Errata

Climate Change 2021: The Physical Science Basis

The Working Group I Contribution to the IPCC Sixth Assessment Report

Errata

The errata listed below **have not been implemented** in the published documents.
Page and line numbers refer to the final online versions of the SPM, TS, Chapters and Annexes.

Item	Page	Correction
TS	45	Replace Box TS.2, Figure 1 with Errata Box TS.2, Figure 1. In Panel (a), 3.3-3.0 ka is changed to 3.3-3.0 Ma.
TS	50	Replace Figure TS.2 with Errata Figure TS.2. In Panel (a), the x-axis labels of "Atm Res" and "Ocn Res" are reversed.
TS	89	Replace Infographic TS.1with Errata Infographics TS.1. In the upper panel, 4°C column for Tropical Cyclones "30%" is replaced with "20%".
TS	104	Box TS.7, Figure 1: Precise values of the error bar ranges for SSP5-8.5 and SSP3-7.0 low CH_4 are incorrect. The visual difference to the error bar with corrected data is negligible and the data of this figure available to download is correct.
Chapter 1	248	In FAQ 1.3, Paragraph 4, line 4, change: "...a sequence of changes that caused about 1°C–2°C of global warming and about 2–8 m of sea level rise relative..." to "...a sequence of changes that caused about 0.5°C–1.5°C of global warming and about 5–10 m of sea level rise relative..."
Chapter 4	611	In Section 4.5.3.4, column 2, paragraph 1, line 6, replace "Altanic" by "Atlantic".
Chapter 5	752	In Section 5.5.2.2.4, column 1, paragraph 2, line 5, replace "+/-0.19°C" by "+/-0.3°C".
Chapter 6	852	Replace Figure 6.10 with Errata Figure 6.10. Longitude mapping error in figure plotting code for Panel (b). This changes the regionally aggregated shortwave and longwave components of aerosol ERF. Github code repository has been corrected on 9 July 2023. (https://github.com/IPCC-WG1/Chapter-6_Fig10/issues/1)
Chapter 7	933	In Section 7.2, column 2, paragraph 1, line 1, replace "al.o" by "also"
Chapter 7	1020	In FAQ 7.1, paragraph 7, line 1, replace "al.o" by "also".
Chapter 9	1229	In caption of Figure 9.6, lines 6–7, replace: "Also shown are the projected change in 0–700 m OHC for (d) SSP1-2.6 and (g) SSP5-8.5 in the CMIP6 ensembles, for the period 2091–2100 versus 2005–2014." with "Also shown are the projected change in 0-700 m OHC for (d) SSP 5-8.5 and (g) SSP 1-2.6 in the CMIP6 ensembles, for the period 2091–2100 versus 2005–2014."
Chapter 11	1566	Replace Figure 11.16 with Errata Figure 11.16. The figure colourbar scale should extend from –40% to +40%. Positive tick marks "+1, +2, +3, +4" are replaced by "+10, +20, +30, +40".

Chapter 12	1875	In FAQ 12.3, paragraph 3, line 2, replace "change" by "chance"
Annex VI	2210	Column 1, line 3, replace first equation of three for HI: "HI={HI_1+HI_{A1}, if RH < 13% and 80°F < T_F < 112°F" with "HI={HI_1-HI_{A1}", if RH < 13% and 80°F < T_F < 112°F"
Annex VII	2234	In the definition for "Holocene", delete: ... spanning the interval from 11,700 yr to the present day. Together with the subadjacent Pleistocene, it comprises the Quaternary System/Period. The Holocene record contains diverse geomorphological, biological, climatological and archaeological evidence, within sequences that are often continuous and extremely well-preserved at decadal, annual and even seasonal resolution. As a consequence, the Holocene is perhaps the most intensively studied series/epoch within the entire Geological Time Scale. Yet until recently little attention had been paid to a formal subdivision of the Holocene. Here we describe an initiative by the Subcommission on Quaternary Stratigraphy (SQS). so the definition reads: Holocene The current interglacial geological epoch, the second of two epochs within the Quaternary Period, the preceding being the Pleistocene. The International Commission on Stratigraphy (ICS) defines the start of the Holocene Epoch at 11,700 years before 2000 (Walker et al., 2019). It encompasses the mid-Holocene (MH), the 1000-year-long interval centred at 6000 years before 1950; a period of long-standing focus for climate modelling, with enhanced seasonality in the Northern Hemisphere and decreased seasonality in the Southern Hemisphere. The early part of the Holocene is marked by the late stages of deglaciation of Pleistocene land ice, sea level rise, and the occurrence of warm phases that affected different regions at different times, often referred to as the 'Holocene Thermal Maximum'. In addition, the epoch includes the post-glacial interval, which began approximately 7000 years ago when the fundamental features of the modern climate system were essentially in place, as the influence of remnant Pleistocene ice sheets waned. See also Anthropocene.
Chapter 7 Suppl. Material	15	In Section 7.SM.5.1, column 1, paragraph 3, Equation 7.SM.5.3, "X" should be subscript instead of superscript. Definition for Rt missing. Add "Rt is the climate response to unit forcing."
Chapter 7 Suppl. Material	15	In Section 7.SM.5.1, column 1, paragraph 4, Equation 7.SM.5.4, "X" should be subscript instead of superscript.
Chapter 7 Suppl. Material	15	In Section 7.SM.5.1, column 1, paragraph 6, Equation 7.SM.5.5, "X" should be subscript instead of superscript. Add "dt" at the end of the Equation.
Chapter 7 Suppl. Material	15	In Section 7.SM.5.1, column 1, paragraph 7, line 2, replace the unit temperature pulse "$kgCO_2$ yr^{-1} K^{-1}" by "$kgCO_2$ yr^{-2} K^{-1}".

Interactive Atlas

Item	Correction
Surface $PM_{2.5}$ and Surface Ozone variable	Incorrect labelling of "value" of the model projections and historical datasets for $PM_{2.5}$ and Surface Ozone implying absolute values. These values correspond to "anomalies relative to 2005–2014" and are not to absolute values. The "value" option and the corresponding historical projections have been desactivated in the Interactive Atlas. Edits were updated and mentioned on the Interactive Atlas GitHub on 21 June 2023 (https://github.com/IPCC-WG1/Atlas/issues/89).

French Translations

Item	Page	Correction
SPM	21	Section B3.1, line 4, replace “2081–2011” by “2081–2100”.

The errata listed below have been implemented in the published documents **after** publication on the website. Page and line numbers refer to the final online versions of the SPM, TS, Chapters and Annexes.

Item	Page	Correction
TS	45	Replace Box TS.2, Figure 1 with updated Box TS.2, Figure 1. Units of the Mid-Pliocene have changed from "ka" to "Ma".
TS	64	Figure TS.7, in caption, line 1, replace: "compared to the 1995–2014 average" with "compared to the 1850–1900 average".
Chapter 1	218	In Figure 1.20, replace "Livermore ES3M" with "Livermore E3SM" and replace "Qingdao FIO-QNLM" with "Qingdao FIO-QLNM".
Chapter 3	484	Figure 3.30, in caption line 10, replace: "whiskers indicate 1st and 99th percentiles," with "whiskers indicate 1st and 99th percentiles in (a–c) and 5th and 95th percentile in (d–f),".

