



INTERGOVERNMENTAL PANEL ON climate change

**THIRTY-SIXTH SESSION OF THE IPCC
Stockholm, 26 September 2013**

IPCC-XXXVI/Doc. 4
(27.IX.2013)
Agenda Item: 3
ENGLISH ONLY

**ACCEPTANCE OF THE ACTIONS TAKEN AT THE TWELFTH SESSION OF
WORKING GROUP I**

**Working Group I contribution to the IPCC Fifth Assessment Report (AR5),
Climate Change 2013: The Physical Science Basis**

**Changes to the Underlying Scientific-Technical Assessment to ensure consistency
with the approved Summary for Policymakers**

(Submitted by the Co-Chairs of the IPCC Working Group I)

IPCC Secretariat

c/o WMO □ 7bis, Avenue de la Paix □ C.P. 2300 □ 1211 Geneva 2 □ Switzerland
telephone : +41 (0) 22 730 8208 / 54 / 84 □ fax : +41 (0) 22 730 8025 / 13 □ email : IPCC-Sec@wmo.int □ www.ipcc.ch



1. Background

Consistent with Section 4.5 of Appendix A to the Principles Governing IPCC Work, Coordinating Lead Authors have identified some changes to the underlying report to ensure consistency with the language used in the approved Summary for Policymakers or to provide additional clarification as agreed at the Working Group Session. These changes do not alter any substantive findings of the final draft of the underlying report as distributed to governments on 7 June 2013.

Note that the final draft of the underlying Working Group I report is also subject to copy-editing and corrections in proof as normally applied to scientific reports.

2. Changes to be made to the underlying report

The following table lists those changes that will be made in the underlying report of the Working Group I contribution to the IPCC Fifth Assessment Report following the line by line approval of its Summary for Policymakers.

Note that page and line numbers for the SPM and underlying report below are all based on the numbering used in the final drafts as distributed to governments on 7 June 2013.

SPM Page:Line	Chapter	Chapter Page:Line	Summary
3:20	2	2:21	Replace "0.89°C (0.69°C–1.08°C) over the period 1901- 2012" with "0.85 [0.65 to 1.06] °C over 1880–2012"
3:20	2	2:23	Before line 23 insert "The total increase between the average of the 1850–1900 period and the 2003–2012 period is 0.78°C [0.72 to 0.85°C], based on HadCRUT4, the global mean surface temperature dataset with the longest record of the three independently-produced data sets. Both methods used to calculate temperature change were also used in AR4. The first calculates the difference using a best fit linear trend of all points between 1880 and 2012. The second calculates the difference between averages for the two periods 1850 to 1900 and 2003 to 2012. Therefore, the resulting values and their 90% uncertainty intervals are not directly comparable."
3:20	TS	5:32	Replace "0.89°C [0.69–1.08]5 over the period 1901–2012" with "0.85 [0.65 to 1.06] °C over 1880–2012"
3:20	TS	5:34	Before the sentence starting "The warming . ." add the text "The total increase between the average of the 1850–1900 period and the 2003–2012 period is 0.78°C [0.72 to 0.85°C], based on HadCRUT4, the global mean surface temperature dataset with the longest record of the three independently-produced data sets. Both methods used to calculate temperature change were also used in AR4. The first calculates the difference using a best fit linear trend of all points between 1880 and 2012. The second calculates the difference between averages for the two periods 1850 to 1900 and 2003 to 2012. Therefore, the resulting values and their 90% uncertainty intervals are not directly comparable."
3:20	2	2-38	Replace "0.89°C (0.69°C–1.08°C) over the period 1901- 2012" with "0.85 [0.65 to 1.06] °C over 1880–2012"

