds to the future period selected.
28168	8Gs1Kr7x				IA: It is not clear to me that regional information is whether domain averaged quantities or not. [Jiwoo Lee, United States of America]	Noted. It is regionally averaged. This information has been included in the description.

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9358	9MwiFNDR				In addition to being a tool to strengthen links amons AR6 group reports, the Atlas might be an powerful support for communication, in the situation where some pre eminent political authorities prefer to ignore the message delivered by climate scientists. Hence one should try to formulate this message in a bluntier manner. The example I have in mind concerns heatwaves. Hopefully, the section of WG2 covering the limits to adaptabiity will be more developed in AR6 than in AR5 (...) and will provide some criteria. Then, the Atlas might offer possibilities to map, for typical scenarios, as time goes on, the broadening areas where life becomes no longer possible for human societies. I have chosen the FOD available map which comes closest to this development. Of course access might be also given to the relevant parameters of a heatwave (mean and minimum temperature, duration, frequency the Atlas, open to access by citizens, should indeed become a major asset in support of IPCC work. [philippe waldteufel, France]	Noted. Besides displaying physical variables and indices (WGI), there are plans and ongoing work with WGII chapters to display impact- and citizen-relevant information, in similar directions to those mentioned by the reviewer.
31726	9p47DhIh				IA: The “custom season” is restricted to be at most 6 months: why is this? Is it explained somewhere? [Martin Juckes, United Kingdom (of Great Britain and Northern Ireland)]	Noted. The spirit of the IA is to provide (limited) flexibility in the selection of seasons so the number of possible options is manageable. We though six-month seasons (together with annual values) provided enough flexibility to define non-standard seasons. This limitation has been described in the help information.
55830	bA7CCRmE				IA: It's not clear in Y axex what are the years considered to calculate annual anomaly of mean temperature. This is applicable to other variables for which the annual cycle annomaly is represented. [Emilia Guisado-Pintado, Spain]	Noted. The anomalies correspond to the baseline period. More informative titles and description have been included for the Atlas figures.
6838	cUXvguXZ				IA: Design: Generally, the interactive atlas is well presented. It will probably become a good educational resource as well. To make it more user-friendly, it would be good to have explanations for all the abbreviations and cryptic variables (e.g. "TX35") show up when the user hovers the mouse over them, instead of having to read in the "about" section. [Eva Yvonne Pfannerstill, Germany]	Accepted. More informative labels and/or hover-help text have been included.

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42790	EkwgoDqy				IA: I clicked on multiple regions on the "AR6 Reference Regions" map, and the selected regions all appeared in the "Region" line above the time series that was generated. Am I seeing a spacially averaged time series that includes all the regions I selected? That would be awesome, and it provides a possible almost-fix for the mismatch between "North America" as defined in WG1 and WG2 (except that Central America is added to Mexico in these regions). If in fact I have generated a multi-region average, then I suggest adding an explicit invitation to users to try this to generate their own customized multi-region results. [David Gutzler, United States of America]	Accepted. We have included a description of this possibility in the description of the Interactive Atlas.
9242	gRSJs1Pv				IA: add default name for created png figure. [Martina Stockhause, Germany]	Accepted. Informative names are now generated.
9702	HYcceNva				IA: the annual cycle should specify what years are included to construct the average annual cycle [Brian Magi, United States of America]	Rejected. The years are those specified in the baseline and future periods selected by the user. A more detailed description of this has been included in the description of the Interactive Atlas.
15340	INWkpuWE				Are anomalies expressed relative to 2010 or relative to preindustrial era? In looking at anomalies of mean temperature for north-america, the chart shows temperatures from 2010 to 2100 with the 2010 datapoint set around 0. This is intuitive for people to understand additional future changes relative to a present-day baseline, but it is counter to the global warming temperatures policymakers are used to (i.e. 1.5C and 2C which are relative to preindustrial levels). I suggest including two options for data visualization for all charts: 1) anomalies relative to present day; 2) anomalies relative to preindustrial. If these are already available as options in the tool, it's too difficult to understand for a climate policymaker without additional guidance within the tool itself. [Lia Cairone, United States of America]	Rejected. The anomalies refer to the baseline period selected by the user. Including a climatology obtained from preindustrial level would imply calculating this for all variables and indices included in the IA, but this is not possible for some datasets (e.g. CORDEX).
15342	INWkpuWE				Under the "Scenario" tab, I don't understand what the options for Future Period mean. [Lia Cairone, United States of America]	Noted. It refers to the future period of interest (either a time-slice or a warming level period). This has been clarified in the SOD.
9704	iXHuzIfK				IA: the scatterplot should specify what the green circles, gold diamonds, and red squares represent [Brian Magi, United States of America]	Rejected. The scatterplot already includes a legend (at the bottom of the figure) describing this.