The errata listed below have been implemented in the published documents **before** publication on the website. Page and line numbers refer to the FGD versions of the TS, Chapters, Annexes, and to the approved version of the SPM.

Item	Page	Correction
SPM	12	In bullet A.3.4, replace: "It is *likely* that the global proportion of major (Category 3–5) tropical cyclone occurrence has increased over the last four decades, and the latitude where tropical cyclones in the western North Pacific reach their peak intensity has shifted northward; these changes cannot be explained by internal variability alone (*medium confidence*). " with "It is *likely* that the global proportion of major (Category 3–5) tropical cyclone occurrence has increased over the last four decades, and it is *very likely* that the latitude where tropical cyclones in the western North Pacific reach their peak intensity has shifted northward; these changes cannot be explained by internal variability alone (*medium confidence*)."
SPM	16	In Figure SPM.4, panel (a), replace the x-axis tickmarks with the following intervals: 2015, 2020, 2030... 2090, 2100.
SPM	19	The line of sight for bullet B.2.2 should also include 11.9.
SPM	19	In headline statement B.2, replace: "They include increases in the frequency and intensity of hot extremes, marine heatwaves, and heavy precipitation, agricultural and ecological droughts in some regions, and proportion of intense tropical cyclones, as well as reductions in Arctic sea ice, snow cover and permafrost." with "They include increases in the frequency and intensity of hot extremes, marine heatwaves, heavy precipitation, and, in some regions, agricultural and ecological droughts; an increase in the proportion of intense tropical cyclones; and reductions in Arctic sea ice, snow cover and permafrost."
SPM	19	In Footnote 29, add "about" before the +/- sign.
SPM	20	In Footnote 31, replace "around 10%" by "around 15%".
SPM	32	In bullet C.2.2, line 4, replace "…regions in all continents…" with "…regions in all inhabited continents…".
TS	4	Line 35, desciptions of the summary text in boxes was omitted. Add: "Text at the beginning of a section presented in dark blue with a blue vertical bar at the left, as shown here, provides a summary of the findings discussed in that section."
TS	8	Line 6–11, add "TS.3.1" to the parenthesis.
TS	9	Line 34, replace "about 10 years earlier than the midpoint" with "in the early part".
TS	28	Line 5, replace "about 10 years earlier than the midpoint" with "in the early part".
TS	50	Line 14, add "WNA, NES, WCE" to the caption of Figure TS.12. Line 16, add "Limits of the 5%-95% confidence interval are shown in panel a)-c)." to the caption of Figure TS.12. Replace Figure TS.12 with updated Figure TS.12. Baseline numbers of panels (a) and (b) have been updated to match Figure SPM.6. Omitted trickleback. Panel (c) has been updated to reflect an update in the regions used for the computation in Figure 11.18 and Figure SPM.6

TS	52	Lines 33–39, add "Changes in the 'Today' column are based on a global warming level of 1°C." to the caption.
TS	53-54	Line 40, the line of sight was omitted. Add: "This infographic builds from several figures in the Technical Summary: Figure TS.4 (for top left panel), Figure TS.6 (bottom left), Figure TS.12 (top right) and Box TS.4, Figure 1b (bottom right)." Line 40, replace: "(top right) Response of some selected climate variables to 4 levels of global warming (°C). " with "(top right) Response of some selected climate variables to 4 levels of global warming (°C). Changes in the 'Today' column are based on a global warming level of 1°C."
TS	54	Panel (b), update the right panel of Infographic TS.1 with updated Infographic TS.1 panel. Numbers have been updated to reflect the 5th–95th percentile range rather than the 17th–83rd percentile range and late change in the regions considered as 'drought-prone'. Infographic is now consistent with Figure TS.12 and Figure SPM.6.
TS	84	Line 18, replace "multidecadal" with "meridional".
TS	108	Line 16, replace "(See also Cross-Chapter Box 11.3)" with "{Cross-Chapter Box 11.3}".
TS	110	Line 4, the line of sight was omitted. Add "{1.4.4, Box 4.1, 7.5, 11.4.3, 12.4}".
TS	112	Line 31, the line of sight was omitted. Add "{2.3, 4.3, 4.4}".
TS	139	Replace Box TS.12, Figure 1, panel (a) with updated Box TS.12, Figure 1 panel (a). This panel is now consistent with Chapter 10 Figure 10.20 panel (a), from which it is derived.
TS	150	Lines 5–18, replace: "Distribution of projected changes in selected climatic impact-driver indices for selected 6 regions for CMIP6, CMIP5 and CORDEX model ensembles." with "The intent of this figure is to show that many CID projections for multiple global warming levels and scenarios time slices, are available for all the AR6 WGI reference regions and are based on both global (CMIP5, CMIP6) and regional (CORDEX) model ensembles."
Chapter 1	83	Lines 37–39, replace: "The horizontal resolution (rounded to 10km) is the square root of the number of grid points divided by the surface area of the Earth, or the number of surface ocean grid points divided by the area of the ocean surface, for the atmosphere and ocean respectively." with "The horizontal resolution (rounded to 10km) is the square root of the surface area of the Earth divided by the number of grid points, or the area of the ocean surface divided by the number of surface ocean grid points, for the atmosphere and ocean, respectively."
Chapter 1	177	Replace Figure 1.3 with updated Figure 1.3. Missed corrigendum to replace all chapter visual roadmaps with the updated visual identity.
Chapter 1	196	Cross-Working Group Box: Attribution, Figure 1, add "or theory" after "hypothesis" is sections 3 and 4 or the figure.
Chapter 2	6	Lines 44–45, replace: "The Hadley circulation has *very likely* widened since at least the 1980s" with "The Hadley circulation has *likely* widened since at least the 1980s".
Chapter 2	18	Lines 15–16 and 19, replace "Mitchell et al., 2013b" with"L. Mitchell et al., 2013".

Chapter 2	21	In Figure 2.6, replace "HFC-141b" with "HCFC-141b".
Chapter 2	49	Replace Table 2.5 with updated Table 2.5. The updated table now uses ERA5.1 data rather than ERA5 and the calculations now include the SUNY dataset.
Chapter 2	66	Lines 10–11, replace: "During the LGM, proxies indicate that summer sea ice coverage reached the polar ocean front (e.g., Nair et al., 2019)." with "During the LGM, proxies indicate that austral winter sea ice coverage reached the polar ocean front (e.g., Nair et al., 2019)."
Chapter 2	79	Line 55, remove "McClymont et al., 2020".
Chapter 2	103	Line 1, remove "Sun et al., 2017".
Chapter 2	183	In Cross-Chapter Box 2.3, replace Cross-Chapter Box 2.3, Figure 1 with updated Cross-Chapter Box 2.3, Figure 1. The updated figure has corrected the y-axis tick marks and updated labels to reflect the figure shows the assessed change in temperature.
Chapter 2	213	Replace Figure 2.10 with updated Figure 2.10. Y-axis has been corrected due to a misplacement in the FGD.
Chapter 3	13	Replace Figure 3.2 with updated Figure 3.2. The updated panel (a) uses the final version of the Tierney et al (2020b) data rather than an interim version. The updated panel(b) has an erroneous 'X' removed. The updated panel (c) has the colour of one of the light green lines changed to light blue.
Chapter 3	14	Line 56, insert "not" before "lower".
Chapter 3	31	Line 46, Figure 3.12 caption, replace period 1998-2019'"with"period 1988-2019".
Chapter 3	33	Line 24, replace "Thackeray et al., 2018" with"Thackeray et al., 2018a".
Chapter 3	34	Line 17, insert "not" before "lower".
Chapter 3	36	Line 2, replace "Huffman and Bolvin, 2013" with "Adler et al., 2003".
Chapter 3	51	Lines 21 and 23, replace "Thackeray et al., 2018" with "Thackeray et al., 2018b".
Chapter 3	61	Lines 49–50, delete "of a smaller magnitude than the Atlantic, with a pronounced off-equator feature at intermediate depths (500-1500m)."
Chapter 3	78	Line 27, replace "Morgenstern et al. (2020)" with "Morganstern (2021)"
Chapter 3	85	Line 48, replace "Indian" with "Atlantic".
Chapter 3	96	Line 8, delete "possibly a consequence of the lower ice sheet assumed".
Chapter 3	156	Replace Figure 3.4 with updated Figure 3.4. Title has been modified to "Global mean surface air temperature".
Chapter 3	165	Replace Figure 3.12 with updated Figure 3.12. The updated figure uses all available CMIP6 ensemble members (see Section 3.2).
Chapter 3	200	FAQ 3.1, Figure 1 title, replace "2018" with "2019".