SPM Page:Line	Chapter	Chapter Page:Line	Summary
3:20	2	2-39	Before "Despite" insert "The total increase between the average of the 1850–1900 period and the 2003–2012 period is 0.78°C [0.72 to 0.85°C], based on HadCRUT4, the global mean surface temperature dataset with the longest record of the three independently-produced data sets. Both methods used to calculate temperature change were also used in AR4. The first calculates the difference using a best fit linear trend of all points between 1880 and 2012. The second calculates the difference between averages for the two periods 1850 to 1900 and 2003 to 2012. Therefore, the resulting values and their 90% uncertainty intervals are not directly comparable."
3:25	2	4:25	Replace "The rate" with "For example, the rate"
3:27	2	4:26	Before "Several . . ." insert " Trends for short periods are uncertain and very sensitive to the start and end years. For example, trends for 15-year periods starting in 1995, 1996, and 1997 are 0.13 [0.02 to 0.24], 0.14 [0.03 to 0.24] and 0.07 [-0.02 to 0.18], respectively."
3:27	TS	5:42	TS: Replace the phrase, "Although the trend uncertainty is large for short records, the" with "The"
3:27	TS	5:44	TS: After reference to footnote 6 insert text: "Trends for short periods are uncertain and very sensitive to the start and end years. For example, trends for 15-year periods starting in 1995, 1996, and 1997 are 0.13 [0.02 to 0.24], 0.14 [0.03 to 0.24] and 0.07 [-0.02 to 0.18], respectively."
3:27	2	39:33	Add after line 33: Trends for short periods are very sensitive to the start and end years, For example, trends for 15-year periods starting in 1995, 1996, and 1997 are 0.13 [0.02 to 0.24], 0.14 [0.03 to 0.24] and 0.07 [-0.02 to 0.18], respectively.
3:30	5	5:3	replace "intervals" by "periods"
3:30	TS	6:29 and 42:50	replace "intervals" by "periods"
3:31	5	5:5	replace "these intervals were not as synchronous across seasons and regions as the" by " these regional warm periods were not as synchronous across regions as the"
3:31	5	35:48	replace "intervals" by "periods"
3:31	5	35:49	replace "These intervals were not as synchronous across seasons and regions" by "These regional warm periods were not as synchronous across regions"
3:31	TS	6:31 and 42:52	replace "these intervals were not as synchronous across seasons and regions as the" by " these regional warm periods were not as synchronous across regions as the"
3:39	2	5:3	Add sentence regarding other latitudes as in agreed SPM precipitation bullet.
3:39	TS	8:5	Change 1950 to 1951
3:39	TS	8:7	Remove sentence beginning "Available "
3:39	TS	8:10	Change 1900 to 1901
3:39	TS	8:11	Change 1950 to 1951
3:39	TS	8:11	Change 1950 to 1951

SPM Page:Line	Chapter	Chapter Page:Line	Summary
3:39	TS	8:11	Add sentence regarding other latitudes as in agreed SPM precipitation bullet and reference to new TS precipitation figure provided by author team to TSU which consists of a six panel figure (3 datasets by 2 periods)
3:39	2	46:30	Need to update paragraph to reflect changes related to period start date i.e. 1951 instead of 1979 and add reference to paper reflecting Sahel changes and remove reference of Sahel to extremes section.
3:39	2	46:30	Sentence needs to be updated to reflect the time period change in the revised Figure 2.29 i.e. change 1979-2010 to 1951-2010
3:39	2	46:34	Reference is made to supplementary material figure of precip trends by %age so we need to update this accordingly with revised numbers and provide this plot to TSU for inclusion.
3:39	2	47:2	Change 1979 to 1951
3:39	2	47:4	Revise sentence so that the 1979-2010 reference to the Sahel refers to relevant literature rather than the figure as Fig 2.29 will no longer contains trends for this period
3:39	2	47:9	Figure 2.29 caption needs to be updated to include trends from 1951 to 2010 instead of 1979 to 2010
3:39	TS	72:31	Change 1950 to 1951
3:39	2	147	Figure 2.29 needs to be updated to include trends from 1951 to 2010 instead of 1979 to 2010. Figure has been provided in draft to TSU.
3:48	TS	15:7	TS "It is likely that since 1950 the number of heavy precipitation events over land has increased in more regions than it has decreased. Regional trends vary but confidence is high for North America with very likely trends towards heavier precipitation events. {2.6.2; Table 2.13}" Should be central North America
3:48	2	56:49	Remove Central America from "Regional trends in precipitation extremes since the middle of the 20th century are varied (Table 2.13). In most continents confidence in trends is not higher than medium except in North America and Central America and Europe where there have been likely increases in either the frequency or intensity of heavy precipitation." as it is not a continent.
4:16	3	3:11	change ">0.1°C per decade" to "0.11 [0.09 to 0.013] °C per decade"
4:16	3	9:17	change "exceeds 0.1" to "is 0.11 [0.09 to 0.13]"
4:19	3	3:18	change "2010" to "2009"
4:21	3	3:22	change "Warming below 3000 m is largest near the sources of deep and bottom water in the North Atlantic and the Southern Ocean" to "Warming below 3000 m is largest in the Southern Ocean."
5:23	4	4:79	Trickleback Figure 4.4 The trends numbers need to be removed to avoid the excessive significant figures, and ensure compatibility with numbers provided for SPM, which are given for different likelihood statement. The uncertainties are likely not very likely, so is confusing! Joey Comiso to provide revised figure, with trends given to match numbers in the SPM