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31720	j37XMQV3				IA: There is no clear way of finding a definition of the variable plotted (TX35 – Bias Correction-EQM (Anomaly)). This applies to all variables, but is more important in the “bias corrected” terms for which a wide range of options are available ... these are (or will be) presumably described in the body of the report, but a summary or reference should be provided here. [Martin Juckes, United Kingdom (of Great Britain and Northern Ireland)]	Accepted. This information was included in Technical Annex VII, but no link to that information was available in the Interactive Atlas. This has been clarified in the new version.
54302	j9xKirO9				It is not clear what the dots are on this map - is this related to significance, the rarity of the event at these gridpoints, or both? I would suggest masking of areas where the event concerned is rare or unknown (e.g. days over 35 at high latitudes). [Blair Trewin, Australia]	Noted. The dots represent uncertainty using a simple model agreement criterion. This was described in the "about" information of the Interactive Atlas.
43214	jsD52WUL				IA: Suggest putting the time slice years in parentheses after the check-box items for Near, Medium and Long term [Rachel Taylor, Australia]	Accepted. More informative labels have been included in the revised version.
42792	k1BS36F6				IA: Is there any possibility of adding observational data sets to the menu of "DATASET" choices? [David Gutzler, United States of America]	Noted. Observational datasets have been included in the revised version.
42794	k1BS36F6				IA: think the interactive Atlas will be *extremely* useful ... it has a nice look and feel already [David Gutzler, United States of America]	Noted. Thank you.
15338	LsIiZBE4				The interactive Atlas web tool is phenomenal. PLEASE ensure that this is usable by policymakers AND regular people (I'm a climate policymaker - it's not there yet). That will require explaining in plain language what the inputs mean, and spelling out acronyms on the interface itself. As wonderful as this tool is, almost none of the language and inputs will be comprehensible to most people. This includes: the Dataset inputs, the Variable inputs, the Scenario inputs, even the Season inputs. At a minimum, any acronym or scientific terminology/shorthand should be explained in a brief paragraph if the user hovers over the text. Best case would be this tool is translated into plain language with the scientific shorthand in parentheses. I would highly recommend working with laypeople to improve the usability of this otherwise very impressive and powerful tool. [Lia Cairone, United States of America]	Noted. The new version has been improved in the lines described by the reviewer.

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9238	MY1pLbU2				IA: The exported png has absolutely no information on the figure itself. Missing are title, caption, related AR6 ch./section/figure, legend, source data. As figures might appear in a non-digital printed version, it needs to contain information to track its origin. The provenance information in the header is excellent. In connection with metaclip this information gets accessible for human users. However some additional guidance is needed for the user in order to enable him/her to reproduce a figure, e.g. add the tracking_ids of the source files in addition to the existing data DOI references. [Martina Stockhause, Germany]	Noted. This was experimental/incomplete. More comprehensive titles and captions are produced in the revised version.
31722	newrum2A				IA: The use of the jargon term “bias correction” is inappropriate here. The statistical adjustment implied by this piece of jargon can take may forms, depending on a wide range of methodological choices and also on the choice of reference data and time period. A more neutral term should be used. [Martin Juckes, United Kingdom (of Great Britain and Northern Ireland)]	Accepted. The particular "bias correction" method (EQM) is explained in detail in the Technical Annex VII. However, although this is mentioned in the corresponding section of the Atlas chapter, it is difficult to find and no mention was included in the "about" information of the IA. This has been corrected in the revised version. Moreover, "bias adjustment" is now used instead of "bias correction".
28558	oW54r5aZ				IA the temperature simulated for the extreme North over estimated by the Models output [Wycliffe Tumwesigye, Uganda]	Not applicable. Meaning of comment not clear.
27108	q24rAbTN				IA: It’s not easy to understand what grey dots (stippled regions) mean [Edoardo Cremonese, Italy]	Noted. A description of this was included in the "about" information. A more comprehensive description is included in the revised version.
32278	qJDqezw8				My PhD is in Science Education, so all of my comments are from a science communication perspective: Helping others understand the science behind what you all are trying to do more efficiently and effectively so that they can then make more informed choices. That being said, this ATLAS is a powerful tool that can have significant impact on viewers' understanding of the personal impacts of climate change across the globe. I commend you for including it. I expect the average person who doesn't understand all the science details would be more likely to click on this than many of the other aspects of this report, whch makes it especially important. Science communication is critical here. [Catherine Linsky, United States of America]	Noted. We share the view on the importance of communication and have included both FAQs and case studies with more comprehensive information on how to use and understand the results of the Interactive Atlas.