Chapter 3	200	Line 5, FAQ 3.1, Figure 1 caption, replace "2018" with "2019".
Chapter 3	201	Replace FAQ3.2, Figure 1 with updated FAQ3.2 Figure 1. Error in one datapoint in left panel dark green line.
Chapter 4	35	Line 19, replace "four" with "five".
Chapter 4	62	Lines 25–26, replace: "GFDL-CM3, 20 members, (Rodgers et al., 2015)), GFDL-ESM2M (30 members, (Sun et al., 2018))" with "GFDL-CM3 (20 members, Sun et al., 2018), GFDL-ESM2M (30 members, Rodgers et al., 2015)"
Chapter 4	70	Line 2, replace: " Even though there is *limited agreement* in simulated changes in ENSO SST variability," with " Even though there is *low agreement* in simulated changes in ENSO SST variability,".
Chapter 4	73	Line 39, replace "SR1.5" with "Hoegh-Guldberg et al., 2018".
Chapter 4	92	Line 14, add "Williams et al., 2017" to the bracket. Line 38, add "McDougall et al., 2020" to the bracket.
Chapter 4	115	Line 59, add to the reference list "Endo et al. 2018" cited and not listed. Reference details: Endo, H., A. Kitoh, and H. Ueda, 2018: A unique feature of the Asian summer monsoon response to global warming: The role of different land-sea thermal contrast change between the lower and upper troposphere. SOLA, 14, 57-63, doi:10.2151/sola.2018-010
Chapter 5	27	Lines 16–17, replace "(Ciais et al., 2019; Le Quéré et al., 2018ba; Sarmiento et al., 2010; Friedlingstein et al., 2019)" with "(Sarmiento et al., 2010; Ballantyne et al., 2017; Le Quéré et al., 2018b; Ciais et al., 2019; Friedlingstein et al., 2020)"
Chapter 5	33	Line 48, replace "BGR, 2019" with "BGR, 2020".
Chapter 5	33	Replace Figure 5.12 with updated Figure 5.12. Missed corrigendum for the FGD. Global carbon budget emissions were updated.
Chapter 5	47	Line 41, replace "East Asia" with "North Asia".
Chapter 5	47	Figure 5.18, in caption replace: "Contributions of carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O) and halogenated species to the total effective radiative forcing (ERF) increase since 1850 and 1960, and for 2000 to 2009. " with "Contributions of carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O) and halogenated species to the total effective radiative forcing (ERF) increases in 2019 since 1850, 1960, and 2000, respectively."
Chapter 5	51	Lines 34–35, add "Merlivat et al., 2018" to the bracket.
Chapter 5	65	Line 9, add "Saunois et al., 2020" to the bracket.

Chapter 5	76	Line 38, replace: "Model projections accounting for the combined effects of CO_2 and climate change suggest a potentially larger climate feedback (0.01–0.16 W m^{-2} $°C^{-1}$; *limited evidence, limited agreement*)" with "Model projections accounting for the combined effects of CO_2 and climate change suggest a potentially larger climate feedback (0.01–0.16 W m^{-2} $°C^{-1}$; *limited evidence, low agreement*)". Line 43, replace: "Methane emissions from thermokarst ponds and wetlands resulting from permafrost thaw, is estimated to contribute an additional CH_4-climate feedback of 0.01 [0.003–0.04, 5–95th percentile range] W m^{-2} $°C^{-1}$ (*limited evidence, limited agreement*)" by "Methane emissions from thermokarst ponds and wetlands resulting from permafrost thaw, is estimated to contribute an additional CH_4-climate feedback of 0.01 [0.003–0.04, 5–95th percentile range] W m^{-2} $°C^{-1}$ (*limited evidence, low agreement*)".
Chapter 5	82	Line 34, replace "Li et al., 2019" with "Ilyina et al., 2021".
Chapter 5	89	Line 20, replace "This suggests *limited agreement* among models as to the reversibility of the TCRE in response to net-negative CO_2 emissions." with "This suggests *low agreement* among models as to the reversibility of the TCRE in response to net-negative CO_2 emissions."
Chapter 5	94	Line 23, replace "A.P. Walker et al., 2019" with "X.J. Walker et al., 2019".
Chapter 5	96	In Table 5.8: In row corresponding to 1.9°C warming and the 83rd percentile, replace "120" by "210". In row corresponding to 2.1°C warming and the 67th percentile, replace "560" by "350".
Chapter 5	104	Line 9, replace: "Due to *limited agreement* between models there is *low confidence* in the timing of the sink-to source transition and the magnitude of the CO_2 source in scenarios with net-negative CO_2 emissions." with "Due to *low agreement* between models there is *low confidence* in the timing of the sink-to source transition and the magnitude of the CO_2 source in scenarios with net-negative CO_2 emissions."
Chapter 5	109	Line 45, replace "Keller, 2019" with "Keller, 2018".
Chapter 5	109	Line 50, add "GESAMP, 2019".
Chapter 5	110	Replace Figure 5.36 with updated Figure 5.36. Some dots (representing confidence) and colours (representing direction of change) have been modified to reflect the underlying literature.
Chapter 5	130	Line 34, replace "Chen, C.T.A.A." with "Chen, C.T.A.".
Chapter 5	219	In FAQ5.2, Figure 1 caption, replace units "kg C" with "hg C".
Chapter 6	14	Line 14, replace "anthropogenic emissions for 2015" with "anthropogenic emissions for 2014".