SPM Page:Line	Chapter	Chapter Page:Line	Summary
5:23	4	15:38	Trickleback for addition of numbers describing mean annual Arctic sea ice extent change to text Trickleback for addition of numbers describing summer minimum Arctic sea ice extent change to text This overwrites a previous change. Replace multiple sentences "The overall trend.... and Figure 4.4) with... "The data set is robust with continuous and consistent global coverage on a daily basis thereby providing very reliable trend results (very high confidence). The annual Arctic sea ice cover very likely declined within the range 3.5 to 4.1% per decade (0.45 to 0.51 million km ² per decade) during the period 1979–2012 with larger changes occurring in summer and autumn (very high confidence). Much larger changes applies to the perennial ice (the summer minimum extent) which very likely decreased in the range from –9.4 % to -13.6 % per decade (0.73 to 1.07 million km ² per decade) and multiyear ice (more than 2 years old) which very likely declined in the range from –11.0 % to -16.0% per decade (very high confidence; Figure 4.6b and Figure 4.4). "
5:27	5	4:39	replace "There is medium confidence from reconstructions that the current (1980 to 2012) summer sea-ice retreat and increase in sea-surface temperatures in the Arctic are anomalous in the perspective of at least the last 2,000 years." by "There is medium confidence from reconstructions that the current (1980 to 2012) Arctic summer sea-ice retreat was unprecedented and sea-surface temperatures were anomalously high in the perspective of at least the last 1,450 years."; italicize "medium confidence"
5:27	TS	8:50	replace "There is medium confidence from reconstructions that the current (1980 to 2012) summer sea-ice retreat and increase in sea-surface temperatures in the Arctic are anomalous in the perspective of at least the last 2,000 years." by "There is medium confidence from reconstructions that the current (1980 to 2012) Arctic summer sea-ice retreat was unprecedented and sea-surface temperatures were anomalously high in the perspective of at least the last 1,450 years."; italicize "medium confidence"
5:27	5	36:14	replace "There is medium confidence that the current ice loss and increasing SSTs in the Arctic are anomalous at least in the context of the last two millennia" by "There is medium confidence that the current Arctic summer sea ice loss and was unprecedented and SSTs were anomalously high at least in the context of the last 1,450 years"; italicize "medium confidence"
5:32	4	16:49	Trickleback of number on Antarctic sea ice to text Add text after "per decade" to read "per decade (0.13 to 0.20 million km ² per decade)"
5:43	4	45:4	Table entry is incorrect (this error was noted before Plenary, so is not strictly trickleback, but is required to support change in SPM) Change In table entry on Northern Alaska - change "2.7" to "3" Change in table entry on Northern Alaska - Add reference Osterkamp, 2005,