Comment ID	From Page	From Line	To Page	To Line	Comment	Response
32280	qJDqezw8				Science Communication: Although I appreciate the ATLAS, I do not think it is especially user-friendly to a non-scientist or a typical political decision-maker. It seems to be geared toward climate experts only. While that focus serves an important purpose, you're missing the most important audience that NEEDS to see this: the political decision makers. I'm thinking of my fellow N. American politicians or climate-skeptics, especially. If you make it too tough for them, they'll quickly give up and close the website. [Catherine Linsky, United States of America]	Noted. See response to #32278.
32282	qJDqezw8				Scienc Communication critiques: For example, I wasn't exactly sure what I was looking at when I first pulled up the page. That information needs to be very clear. "This ATLAS shows the average temperatures across the globe by 2055" or whatever. I shouldn't have to hunt for a quick statement on the purpose of the ATLAS or the very basics about what I'm looking at (a key or map legend explanation, for example.) A very short, reader-friendly version of the purpose (lines 5-14 of ATLAS-10) should be included at the top to give context. Even better: Include a short video screencast of how to use the ATLAS. There is marketing research to show that people stay on websites longer when there is a video. [Catherine Linsky, United States of America]	Noted. The possibility to include a video on how to use the Atlas will be considered and discussed with the Technical Support Unit. Thank you for pointing out this possibility.
32284	qJDqezw8				Science communication critique: We non-experts also need context/information for each of the tabs. Having a line or two under the title of the tab explaining the basics or a little explanation that pops up when they hover over the tab will help them understand what they will see when they click on that. Again, if you make it too difficult or confusing, the skeptics will quickly close the website. [Catherine Linsky, United States of America]	Noted. See response to #32278.
32286	qJDqezw8				If I were to show this to my students, I expect one of them would say "Why does this map show the north pole haivng the hottest temperature? That doesn't make any sense. And why isn't the south pole as dark red?" Including a little legend or summary with the thermometer key on the side explaining the colors in more detail would really help a non-scientist. [Catherine Linsky, United States of America]	Noted. The final graphic style will be defined together the Technical Support Unit. The possibility to use a more iconic colorbar would be considered.
32288	qJDqezw8				I think you should put a limit to how small the viewer is able to make the ATLAS on the screen itself. Possibly how large as well. Why would they need to zoom out so far? It felt a little quirky to me. [Catherine Linsky, United States of America]	Accepted in the FGD.

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32290	qJDqezw8				This has a tremendous amount of information! I am impressed with how much data was compiled into this Atlas. Still, the average Joe is not going to understand what the graphs mean or what the numbers are saying. If you want people to be able to use this to make decisions, you need to include more information in plain language to help them understand. If you don't want it cluttering up the page, including a link that says "What does this mean?" or "About this chart" or "About this graph" would help. Or you could include the info automatically when the person hovers over the name of the chart. Again, links to additional information by region would help. [Catherine Linsky, United States of America]	Noted. Thank you for the suggestion. We included more contextual information in the updated version.
31730	rEhIWihd				Ocean variables (sea surface temperature etc) do not appear to be available for AR6 Reference Regions such as “South-Pacific”. If it has to be this way, the interface should make the limitations clearer (also the fact that atmospheric variables cannot be viewed over the ocean biome regions). [Martin Juckes, United Kingdom (of Great Britain and Northern Ireland)]	Noted. Land/ocean reference regions are defined to represent atmospheric variables. Ocean biomes are used to represent oceanic variables. This has been clarified in the revised version.
26868	s1zcBmDl				IA great overview. The representation of the regions by geometric shapes should be replaced by the exact borders of the specific regions. E.g. Central Europe is currently representet by a trapazoid. This may lead to the general impression that the underlying data is also very datailed and substantiated [Thomas Ackermann, Germany]	Noted. Reference regions have been kept as simply as possible. However, land regions are defined using land-only grid boxes. The visualization of regions has been modified in the revised version.
9708	s3ltF85E				IA: for Variables, I think a variable that is gaining more and more recognition in the literature is Dewpoint temperature as a measure of not only heat stress but a way to quantitatively evaluate the heat index or ability of a human body to cool off from sweating. could the Dewpoint Temperature be included in the atlas? [Brian Magi, United States of America]	Rejected. The variables included in the Atlas are chosen among those assessed in the chapters and, therefore, are not freely selected by the Atlas.
9710	s3ltF85E				IA: what are the Variables TX35 – Bias Correction-EQM and TX35 – Bias Correction-PQM? These do not seem to be explained in the About or Instructions. [Brian Magi, United States of America]	Accepted. The reviewer is right. This information is missing and it has been corrected.
31002	TH0PK				IA: I would add a temporal reference in the scenario tab/future period / near term (YYYY-YYYY) middle term (YYYY-YYYY) and long term (YYYY-YYYY) [Edoardo Cremonese, Italy]	Accepted. More informative labels have been included.
9712	tLF41lkj				IA: for the Scatterplot, it might be useful to eventually include both CMIP5 and CMIP6 model output for comparisons of how model realizations of projected climate variables have changed. [Brian Magi, United States of America]	Taken into account. This functionality will be considered for the future version of the Atlas.