Chapter 6	16	Lines 23–25, replace: "At a regional level, bottom-up derived SLCF emission trends and magnitudes in regions with strong economic growth and changing air quality regulation are highly uncertain and better constrained with top-down methods (Section 6.3)." with "At a regional level, bottom-up derived SLCF emissions trends and magnitudes in regions with strong economic growth and changing air-quality regulation are highly uncertain but can be better constrained with top-down methods (Section 6.3). "
Chapter 6	17	Lines 36–39, replace: "Under warmer climate, the overall nitrogen fixation in non-agricultural ecosystems is expected to be 40% larger than in 2000, due to increased enzyme activity with growing temperatures, but the emission rates of NO (and N_2O) is expected to be dominated by changes in precipitation patterns and evapotranspiration fluxes (Fowler et al., 2015)." with "By the end of the 21st century, the overall nitrogen fixation in non- agricultural ecosystems is expected to be 40% larger than in 2000, due to increased enzyme activity with growing temperatures, but the emission rates of NO (and N_2O) could be dominated by changes in precipitation patterns and evapotranspiration fluxes (Fowler et al., 2015)."
Chapter 6	24	Line 20, replace: "tropospheric OH which in turn decreases the lifetime and therefore the methane burden" with "tropospheric OH which in turn increases the lifetime and therefore the methane burden".
Chapter 6	25	Replace Table 6.3 with updated Table 6.3. First 2 rows of the global tropospheric ozone budget terms and burden have been updated.
Chapter 6	51	Line 52, replace: "There is *high evidence* and *high agreement* from field" with "There is *robust evidence* and *high agreement* from field".
Chapter 6	57	Lines 50–51, replace: "Processes like temperature, CO_2-sensitive BVOC emissions, deposition, and branching ratio in isoprene nitrates chemistry have been shown to be particularly sensitive." with "Ozone response to climate change has been shown to be particularly sensitive to model representation of processes like BVOC emissions, deposition, and isoprene chemistry."
Chapter 6	58	Lines 8–9, replace: "Consistent with AR5 findings, global surface ozone concentration decreases by up to -1.2 to 2.3 ppb for annual mean due to the dominating role of ozone destruction by water vapor are found in four member ensemble of CMIP6 ESM for surface warmings of 1.5 to 2.5 °C" with "Consistent with AR5 findings, global mean surface ozone concentration decreases range from 0.69 ± 0.16 ppb to 2.28 ± 0.24 ppb due to the dominating role of ozone destruction by water vapour in a four-member ensemble of CMIP6 ESM for surface warmings of 1.5°C–2.5°C (Figure 6.14)."

Chapter 6	59	Lines 6–8, replace: "For each model the change in surface O_3 is calculated as difference between following SSP3-7.0 (ssp370pdSST). The ssp370SST and ssp370pdSST experiments in the year when the difference in the global mean surface air temperature between the experiments exceeds the temperature threshold. The difference is calculated as a 20-year mean in surface O_3 around the year when the temperature threshold in each model is exceeded. The multi- model change in global annual mean surface O_3 concentrations with ± 1 σ are …" with "For each model, the change in surface O_3 is calculated as the difference between two AerChemMIP experiments – one with evolving future emissions and sea surface temperatures (SSTs) under the SSP3-7.0 scenario and the other with the same setup but with fixed present-day SSTs. The difference is calculated as a 20-year mean in surface O_3 around the year when the temperature threshold in each model is exceeded. The multi-model change in global annual mean surface O_3 concentrations with ± 1 standard deviation are…
Chapter 6	70	Line 50, replace: "direct aerosol cooling (-3.9 mW m^{-2}) and lower cloud albedo (-67 mW m^{-2}). " with "direct aerosol cooling (+3.9 mW m^{-2}) and lower cloud albedo (+67 mW m^{-2}). "
Chapter 6	123	Line 48, add: "Van Damme, M., Clarisse, L., Whitburn, S. et al. Industrial and agricultural ammonia point sources exposed. *Nature* 564, 99–103 (2018). https://doi.org/10.1038/s41586-018-0747-1" to the list of references (the citation was omitted in the FGD).
Chapter 7	31	Lines 51–53, replace: "Since AR5 the SARF from methane-induced stratospheric water vapour changes has been calculated in two models (Winterstein et al., 2019; O'Connor et al., 2021), both corresponding to 0.09 W m^{-2} (1850 to 2014, by scaling the Winterstein et al., 2019 study)." with "Since AR5 the SARF from methane-induced stratospheric water vapour changes has been calculated in Winterstein et al., 2019, corresponding to 0.09 W m^{-2} when scaling to 1850 to 2014 methane changes." Lines 54–55, delete the following sentence as it is based on a citation that did not make the literature cutoff deadline: "However, O'Connor et al. (2021) found the ERF to be approximately zero due to a negative cloud adjustment".
Chapter 7	47	Line 50, replace: "From SO_2 gas, reflective sulphate aerosol is formed in the stratosphere where it may persist for months, reducing the incoming solar radiation" with "From SO_2 gas, reflective sulphate aerosol is formed in the stratosphere where it may persist for months to years, reducing the incoming solar radiation".
Chapter 7	48	Line 8, replace: "Due to *limited agreement,* the contribution to volcanic ERF due to sulphate aerosol effects on ice clouds is not included in the overall assessment." with "Due to *low agreement,* the contribution to volcanic ERF due to sulphate aerosol effects on ice clouds is not included in the overall assessment."
Chapter 7	97	Line 40, replace "ECS = ΔF2×CO2/(–α + α')" with "ECS = –ΔF 2×CO2/(α + α')". Line 50, replace "ECS = ΔF2×CO2/(–α + α')" with "ECS = –ΔF 2×CO2/(α + α')"
Chapter 7	114	Line 52, replace "560ppm" with "840ppm3".

Chapter 7	116	Line 23, replace: "Kamae et al., 2016" with "Kamae et al., 2016b". Insert the following reference into the references list: Kamae, Y., H. Shiogama, M. Watanabe, T. Ogura, T. Yokohata, and M. Kimoto, 2016b: Lower tropospheric mixing as a constraint on cloud feedback in a multiparameter multiphysics ensemble. Journal of Climate, 29(17), 6259-6275, doi:10.1175/JCLI-D-16-0042.1.
Chapter 7	123	Line 21, replace: "By comparison expressing methane emissions as CO_2 equivalent emissions using GWP-100 overstates the effect of constant methane emissions on global surface temperature by a factor of 3–4 over a 20-year time horizon (Lynch et al., 2020, their Figure 5), while understating the effect of any new methane emission source by a factor of 4–5 over the 20 years following the introduction of the new source (Lynch et al., 2020, their Figure 4)." with "By comparison expressing methane emissions as CO_2 equivalent emissions using GWP-100 overstates the effect of constant methane emissions on global surface temperature by a factor of 3–4 (Lynch et al., 2020, their Figure 5), while understating the effect of any new methane emission source by a factor of 4–5 over the 20 years following the introduction of the new source (Lynch et al., 2020, their Figure 4)."
Chapter 7	124	In Table 7.15, row 4, columns 4 to 10, replace "80.8, 27.2, 7.3, 10.3, 4.7, 2701, 3254" with "79.7, 27.0, 7.2, 10.4, 4.7, 2675, 3228"
Chapter 7	198	Line 20, replace "560ppm" with "840ppm3".
Chapter 7	204	Replace Figure 7.14 with updated Figure 7.14. Arrows added and resized in Panels a and a to reflect missed atmospheric responses.
Chapter 7 Suppl. Material	19	In Table 7.SM.5, row KACE-1-0-G, column 3 (ECS), replace "4.48" with "4.75". In row KACE-1-0-G., column 10 (TCR) replace "1.41" with "2.04". The Meehl et al (2020) paper contained a technical error for the values of ECS and TCR. The correct numbers have since been published in Hausfather et al (2022): https://www.nature.com/articles/d41586-022-01192-2. Table 7.SM.5 was updated using the corrected numbers to ensure an accurate use going forwards.
Chapter 8	44	Line 53, replace: "In contrast, due to *limited agreement* in the observational records at the global scale, there is only *low confidence* in the observed decline of the natural surface water extent in recent years (see also SRCCL)." with "In contrast, due to *low agreement* in the observational records at the global scale, there is only l*ow confidence* in the observed decline of the natural surface water extent in recent years (see also SRCCL)."
Chapter 8	119	Replace Figure 8.3 with updated Figure 8.3. The grey labels "Hydrological Sensitivity N" and "Apparent Hydrological Sensitivity Na" were labelled the wrong way around.