SPM Page:Line	Chapter	Chapter Page:Line	Summary
5:43	4	65:9	Insert new reference : Osterkamp, T.E., 2005: The recent warming of permafrost in Alaska. <i>Global Planet. Change</i> , 49, 187–202, doi: 10.1016/j.gloplacha.2005.09.001.
5:48	6	15:43	Need to ensure that the period of 22,000 years and all the 3 gases is the first paragraph of 6.2
5:53	5	44:16	replace "both the NH and SH is an acceleration, late in" by "both the NH and SH is an increase in rate (high confidence), late in"; italicize "high confidence"
6:6	5	4:10	replace "ago) was at least 5 m higher" by "ago) was, for several thousand years, at least 5 m higher"
6:6	TS	12:34	replace "ago) was at least 5 m higher" by "ago) was, for several thousand years, at least 5 m higher"
6:6	5	41:10	replace "was at least 5 m higher" by "was, for several thousand years, at least 5 m higher"
6:9	5	4:27	insert "High-latitude surface temperature, averaged over several thousand years, was at least 2°C warmer than present (high confidence)." before "Greater warming"; italicize "high confidence"
6:9	TS	12:38	insert "High-latitude surface temperature, averaged over several thousand years, was at least 2°C warmer than present (high confidence)." before "Greater warming"; italicize "high confidence"
6:9	6	22:1	Replace wording in 6.3 and in the names of fluxes in table 6.1 'residual terrestrial flux' by 'residual land sink' in order to match the explicit mention of 'residual land sink' in the SPM bullet ; check if wording "natural ecosystems" is also used in 6.3 as in the SPM bullet
6:9	5	24:30	insert "High-latitude surface temperature, averaged over several thousand years, was at least 2°C warmer than present (high confidence) (Fig. 5.6)." before "In response"; italicize "high confidence"
6:13	3	41:7-8	replace the sentence with these two sentences: : Based on the consistency of these observations, the pH of surface waters has decreased as result of ocean uptake of anthropogenic CO ₂ from the atmosphere. There is high confidence that the pH decreased by 0.1 since the preindustrial era.
6:13	3	5:53-6:2	change the pH statement in the exec summary to: Uptake of anthropogenic CO ₂ results in gradual acidification of the ocean. The pH of seawater has decreased by 0.1 since the beginning of the industrial era, corresponding to a 26% increase in hydrogen ion concentration (high confidence). The observed pH trends range between –0.0014 and –0.0024 yr ⁻¹ in surface waters. In the ocean interior, natural physical and biological processes, as well as uptake of anthropogenic CO ₂ can cause changes in pH over decadal and longer time scales. [3.8.2, Table 3.2, Box 3.2, Figures 3.18, 3.19, FAQ 3.2]
13:37	11	47:57	Replace "pre-industrial era" with "1850-1900". This also requires changing the label on the right hand axis in Fig 11.24a

SPM Page:Line	Chapter	Chapter Page:Line	Summary
13:38	11	53:31-32	Replace "The temperature scale relative to pre-industrial climate on the right hand side assumes a warming of GMST prior to 1986–2005 of 0.61°C estimated from HadCRUT4" with "The temperature scale on the right hand side shows changes relative to a reference period of 1850-1900, assuming a warming of GMST between 1850-1900 and 1986-2005 of 0.61°C estimated from HadCRUT4". It is also necessary to change the label on the right hand axis of Fig 11.25b.
13:39	11	53:45	Replace "relative to pre-industrial conditions, by this time period (Joshi et al..." with "relative to earlier time periods (Joshi et al, "
13:40	11	53:46	Delete "as an estimate of pre-industrial climate,"
13:41	11	54:4	Replace "an estimate of pre-industrial climate" with "the mean temperature in the peiod 1850-1900"
13:42	11	54:5	Replace "pre-industrial climate" with "1850-1900"
14:12	14	3:19	SPM "circulation is" was changed to "winds are". In Ch14, replace "circulation is" was changed to "winds are"
14:12	14	15:49	SPM "circulation is" was changed to "winds are". In Ch14, replace "circulation is" was changed to "winds are"
14:12	TS	65:33	SPM "circulation is" was changed to "winds are". In TS, replace "circulation is" was changed to "winds are"
14:17	14	23:50	SPM "changes" was changed to "the increase". In Ch14, replace "changes" with "the increase"
16:16	13	4:36	insert "assessed" before "likely" and italicize "likely"
3	2	4:18	Need to add "successively" and "at the Earth's surface" and change "all" to any" to make it "Each of the past three decades has been successively warmer at the Earth's surface than any previous decades in the instrumental record"
3	2	4:22	After "linear trend" add " and based on three independently-produced data sets"
3	TS	5:31	Need to add "successively" and "at the Earth's surface" and change "all" to any" to make it "Each of the past three decades has been successively warmer at the Earth's surface than any previous decades in the instrumental record"
3	TS	5:34	After "linear trend" add " and based on three independently-produced data sets"
3	2	38:28	"early-industrial" needs removing
3	2	39:39	After "linear trend" add " and based on three independently-produced data sets"
3	TS	5:34-35	"early-industrial" needs removing
30	TS	77	Extremes table TFE9: Table 1 needs to be updated based on changes made to SPM Table 1
30	TS	124	Figure TS.24 needs to link to Box 2.4 Table 1 (and use standard naming conventions? i.e. should R5d be Rx5day as in Table Box 2.4 Table 1)
30	14	9:??	needs to link to Box 2.4 Table 1 (and use standard naming conventions?)
12:10-11	13	4:29	Insert:Projections of sea level rise are larger than in the AR4, primarily because of improved modelling of land-ice contributions.