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30464	TRTS6H1R				IA: the years for which the atlas figure is plotted should be clearly marked in the main window (based on the settings of the scenario and baseline). They are nicely marked in the temporal evolution graph but not on the map. It would also be nice if maps could be produced based on input from the users themselves (e.g., would be nice if users could make a map for the period 2010-2065, for instance) [Pieter De Frenne, Belgium]	Noted. More informative titles have been added, including information on the time periods. However, user-defined periods are not allowed to prevent the generation of misleading or wrongly formed produce.
31004	vmfdd				IA I suggest adding a link to the relevant chapter explaining why warming 1.5 and warming 2 are listed in the future period and not in the scenario ATLAS page 12 line 20-32 [Edoardo Cremonese, Italy]	Noted. More informative labels have been included in the revised version.
9252	w68eLRm8				IA - PDF/PNG exports: Is it possible to increase the font? [Martina Stockhause, Germany]	Noted. This was preliminary in the FOD.
31728	wCqBSqs6				IA: The boundaries of the “Arctic Ocean” region do not look as if they have been well thought out. There is considerable interest in the evolution of the Arctic and the region used to present the data should be considered carefully. In AR5 the “Arctic” region was defined in a way which intresected other regions: an approach which also has draw-backs, but did at least ensure that Arctic plots coincided with common expectations. [Martin Juckes, United Kingdom (of Great Britain and Northern Ireland)]	Taken into account. Definition of the Arctic Ocean was preliminary and is updated in the SOD.
14948	WFBNZwfr				IA: I find the prototype generally intuitive to use and visually appealing e.g. in terms of it's 'clean' styling and menu elements. It already includes useful functionality, such as the ability for user-defined seasons (particularly useful for precipitation). [Clare Goodess, United Kingdom (of Great Britain and Northern Ireland)]	Noted. Thank you.
9254	xJHTRICA				IA - error produced ("data does not fully cover region") when switching from CMIP5 to EUR-44 data (old ref code: w68eLRm8): Plumes ok, error for annual cycle and scatter plot. For midterm the annual cycle is fine only the scatter plot error remains. As the displayed EUR-44 domain fully covers the region, the error message for the annual cycle does not make sense to me. [Martina Stockhause, Germany]	Noted. Thank you for reporting this misfunctioning. It has been solved.