Chapter 8	197	Replace Figure 8.1 with updated Figure 8.1. "Land ice discharge 3 ± 40%" has been modified to "Net loss of land ice and groundwater to oceans 0.8 ± 15%" In Figure 8.1, caption, replace: "Depiction of the water cycle based on previous assessments (Trenberth et al., 2011; Rodell et al., 2015; Abbott et al., 2019) with minor adjustments for groundwater flows (Kwon et al., 2014; Zhou et al., 2019c; Luijendijk et al., 2020), seasonal snow (Pulliainen et al., 2020) and ocean precipitation and evaporation (Stephens et al., 2012; Allan et al., 2020; Gutenstein et al., 2020). In the atmosphere, which accounts for only 0.001% of all water on Earth, water primarily occurs as a gas (water vapour), but it is also present as ice and liquid water within clouds. The ocean is the primary water reservoir on Earth, which is comprised mostly of liquid water across much of the globe, but also includes areas covered by ice in polar regions. Liquid freshwater on land forms surface water (lakes, rivers), soil moisture and groundwater stores, together accounting for 1.8% of global water (Stocker et al., 2013). Solid terrestrial water that occurs as ice sheets, glaciers, snow and ice on the surface and permafrost currently represents 2.2% of the planet's water (Stocker et al., 2013). Water that falls as snow in winter provides soil moisture and streamflow after melting, which are essential for human activities and ecosystem functioning." with "Depiction of the present-day water cycle based on previous assessments (Trenberth et al., 2011; Rodell et al., 2015; Abbott et al., 2019) with adjustments for groundwater flows (Zhou et al., 2019c; Luijendijk et al., 2020), seasonal snow (Pulliainen et al., 2020) and ocean precipitation and evaporation (Stephens et al., 2012; Allan et al., 2020; Gutenstein et al., 2021).The net loss of frozen and liquid water from land to ocean is estimated from Chapter 9, Table 9.5. In the atmosphere, which accounts for only 0.001% of all water on Earth, water primarily occurs as a gas (water vapour), but it is also present as ice and liquid water within clouds. The ocean is the primary water reservoir on Earth, which is comprised mostly of liquid water across much of the globe, but also includes areas covered by ice in polar regions. Liquid freshwater on land forms surface water (lakes, rivers) and combined with soil moisture and mostly unusable groundwater stores, together account for less than 2% of global water (Stocker et al., 2013). Solid terrestrial water that occurs as ice sheets, glaciers, snow and ice on the surface and permafrost currently represents nearly 2% of the planet's water (Stocker et al., 2013). Water that falls as snow in winter provides soil moisture and streamflow after melting, which are essential for human activities and ecosystem functioning. Note that these best estimates do not lead to a perfectly closed global water budget and that this budget has no reason to be closed given the on-going human influence through both climate change (e.g., melting of ice sheets and glaciers, see Chapter 9) and water use (e.g., groundwater depletion through pumping into fossil aquifers, see Figure 8.10)."
Chapter 9	22	Update Figure 9.6 Panel (a) with updated Figure 9.6 Panel (a). Paleo range was underestimated by an order of magnitude due to an unit conversion error.
Chapter 9	38	Lines 1–3, replace "Under strong radiative forcing, in scenario SSP5-8.5, CMIP6 models project that the East Australian Current Extension and Agulhas Current Extension will intensify in the 21st century, while the Gulf Stream and Brazil Current will weaken (Figure 9.11)." with "Under strong radiative forcing, in scenario SSP5-8.5, CMIP6 models project that the East Australian Current Extension, Agulhas Current Extension and Brazil Current will intensify in the 21st century, while the Gulf Stream will weaken (Figure 9.11)."
Chapter 9	43	Replace Figure 9.12 with updated Figure 9.12. Colour scale in panel (d) was inconsistent with other panels.
Chapter 9	222	Replace Figure 9.11 with updated Figure 9.11. Figure had previously repeated the Indonesian Throughflow rather than plotting the Indonesian Throughflow and the Brazil Current.
Chapter 10	11	Replace Figure 10.3 with updated Figure 10.3. "TC" timescales shortened.
Chapter 10	28	Lines 52–53, replace: "Perpetual data sparsity results in some climate characteristics not being observed (Yokoyama et al. 2019)" with "In areas with increasing observational capabilities there are still challenges. For instance, satellite observation are used to compensate for the ground-based precipitation radar data sparsity to prevent an oversight of significant climate change signals (Yokoyama et al. 2019)".

Chapter 10	76	Line 44, replace: "There is *high confidence* (high evidence and medium agreement) that anthropogenic forcing has contributed to multidecadal mean precipitation changes in several regions such as for example West Africa, southeast South America, southwestern Australia, northern Central Eurasia, South and East Asia." with "There is *high confidence* (robust evidence and medium agreement) that anthropogenic forcing has contributed to multidecadal mean precipitation changes in several regions such as for example West Africa, southeast South America, southwestern Australia, northern Central Eurasia, South and East Asia."
Chapter 10	115	Line 2, replace "Chen et al., 2016b" with "B. Chen et al., 2016".
Chapter 10	134	Lines 56–57, replace: "Chen, H. et al., 2016: Large-scale urbanization effects on eastern Asian summer monsoon circulation and climate. *Climate Dynamics,* 47(1–2), 117–136, doi:10.1007/s00382-015-2827-3." with "Chen, H., Y. Zhang, M. Yu, W. Hua, S. Sun, X. Li and C. Gao, 2016b: Large-scale urbanization effects on eastern Asian summer monsoon circulation and climate. *Climate Dynamics,* 47(1–2), 117–136, doi:10.1007/s00382-015-2827-3."
Chapter 10	134	Line 60, insert new reference: Chen, B., Dong, L., Liu, X., Shi, G.Y., Chen, L., Nakajima, T. and Habib, A. (2016c), Exploring the possible effect of anthropogenic heat release due to global energy consumption upon global climate: a climate model study. *Int. J. Climatol.,* 36: 4790-4796. https://doi.org/10.1002/joc.4669
Chapter 10	214	Replace Figure 10.15 with updated Figure 10.15. Panel (b) featured an incorrect threshold of signal emergence as a result of a scripting error
Chapter 11	20	Line 27, replace "1950-1990" with "1850-1990".
Chapter 11	49	Line 21, replace "decreases" with "increases".
Chapter 11	60	Line 15, replace "1851-1900" with "1850-1900". Line 17, replace "1851-1900" with "1850-1900".
Chapter 11	75	Line 24, replace "frequent" with "severe".
Chapter 11	156–157	In Table 11.8, in row East Asia (EAS), move "Kawase et al., 2019" from the "Projections" columns (columns 4–6) to the "Detection and attribution; event attribution" column (column 3)