SPM Page:Line	Chapter	Chapter Page:Line	Summary
14:18-19	14	23:44	SPM "Natural modulations of the variance" was changed to "Natural variations of the amplitude". In Ch14, replace "Natural modulations of the variance" with "Natural variations of the amplitude"
14:18-19	TS	67:48	SPM "Natural modulations of the variance" was changed to "Natural variations of the amplitude". In TS, replace "Natural modulations of the variance" with "Natural variations of the amplitude"
14:25-30	11	44:52	5–14 ppb over continental-scale regions, on average about 8 ppb (25% above current levels) above RCP4.5 and RCP6.0 which include
14:25-30	11	45:34	confidence). The range in projections of air quality is driven primarily by emissions (including
14:25-30	11	4:13-16	While PM _{2.5} is expected to decrease in regions where precipitation increases, the climate variability at these scales results in only low confidence for projections at best. Further, consensus is lacking on the other factors including climate-driven changes in biogenic and mineral dust aerosols, leading to no confidence level being attached to the overall impact of climate change on PM _{2.5} distributions.
14:25-30	11	4:48-54	The range in projections of air quality (O ₃ and PM _{2.5} in surface air) is driven primarily by emissions (including CH ₄), rather than by physical climate change (medium confidence). The response of air quality to climate-driven changes is more uncertain than the response to emission-driven changes (high confidence). Globally, warming decreases background surface O ₃ (high confidence). High CH ₄ levels (RCP8.5, SRES A2) can offset this decrease, raising 2100 background surface O ₃ on average by about 8 ppb (25% of current levels) relative to scenarios with small CH ₄ changes (RCP4.5, RCP6.0) (high confidence). On a continental scale, projected air pollution levels are lower under the new RCP scenarios than under the SRES scenarios because the SRES did not incorporate air quality legislation (high confidence). [11.3.5, 11.3.5.2; Figures 11.22 and 11.23ab, All.4.2, All.7.1–All.7.4]
14:25-30	11	48:13-20	[DELETE]
14:25-30	11	5:1-7	Observational and modelling evidence indicates that, all else being equal**, locally higher surface temperatures in polluted regions will trigger regional feedbacks in chemistry and local emissions that will increase peak levels of O ₃ and PM _{2.5} (medium confidence). Local emissions combined with background levels and with meteorological conditions conducive to the formation and accumulation of pollution are known to produce extreme pollution episodes on local and regional scales. There is low confidence in projecting changes in meteorological blocking associated with these extreme episodes. For PM _{2.5} , climate change may alter natural aerosol sources (wildfires, wind-lofted dust, biogenic precursors) as well as precipitation scavenging, but no confidence level is attached to the overall impact of climate change on PM _{2.5} distributions. [11.3.5, 11.3.5.2, Box 14.2]
14:47-48	11	4:16-17	Replace "are decades when increases are also expected" with "may be decades when increases occur"
14:47-49	11	36:8-9	Replace "are also to be expected" with "may occur"
15:32-35	13	3:4-6	replace with: because of the improved physical understanding of the components of sea level, the improved agreement of process-based models with observations, and the inclusion of ice-sheet dynamical changes.