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55838	xVFfsYBm				IA: I find appropriate the design of the Atlas in terms of navigation as well as an useful complement to Atlas chapter material. However, I think there is still room for improvement. Despite all the products visualized in the Interactive Atlas can be exported in a variety of formats, including PNG, JPG and PDF, the information exported is a map or a graph lacking or interpretation of the data, analysis or any type explanation. The Atlas goal is to allow the scientist to engage with the broad audience, improve the awareness of policy makers ad practitioners as well as enhance the information regarding climate change science. In this sense, it seems that for regional case studies and the global maps the exportation of spatial information (i.e. a map) or a figure without any accompanying information is not enough. I suggest adding downloadable pdf documents (as factsheets) along with produced maps for the main/most relevant findings. For instance, the global map in the home page could be downloaded along with a pdf in which the user could find a general explanation of the map (as in pag 24 ln 40-50 of the Atlas chapter) and/or an specific caption for the figure (for instance as in pag 173, ln 4, caption figure 15 or as in page 238, figure 80). Similarly, for the regional analysis (N.E. Africa, N.E. Africa, N. Europe, W. Asia..) and for the variables shown in the plumes and scatter plots a factsheet in the form of pdf to be downloaded along with the graph could be produced with an explanation/interpretation of the results of the models and projections. Captions from figure 81, 82 could serve as an example. Further, the info could be completed with the contents of the Atlas. By doing this, the audience will get a map of the	Noted. Additional guidance material on interpretation and application of the Interactive Atlas is included in the SOD.
31724	YwofZs4o				IA: The “historical” simulation should be included as well ... the evolution of the climate parameters is difficult to assess without reference to the historical period. [Martin Juckes, United Kingdom (of Great Britain and Northern Ireland)]	Accepted. The historical period has been included, together with the baseline shade.
29634	ZN36q3aK				IA: Are there any plans to include in these plots some information about the relative importance of each of the most important sources of uncertainty (e.g. choice of GCM, choice of bias-correction method, RCM for CORDEX, etc.)? [Rodrigo Manzanas, Spain]	Rejected. There are no plans for this.
14936					I would prefer to see the Atlas talking about bias adjustment rather than bias correction. This step is not necessarily a panacea and as acknowledged in Chapter 12, for example, is itself a source of uncertainty. [Clare Goodess, United Kingdom (of Great Britain and Northern Ireland)]	Noted. In the SOD we use bias adjustment.
14938					It would be good to more clearly highlight changes in the regional assessments from AR5 to SR1.5 to AR6. Some of the 'summaries' of AR5/SR1.5 are rather long and because they are also written in the present tense there is potential confusion with the AR6 findings. [Clare Goodess, United Kingdom (of Great Britain and Northern Ireland)]	Accepted. Concise summaries clearly distinct from new AR6 findings have been generated for all regional sections.

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15718					Chatper 5 describes climate aspect of each region with the similar contexts, contents, and titles. But many sub-chapters are arranged in the atlas 5.6 unlike the others. This seems to show unbalanced structure. I would like to suggest that atlas 5.6 should be summarized more. [YOUNG HWA BYUN, Republic of Korea]	Accepted. The chapter structure of Atlas.5.6 (Europe) has been aligned with the structure in other regions. The description of the climatic features has been deleted.
15720					Idea about summary of finding from AR5 and SR1.5 in view of reginal climate aspects is good, but it is not good that this sub-chapter is only included in atlas 5.6. I would like to suggest that this sub-chapter would be organized into one big chapter including another regions if possible. [YOUNG HWA BYUN, Republic of Korea]	Taken into account. AR5/SR summaries provided for each regional section in the SOD. The information is more relevant there than being consolidated into one stand-alone section.
15722					List of RCMs and GCM forcings participating CORDEX runs for each region should be matched to the list of "Table AIII.3" even roughly. Or if model list is different from each other, additional information should be needed. [YOUNG HWA BYUN, Republic of Korea]	Noted. In table Atlas.5 describing the GCM-driven RCM runs we already cite "...on the GCMs see Table Atlas.3: for details on the RCMs see Annex III models; Table AIII.2)." Anyhow, these tables have changed in the SOD and now include more information.
46716					Moonsoon is assessed in section 3.3.3.2; Section 4.4.1.4, 4.5.1.5; 8.2.1.3, 8.3.1.3.2, 8.3.2.2, 8.3.2.4 , 8.4.2.3, 8.3.2.1.1 , 8.4.2.7, 8.5.1.1.2; Section 9.5.4.7; Section 10.4.2.2.1, 10.4.2.2.2, 10.4.3.2.1, 10.4.3.2.2, 10.6.3; Section 11.1.5, 11.4.1, 11.4.4, 11.4.5, 11.7.1, 11.9.5, 11.10.2, Cross-Chapter-box-11.1.1, Section 12.4.1.3, 12.4.2.3, 12.4.2.4, 12.4.2.6, Cross-chapter box 12.1; Atlas.2.2, Atlas.2.3, Atlas.5.2.2, Atlas.5.3.1, Atlas.5.3.1, Atlas.5.3.1, Atlas.5.3.2, Atlas.5.3.3, Atlas.5.3.3, Atlas.5.5.1, Atlas.5.5.2.2, Atlas.5.11.1.3, in the form of ES in chapter 3,4,8,11, box in chapter 8 and above-mentioned subsections [WGI TSU, France]	Taken into account. Atlas authors involved in cross-chapter discussions have harmonised assessment of monsoons.
24476					Comment: Very well done. Will you include other Scenarios? [Rubén D Piacentini, Argentina]	Taken into account. Many thanks. We are including multiple RCPs and warming levels and CMIP6 projections in the Atlas text and Interactive Atlas.
57516					web interface: the icons are great, they are not complicated and very familiar, so it is easy for readers to understand upfront the different categories. [WGI TSU, France]	Noted. Thank you.
57518					web interface: new color palettes will be proposed for SOD by the TSU graphics officer for pH and oxygen [WGI TSU, France]	Noted. Thank you. They will be used when available.
57520					web interface: when "viewing regional information" it would be better to have the information/pdf/png options on the top left corner, where these options often are in documents or on internet pages [WGI TSU, France]	Noted. Thank you for this comment. We will take it into account when designing the final version.