Chapter 12	7	Line 48, add: ", in the absence of additional sediment sources or physical barriers to shoreline retreat" after "There is *high confidence* that sandy shorelines will retreat in most regions of the world". Lines 48-54, replace "There is *high confidence* that the total length of sandy shorelines around the world that are projected to retreat by more than 100 m will be 35% greater under RCP8.5 (~130,000 km) compared to RCP4.5 (~ 95,000 km) by the end of the century. The frequency of the present-day 1-in-100-yr extreme sea level (represented here by extreme total water level) event, in a globally averaged sense, is projected to become an event that occurs multiple times per year under RCP8.5, while under RCP 4.5 it is projected to become a 1-in-5-yr event, representing a 5 fold difference between the two RCPs (*high confidence*)." with "There is *high confidence* that sandy shorelines will retreat in most regions of the world. The total length of sandy shorelines around the world that are projected to retreat by more than 100 m by the end of the century is about 35% greater under RCP8.5 (about 130,000 km) compared to that under RCP 4.5 (about 95,000 km). The frequency of the present-day 1-in-100 year extreme sea level event (represented here by extreme total water level) is also projected to increase substantially in most regions (*high confidence*). In a globally averaged sense, the 1-in-100 year extreme sea level is projected to become an event that occurs multiple times per year under RCP8.5, while under RCP4.5 it is projected to become a one-in-five-year event, representing a five-fold increase from RCP4.5 to RCP8.5". Line 53, add "at least" before "a five-fold increase".
Chapter 12	12	In Table 12.1, replace "Brief Description for Mean precipitation" with "Mean precipitation and its diurnal and seasonal cycles"
Chapter 12	15	Replace Table 12.2 with updated Table 12.2. Cells corresponding to ocean salinity/water quality and ocean salinity/crop systems have been corrected to white shading.
Chapter 12	33	Lines 4–5, the sentence should be: "Warm extremes have increased in most of the regions (*high confidence*), NEAF, SEAF and MDG (*medium confidence*) and with *low confidence* in CAF (Table 11.4)." Line 17, remove "NEAF" in the last line of the paragraph.
Chapter 12	34	Lines 2–4, replace: "The Western Africa and North Eastern and South Eastern Africa regions each feature a gradient in which precipitation decreases in the west and increases in the east (*medium confidence*)" with "The Western Africa region features a gradient in which precipitation decreases in the west and increases in the east and increase is also projected over Eastern Africa (*medium confidence*)". Line 42, replace "West Southern Africa" with "West and East Southern Africa".
Chapter 12	35	Line 5, replace "NAF, WSAF, ESAF, MDG" with "NAF, WAF". Line 8, remove "MDG" in the list "NAF, WSAF, ESAF and MDG".
Chapter 12	37	Line 10, replace "RCP4.5, RCP6.0 and RCP8.5" with "RCP2.6, RCP4.5 and RCP8.5".
Chapter 12	38	Lines 30–31, replace: "In general, there is *high confidence* that most coastal and ocean related hazards in Africa will increase over the 21st century" with "In general, there is *high confidence* that most coastal and ocean related climatic impact-drivers in Africa will increase over the 21st century".

Chapter 12	39	In Table 12.3, delete footnote 1 from the mean precipitation box for NEAF.
Chapter 12	44	Line 38, replace "*low confidence*" with "*medium confidence*".
Chapter 12	45	Line 15, replace "RCP4.5, RCP6.0 and RCP8.5" with "RCP2.6, RCP4.5 and RCP8.5".
Chapter 12	46	Lines 52–52, replace: "which means local RSL change ranges from just below mean projected GMSL change to above-average values" with "which is within the range of projected GMSL change".
Chapter 12	47	Lines 8–9, replace "10–42 cm" with "10–52 cm". Lines 50–51, replace: "In general, there is *high confidence* that most coastal/ocean related hazards in Asia will increase over the 21st century." with "In general, there is *high confidence* that most coastal/ocean related climatic impact-drivers in Asia will increase over the 21st century."
Chapter 12	49	Line 16, replace: "Figure 12.7 illustrates projected changes in two selected hazard indices for Australasia." with "Figure 12.7 illustrates projected changes in two selected climatic impact-driver indices for Australasia."
Chapter 12	59	Line 56, replace: "Heating Degree Days are consistently projected to decrease by 56 degree days per year in the Amazon region, and up to 20-30 degree days in NSA, SWS and SES, under future RCP8.5/SSP5-8.5 (Coppola et al., 2021b)" with "Heating degree days are consistently projected to decrease by 5 degree days per year in the Amazon region, and up to 20–30 degree days per year in NWS, SWS and SES, under RCP8.5/SSP5-8.5 by mid century (Coppola et al., 2021b)."
Chapter 12	61	Line 51, remove "with only SAM projected to have increased hydrological droughts with *medium confidence*".
Chapter 12	63	Lines 12–15, replace: "In summary, there is limited evidence of current trends in observed wind speed and wind storms in South America. Climate projections indicate a decrease in frequency of tropical cyclones in Central America accompanied with an increased frequency of intense cyclones, and an increase in mean wind speed and wind power potential in NES, NSA and SAM (*medium confidence*)." with "In summary, there is limited evidence of current trends in observed wind speed and wind storms in Central and South America. Climate projections indicate a decrease in frequency of tropical cyclones in Central and South America accompanied with an increased frequency of intense cyclones, and an increase in mean wind speed and wind power potential in NES, NSA and SAM (*medium confidence*)."
Chapter 12	63–64	Lines 53–2, move the sentence "The central Andes will experience the highest disturbance to the thermal regime of the 21st century. As a consequence, in the Argentinean Andes up to 95% of rock glaciers in the southern desert Andes and in the central Andes will rest in areas above 0°C under the worst case scenario of warming (the freezing level might move up more than twice as much as during the entire Holocene; Drewes et al., 2018)" up and insert as the last (new) paragraph of the Glaciers section.
Chapter 12	64	Lines 4–5, replace: "In conclusion, glacier volume loss and permafrost thawing will *likely* continue in the Andes Cordillera under all climate scenarios, causing" with "In conclusion, glacier volume loss and permafrost thawing will continue in the Andes Cordillera under all climate scenarios (*high confidence*), causing....".