SPM Page:Line	Chapter	Chapter Page:Line	Summary
16:17-18	13	4:44-46	replace with: process-based model projections, but there is no consensus in the scientific community about their reliability and there is thus low confidence in their projections.
18:8-9	13	5:4-5	replace with: Current estimates indicate that the threshold is greater than about 1°C (low confidence) but less than about 4°C (medium confidence) global mean warming with respect to pre-industrial.
18:9-12	13	5:15	insert: Abrupt and irreversible ice loss from a potential instability of marine-based sectors of the Antarctic Ice Sheet in response to climate forcing is possible, but current evidence and understanding is insufficient to make a quantitative assessment {5.8, 13.4, 13.5}
2:14-17	1	17:53-55	reorder the list of evidence under confidence as done in the final SPM
2:14-17	1	2:54-56	reorder the list of evidence under confidence as done in the final SPM
2:14-17	1	3:1-2	add to list under probabilistic (and/or both, or expert judgment) (note page 17 is ok as stated)
20 - Table	14	34:29	SPM "in some basins" was changes to "the Western North Pacific and North Atlantic". In Ch14, replace "in some basins" with "the Western North Pacific and North Atlantic".
20 - Table	TS	34:29	SPM "in some basins" was changes to "the Western North Pacific and North Atlantic". In TS, replace "in some basins" with "the Western North Pacific and North Atlantic".
5:26-28	13	3:12-16	Replace "During the last interglacial " with "There is very high confidence that maximum global mean sea level during the last interglacial period (129,000 to 116,000 years ago) was, for several thousand years, at least 5 m higher than present and high confidence that it did not exceed 10 m above present, implying substantial contributions from the Greenland and Antarctic ice sheets. [5.6.2, 13.2.1] This change in sea level occurred in the context of different orbital forcing and with high-latitude surface temperature, averaged over several thousand years, at least 2°C warmer than present (high confidence). [5.3.4]
5:9-12	13	3:18-20	Replace with: Proxy and instrumental sea level data indicate a transition in the late 19th to the early 20th century from relatively low mean rates of rise over the previous two millennia to higher rates of rise (high confidence). It is likely that the rate of global mean sea level rise has continued to increase since the early 20th century {3.7, 3.7.4, 12 5.6, 13.2}
p.17:53-p.18:3	13	4:50-52	replace with: The few available model results that go beyond 2100 indicate global mean sea level rise above the pre-industrial level by 2300 to be less than 1 m for a radiative forcing that corresponds to CO2 concentrations that peak and decline and remain below 500 ppm, as in the scenario RCP2.6. For a radiative forcing that corresponds to a CO2 concentration that is above 700 ppm but below 1500 ppm, as in the scenario RCP8.5, the projected rise is 1 m to more than 3 m (medium confidence). {13.5}
Table SPM.1	11	4:29	Change "In most regions " to "in most land regions "
Table SPM.2	11	31:43	Assessment is in ES, but not in main text. Add at end of line: "In most land regions and in the near-term, the frequency of warm days and warm nights will thus likely continue to increase, while that of cold days and cold nights will likely continue to decrease."