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43216					Global options: Within the UI/Top-screen menus, add definitions for near/medium/long term. Ideally, also information available about the relationship between the RCPs and 1.5/2 deg warming, since those aren't mutually exclusive parameters like RCP and time period. The review instructions are mostly about compatibility with the atlas text chapter, however, I think it's reasonable to assume that this tool will be the only exposure many laypersons have with AR6, so having additional information would be great. It could be kept on the "about" page, but ideally there could be a little information button with pop-ups (or to external pages, or to that exact section on the about page) next to the more complex parameters in the menus (including the RCPs) for increased usability. Seasons may as well be spelled out too since there's plenty of space. Also, I tried a wide variety of settings but could not select the other baseline periods, so there may be a problem there. [Stephanie Courtney, United States of America]	Noted. On the one hand, more informative labels and context (hover) information have been included in the SOD. On the other hand, several baseline periods were included in the FOD for illustrative purposes, but only one was active. All of them are functional in the SOD.
43218					Regional graphs: Within regional detail pages (specifically plume data), it's counter-intuitive that the selected time period is highlighted gray because it's actually much more difficult to see the data in grey. Since the information scope doesn't change, consider either having no time-period coloration/selection, or gray out the time periods NOT selected. When warming 1.5/2 deg is selected, many sections are variably grayed out, which is confusing and not meaningful, consider removing that feature as well (example: page code b640FFHs). For plume data, a more visual and thorough legend would also help, rather than text descriptions of what dark vs. light blue are, and only "p" for percentile. For scatter plot data, a better default might be mean temp anomaly on the X axis (or even better, time) and the user-selected variable on the Y axis, rather than the selected variable graphed against itself. Lastly, not necessary, but since many of the trends stay near zero, would be helpful for the plume graphs to have a slightly bolder 0 line. [Stephanie Courtney, United States of America]	Noted. For warming levels each model has a different period and, thus, the shading with different intensities shows the density of period in the ensemble of models. We prefer this way using shading to highlight this feature. The legends have been updated and slightly bolder 0 line has been included (good suggestion. Thank you).

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43220					Regional selection: When you select a variable that is incompatible with the region selected (i.e. in CNA and select SST) it clears your region selection, so it would be better to have the menus automatically gray-out or not allow selection of incompatible variables (already true of some variables, but would be better to have widespread) or at least not clear your region selected. Similarly, it is confusing that you can look at regional data with multiple regions selected, but only one data set is visible, and there's no label or indication of whether it represents one of the regions or an average. Generally, adding an auto-generated simple title to each graph would be ideal, for this reason and others. I think region selection is a little buggy generally, because when I returned to the global map, several regions were highlighted that I had been using earlier but were not recently in my regional data, so it is unclear which region data I'm looking at at any one time. It would also be better to have descriptors/names with the ocean biome numbers. [Stephanie Courtney, United States of America]	Noted. The interface has been modified in the SOD included also informative titles. The possibility to select multiple regions have pros and cons but we decided to leave this option allowing users to aggregate regions to produce regional information.
43222					Global display and image exports: My guess is that the gray dots are the mask for uncertain data, but this is not shown anywhere, so consider adding a key, especially since dots are often used to express high certainty in the reports. This may be intentional, so disregard if so, but downloaded images do not include land borders, which may be useful, perhaps as a selectable option. Also, this is most likely inconsequential and I'm not exactly sure what triggers it, but after you're on the map and change the options several times, the large land borders turn gray while the island borders stay blue. Just odd, potentially confusing. [Stephanie Courtney, United States of America]	Noted. The grey dots are explained in the "about" information (under the uncertainty title). Image exports have been improved.