Chapter 12	65	Line 3, replace: "a median of 100 m by 2100 under RCP4.5 and RCP8.5 is about 15,000 and 12,000 km respectively, an increase of approximately 30%" with "a median of 100 m by 2100 under RCP4.5 and RCP8.5 is about 12,000 and 15,000 km respectively, an increase of approximately 30%."
Chapter 12	66	In Table 12.6, add "4" to the cell corresponding to Northeastern South America (NES) and Coastal erosion. Remove "4" from the cell corresponding to Southwestern South America and Coastal Erosion. Line 30, replace: "For a more comprehensive representation of other hazard index trends assessed in this section the reader is referred to the interactive Atlas." with "For a more comprehensive representation of other climatic impact-driver index trends assessed in this section the reader is referred to the interactive Atlas."
Chapter 12	68	Lines 2–5, replace: "Mitigation is expected to have a strong effect: by the end of century, and under SSP5-8.5, dangerous heat threshold of HI > 41°C is projected to be crossed 5–10 days more per year in the Mediterranean regions and a few days per year more in WCE and EEU, while these increases would virtually be absent under SSP1-2.6 (Figure 12.4d–f)" with "Mitigation is expected to have a strong effect, with the dangerous heat threshold of HI > 41°C projected to be crossed 5–10 days more per year in the Mediterranean regions and a few days per year more in WCE and EEU under SSP5-8.5, while such increases would be virtually absent under SSP1-2.6"
Chapter 12	69	Lines 10–11, replace: "show that Europe is *likely* to be one of the regions where the largest increases in flood risk may occur" with "show that Europe is one of the regions where the largest increases in flood risk may occur". Lines 28–30, move the sentence "Guerreiro et al. (2017), based on observations, showed that 20% of city areas in WCE and MED regions are affected by pluvial flooding and less than 10% of city areas in the northern and western coastal cities." up and attach it to the end of the previous paragraph. Line 51, add onto the end of this paragraph: "In NEU there is *high confidence* of decrease in aridity linked to mean precipitation increase (Chapter 8, Section Atlas8.2) and meteorological drought decrease based on indicators like SPI and CDD (Section 11.9, Figure 12.4, Coppola et al, 2021a)."
Chapter 12	71	Line 42, delete "and are consistent with the mean wind decreasing trends."
Chapter 12	73	Line 18, remove reference "Lane et al 2017". Line 20, replace: "The magnitude of debris flow events might increase (Lugon and Stoffel, 2010) (*low confidence*) and the debris-flow season may last longer in a warming climate (Stoffel and Corona, 2018) (*medium confidence*)." with "The magnitude of debris flow events might increase (Lugon and Stoffel, 2010) and the debris-flow season may last longer under the A1B scenario (Stoffel and Corona, 2018)."
Chapter 12	77	Line 35, replace: "Warmer temperatures will *very likely* reduce heating degree days and increase cooling degree days (Bartos et al., 2016; US EPA, 2016; Craig et al., 2018; X. Zhang et al., 2019; Coppola et al., 2021b)" with "Warmer temperatures reduce heating degree days and increase cooling degree days (*high confidence*) (Bartos et al., 2016; US EPA, 2016; Craig et al., 2018; X. Zhang et al., 2019; Coppola et al., 2021b)".
Chapter 12	79	Line 47, remove "*likely*" in the following sentence: "Landslide frequency has *likely* increased in British Columbia (Canada; Geertsema et al., 2006) and is expected to increase in North-Western North America given the combination of these factors (medium confidence)."
Chapter 12	87	Line 48, replace "almost a month" with "more than a month per year".

Chapter 12	87–88	Lines 54–1, replace: "The Pacific Islands region is also among those projected to have an increase in WBGT by 209–2100 under RCP8.5/SSP5-8.5, increasing the risk of heat stress in the region (Newth and Gunasekera, 2018)." with "The Pacific Islands region is also among those projected to have an increase in WBGT by end-century under RCP8.5, increasing the risk of heat stress in the region (Newth and Gunasekera, 2018)."
Chapter 12	89	Line 48, delete "*low confidence*".
Chapter 12	90	Line 37, replace: "Given projected reductions to the overall number of storms" with "Given projected reductions to the overall number of tropical cyclones".
Chapter 12	91	Lines 41–42, delete "partly due to the effect of TCs on sediment changes and human activities". Also remove the Duvat et al. 2017 reference from immediately after the sentence and from the reference list. Line 44, delete "due to high relative sea level rise and storms".
Chapter 12	93	In Table 12.9, delete "5" from the cell relating to Pacific Islands and Agricultural and Ecological Drought, and the corresponding footnote. Renumber footnotes 6 and 7 to 5 and 6, respectively. Line 11, replace "hazards" with "climatic impact-drivers".
Chapter 12	95	Line 29, replace "hazards" with "climatic impact-drivers". Line 52, replace "(or more frequently)." with "(or more frequently) by 2100."
Chapter 12	100	Lines 18–19, replace: "Projections indicate reductions in glaciers and sea ice at both poles, with enhanced permafrost warming," with "Projections indicate reductions in glaciers at both poles, with sea ice loss, enhanced permafrost warming,".
Chapter 12	104	Line 20, replace "hazards" with "climatic impact-drivers".
Chapter 12	115	In Cross-Chapter Box 12.1, Table 1, replace: "MHWs very likely become 2–9 times more frequent in 2081–2100 compared to 1985–2014 under SSP2.1.6 corresponding to a GWL of 2.1 [1.3 to 2.8] °C (95% CI), or 3–15 times more frequent under SSP5-8.5 corresponding to a GWL of 5 [3.6 to 6.9] °C." with "MHWs very likely become 2–9 times more frequent in 2081–2100 compared to 1985–2014 under SSP1-2.6 corresponding to a GWL of 2.0 [1.3 to 2.8] °C (95% CI), or 3–15 times more frequent under SSP5-8.5 corresponding to a GWL of 4.8 [3.6 to 6.5] °C."
Chapter 12	116	In Cross-Chapter Box 12.1, Table 1, replace "corresponding to a GWL of 2.1 [1.3– to 2.8] °C, to 2°C–4°C under SSP5-8.5, corresponding to a GWL of 5 [3.6 to 6.9] °C" with "corresponding to a GWL of 2.0 [1.3– to 2.8] °C, to 2°C–4°C under SSP5-8.5, corresponding to a GWL of 4.8 [3.6 to 6.5] °C".
Chapter 12	116–117	In Cross-Chapter Box 12.1, Table 1, the following rows within the "Trends" part of the table need to have a highlighted cell in the behaviour column according to table caption: Air Pollution Weather, Patterns of Mean Warming, Arctic Warming Trends, Sea Surface Temperature (SST) Warming, SPEI Index Global, Permafrost thaw, Sea Level Change, Sea-Level Change Commitment (2,000 years after peak GWL), Northern Hemisphere (NH) Spring Snow Cover, Mass Loss of Glaciers.
Chapter 12	118	In Cross-Chapter Box 12.1, Table 1, the following rows within the "Tipping Points/Irreversibility" part of the table need to have a highlighted cell in the behaviour column according to table caption: Ice sheets, Atlantic Meridional Overturning Circulation (AMOC), Permafrost Carbon.
Chapter 12	158	Line 42–43, replace "Henderson et al. (2016)" with "DOI: 10.1525/hsns.2016.46.2.207".
Chapter 12	221	Replace Figure 12.11 with updated Figure 12.11. Icons have changed in the North South America region. Reference period has been changed to "recent past".
Atlas	27	Lines 49 and 54, replace "multi-model mean" by "multi-model median".
Atlas	28	Line 2, replace "multi-model mean" by "multi-model median".
Atlas	34	Line 12, replace "Europe" by "Africa".