SPM Page:Line	Chapter	Chapter Page:Line	Summary
Table SPM.3	11	32:44	Assessment is in ES, but not in main text. Add at end of line: "Thus the frequency and intensity of heavy precipitation events will likely increase over many land areas in the near term, but this trend will not be apparent in all regions, because of natural variability and possible influences of anthropogenic aerosols."
Table SPM.4	11	4:29	Change "In most regions " to "in most land regions "
Table SPM.5	11	4:37	Delete "and land use change"
Table SPM.6	11	31:43	Assessment is in ES, but not in main text. Add at end of line: "In most land regions and in the near-term, the frequency of warm days and warm nights will thus likely continue to increase, while that of cold days and cold nights will likely continue to decrease."
Table SPM.7	11	32:44	Assessment is in ES, but not in main text. Add at end of line: "Thus the frequency and intensity of heavy precipitation events will likely increase over many land areas in the near term, but this trend will not be apparent in all regions, because of natural variability and possible influences of anthropogenic aerosols."
	12	3:41	Replace 'preindustrial conditions' with 'the 1850 to 1900 average'
	12	3:43	Replace 'preindustrial' with 'the 1850 to 1900 average'
	6	16:12	The TS currently provides a decadal average for the period 2000-2009, but the SPM now provides the average for 2002-2011. The TS should be changed to be consistent with SPM. We also need to add a "high confidence" statement to the decadal average.
	TS	16:12	The TS currently provides a decadal average for the period 2000-2009, but the SPM now provides the average for 2002-2011. The TS should be changed to be consistent with SPM. We also need to add a "high confidence" statement to the decadal average.
	6	16:34	The SPM gives land use change values for 2002-2011, so TS should give values for same time frame. Also add "medium confidence" to be consistent with SPM.
	TS	16:34	The SPM gives land use change values for 2002-2011, so TS should give values for same time frame. Also add "medium confidence" to be consistent with SPM.
	6	17:16	The TS wording for Natural Terrestrial ecosystems may need to be revised to be consistent with SPM.
	TS	17:16	The TS wording for Natural Terrestrial ecosystems may need to be revised to be consistent with SPM.
	6	17:28	The SPM now has confidence wording for 0.1 pH change that needs to be added to TS. In TS, add "(high confidence)" after the words "industrial era" and before the comma.
	TS	17:28	The SPM now has confidence wording for 0.1 pH change that needs to be added to TS. In TS, add "(high confidence)" after the words "industrial era" and before the comma.
	12	26:15	Replace 'preindustrial' with 'the 1850 to 1900 average'
	12	26:16	Replace 'preindustrial' with 'the 1850 to 1900 average'
	TS	48:12	Replace "pre-industrial" with 1850-1900 mean"
	TS	48:33	Replace "pre-industrial" with 1850-1900 mean"

SPM Page:Line	Chapter	Chapter Page:Line	Summary
	TS	60:23	Replace "pre-industrial" with 1850-1900"
	TS	60:25	Replace "pre-industrial" with 1850-1900"
	TS	65:18	insert after "instability": Abrupt and irreversible ice loss from a potential instability of marine-based sectors of the Antarctic Ice Sheet in response to climate forcing is possible, but current evidence and understanding is insufficient to make a quantitative assessment {5.8, 13.4, 13.5}
	TS	107:15	Replace "pre-industrial" with 1850-1900 mean"
	TS	12:32-38	Replace "During the last interglacial " with "There is very high confidence that maximum global mean sea level during the last interglacial period (129,000 to 116,000 years ago) was, for several thousand years, at least 5 m higher than present and high confidence that it did not exceed 10 m above present, implying substantial contributions from the Greenland and Antarctic ice sheets. [5.6.2, 13.2.1] This change in sea level occurred in the context of different orbital forcing and with high-latitude surface temperature, averaged over several thousand years, at least 2°C warmer than present (high confidence). [5.3.4]
	TS	13:38-39	replace with: process-based model projections, but there is no consensus in the scientific community about their reliability and there is thus low confidence in their projections.
	TS	47:51-52	Statement relating to assessment of near-term GMST must be consistent with SPM. Replace "based on an assessment of observationally-constrained projections and predictions initialized with observations" with "based on multiple lines of evidence".
	TS	49:50-51	Replace "are to be expected" with " may occur"
	TS	64:46-50	replace " The few available .." with: The few available model results that go beyond 2100 indicate global mean sea level rise above the pre-industrial level by 2300 to be less than 1 m for a radiative forcing that corresponds to CO2 concentrations that peak and decline and remain below 500 ppm, as in the scenario RCP2.6. For a radiative forcing that corresponds to a CO2 concentration that is above 700 ppm but below 1500 ppm, as in the scenario RCP8.5, the projected rise is 1 m to more than 3 m (medium confidence). {13.5}
	TS	TS-12:40-47	Replace with: Proxy and instrumental sea level data indicate a transition in the late 19th to the early 20th century from relatively low mean rates of rise over the previous two millennia to higher rates of rise (high confidence). It is likely that the rate of global mean sea level rise has continued to increase since the early 20th century {3.7, 3.7.4, 12.5.6, 13.2}
	6		check if Chapter 3 needs an uncertainty range from the models for the bullet on historical pH decrease
	TS		The cumulative carbon figure in the TS (equivalent to SPM9) needs to be updated, and the observed emissions since 1870 (rather than 1750). Also trickleback the 33,50% in addition to the 66%