Atlas	60	Line 50, replace: "varies from 0.9 ± 0.3°C (1.2 ± 0.4°C) under RCP2.6 (SSP1-2.6) to 3.5 ± 0.7°C (3.8 ± 0.9°C) under RCP8.5 (SSP5-8.5) (Interactive Atlas)" with "varies, with 10th–90th percentile ranges, from 0.7°C to 1.3°C (0.7°C to 1.8°C) under RCP2.6 (SSP1-2.6) to 2.8°C to 4.4°C (2.6°C to 4.8°C) under RCP8.5 (SSP5-8.5) (Interactive Atlas)".
Atlas	90	Line 43, replace "increases from 2.5°C to over 11°C" with "increases from 2°C to over 8.5°C".
Atlas	92	Line 51, replace "*very likely*" with "*likely*".
Atlas	132	Lines 60-61, replace: "Iturbide, M. et al., 2021: Repository supporting the implementation of FAIR principles in the IPCC-WG1 Interactive Atlas. Zenodo, DOI: 10.5281/zenodo.3595626. Available from: https://github.com/IPCC-WG1/Atlas." with Iturbide, M. et al., 2021: Repository supporting the implementation of FAIR principles in the IPCC-WG1 Interactive Atlas. Zenodo. Retrieved from: http://doi.org/10.5281/zenodo.5171760.
Annex I	33–34	Lines 61–1, replace: "Tomita (2017). Correction of J-OFURO3 air specific humidity product from microwave radiometers. J-OFURO3 official document J-OFURO3-DOC-005 (in Japanese)." with "Tomita, H., T. Hihara, S. Kako, M. Kubota, and K. Kutsuwada, 2019: An introduction to J-OFURO3, a third-generation Japanese ocean flux data set using remote-sensing observations. Journal of Oceanography, 75(2), 171–194, doi:10.1007/s10872-018-0493-x."
Annex II	12	In Table AII.3, column 6 (EUR-11), row 16 (MPI-ESM-LR_r1i1p1), replace "#" with "10". In Table AII.3, column 3 (CAM), row 15 (HadGEM2-ES_r2i1p1), turn white background to grey.
Annex II	13	In Table AII.4, column 7 (WAS), row 6 (COSMO-crCLIM), turn white background to orange. In Table AII.4, column 3 (CAM), row 4 (REMO2015), turn white background to orange. In Table AII.4, column 3 (RCA4), row 1 (RCA4), turn white background to light blue.
Annex II	14	In Table AII.4, column 10 (AUS), row 9 (WRF), replace "#" with "14".
Annex II	17	Lines 9-11, replace: "The horizontal resolution (rounded to 10km) is the square root of the number of grid points divided by the surface area of the Earth, or the number of surface ocean grid points divided by the area of the ocean surface, for the atmosphere and ocean respectively." with "The horizontal resolution (rounded to 10km) is the square root of the surface area of the Earth divided by the number of grid points, or the area of the ocean surface divided by the number of surface ocean grid points, for the atmosphere and ocean, respectively."
Annex III	4	Replace Table AIII.1a with updated Table AIII.1a. Year 1990 values were missing and copy paste errors to years 1991-1994 corrected.
Annex III	17	Replace Table AIII.4f with updated Table AIII.4f. Copy paste error to Montreal gas columns and rounding errors corrected.
Annex VI	6	Line 31, replace "16 with "13". Lines 39-44, delete: "Length of frost-free period (LFFP): Many ecosystems and crops are sensitive to frost conditions, and can only develop over a frost-free period (e.g., Wolfe et al., 2018); the length of frost-free period is calculated in the Atlas as in McCabe et al., (2015) by counting the number of days between the last spring frost and first fall frost using 0°C as a threshold for the daily minimum temperature and adjusting for season between hemispheres (from January to December in the Northern Hemisphere and from July to June in the Southern Hemisphere)."
Annex VI	6-7	Lines 46–1, delete: "Growing degree-days (GDD): Ecosystems and crop growth is often linked to a widely used index of thermal conditions, the cumulative number of degrees above a threshold (often between 0 and 10 °C, depending on species and farming system) during a given growing period. In Chapter 12 and the Atlas we use 5°C as an indicative threshold, which was also used in Ruosteenoja et al., (2016), and the calculation is taken from this reference. GDD calculations sometimes include a high temperature threshold above which plant development does not occur (e.g., Mu et al., 2017), but no cap was employed for our calculations. The GDD index used here is therefore the accumulated sum of the difference between daily mean temperature and the threshold (when higher than the threshold) over the April-September months that forms the primary growing season for mid-latitude agricultural areas in the northern Hemisphere; and October-March for the Southern Hemisphere."

Annex VI	10	In Table AVI.1.2, delete rows 1 and 2.
Annex VI	14	Lines 2–3, delete: "Mu, J. E., Sleeter, B. M., Abatzoglou, J. T., and Antle, J. M. (2017). Climate impacts on agricultural land use in the USA: the role of socio-economic scenarios. Clim. Change 144, 329–345. doi:10.1007/s10584-017-2033-x." Lines 19–21, delete: "Ruosteenoja, K., Räisänen, J., Venäläinen, A., and Kämäräinen, M. (2016). Projections for the duration and degree days of the thermal growing season in Europe derived from CMIP5 model output. Int. J. Climatol. 36, 3039–3055. doi:10.1002/joc.4535."
Annex VII	2	In the definition for 'Aerosol', replace: "A suspension of airborne solid or liquid particles, with typical diameters between a few nanometres and a few micrometres and atmospheric lifetimes of up to several days in the troposphere and up to years in the stratosphere. The term aerosol, which includes both the particles and the suspending gas, is often used in this report in its plural form to mean 'aerosol particles'. Aerosols may be of either natural or anthropogenic origin in the troposphere; stratospheric aerosol mostly stems from volcanic eruptions. Aerosols can cause an effective radiative forcing directly through scattering and absorbing radiation (aerosol-radiation interactions), and indirectly by acting as cloud condensation nuclei or ice nucleating particles which affect the properties of clouds (aerosol-cloud interactions), and upon deposition on snow- or ice-covered surfaces. Atmospheric aerosols may be emitted as primary particulate matter (PM), and form within the atmosphere from gaseous precursors (secondary production). Main classes of aerosol chemical composition are sea salt, organic carbon, black carbon (BC), mineral species (mainly desert dust), sulphate, nitrate, and ammonium. See also Short-lived climate forcers (SLCFs)." with "A suspension of airborne solid or liquid particles, with typical particle size in the range of a few nanometres to several tens of micrometres and atmospheric lifetimes of up to several days in the troposphere and up to years in the stratosphere. The term aerosol, which includes both the particles and the suspending gas, is often used in this report in its plural form to mean 'aerosol particles'. Aerosols may be of either natural or anthropogenic origin in the troposphere; stratospheric aerosols mostly stem from volcanic eruptions. Aerosols can cause an effective radiative forcing directly through scattering and absorbing radiation (aerosol–radiation interaction), and indirectly by acting as cloud condensation nuclei or ice nucleating particles that affect the properties of clouds (aerosol–cloud interaction), and upon deposition on snow- or ice-covered surfaces. Atmospheric aerosols may be either emitted as primary particulate matter or formed within the atmosphere from gaseous precursors (secondary production). Aerosols may be composed of sea salt, organic carbon, black carbon (BC), mineral species (mainly desert dust), sulphate, nitrate and ammonium or their mixtures. See also Short-lived climate forcers (SLCFs)."
Annex VII	2	Line 27, remove "IPCC, 2014".
Annex VII	31	Line 10, replace "ICS, 2018" with "Walker et al., 2019".
Annex VII	50	Lines 4–6, remove "Regional climate messages".
Annex VII	55	In the definition for 'Short-lived climate forcers (SLCFs)', replace "(from hours to decades)" with "(from hours to about two decades)".