

Comment ID	From Page	From Line	To Page	To Line	Comment	Response
28852	0	0	0	0	This is useful and thank you. I can see it being a nightmare to error check though. Can we maybe only focus on key datasets that affect ES points or where authors have analysed them directly rather than the fact that these data are used in underlying papers or figures. Maybe you say this in your intro but it isn't that clear.... If this is genuinely the case it would be fewer in my mind... [Piers Piers Forster, United Kingdom (of Great Britain and Northern Ireland)]	Noted. At present the brief for this Annex covers all data sets used directly or cited, but not necessarily those used in papers which are cited.
54016	0				This is an excellent addition to the WG I report - well done for including it! It could be a very valuable source of information for researchers looking for state-of-the-ence datasets to work with, which have also been subjected to IPCC assessment. It also raises some interesting questions for the AR6 in general. As the authors point out, yes of course it is currently incomplete from a WG I perspective in this FOD, but more broadly I wonder if there are datasets reported in WG II (especially in the regional chapters, but also the sector chapters) and even in WG III that would merit inclusion here in a comprehensive, consistent and cross-WG observational dataset addendum to the entire AR6. No doubt this could be a topic for TG-Data to discuss. Presumably, these are physical, chemical or biological datasets that are monitored operationally (thought this isn't stated explicitly). Thus, I think the introductory description of the coverage needs to be more precise than it is currently (what are the criteria for inclusion?). Are land use data included? What about other human-related variables like emissions? It would be easy to restrict this to WG I chapter material, but since some chapters are supposed to be cross-cutting with other WGs, the distinctions become a little blurred. I would argue for a cross-WG effort. That way the methods of reporting can be standardised and there is less room for divergence in reporting some of the same datasets and their (often) varied applications. Ideal TG-Data territory, with cross WG TSU liaison and LA participation in TG-Data meetings, as required. Where there's a will, there's a way, but TGICA never had the same level of (apparent) cross-WG co-operation to draw on. Perhaps TG-Data and AR6 are different. [Timothy Carter, Finland]	Noted. The brief for this annex currently only covers Working Group I.
12534	1	0	1	0	Apart from ERA5, none of the datasets distributed through the Climate Data Store of the Copernicus Climate Change Service is reported here. For example, apart from many other datasets, soil moisture is updated every 10 days until the recent present: https://cds.climate.copernicus.eu/cdsapp#!/dataset/satellite-soil-moisture?tab=overview [Wouter Dorigo, Austria]	Taken into account. The Annex in FOD is known to be incomplete as some chapters provided limited input. The SOD version is more complete. It should also be noted that data sets are not included where the only reference to them is the direct citation of a result from a paper.
12536	1	0	1	0	Datasets on soil moisture are incomplete, e.g. SMOS, AMSR2, and Copernicus Global Land Service data are missing g [Wouter Dorigo, Austria]	Taken into account. The Annex in FOD is known to be incomplete as some chapters provided limited input. The SOD version is more complete. It should also be noted that data sets are not included where the only reference to them is the direct citation of a result from a paper.

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12538	1	0	16	0	For many of the entries, it is not mentioned what variable is concerned, e.g. it just says AMSR-E or AMSR2 (I guess these are intended to refer to precipitation, but maybe other variables have been derived from them, e.g. soil moisture) [Wouter Dorigo, Austria]	Rejected. The fields reported are constrained by space available. For some data sets (e.g. the major reanalyses), the number of variables would be unmanageably large to report.
12540	1	0	16	0	GLEAM evaporation and root-zone soil moisture (Martens et al., 2017; https://doi.org/10.5194/gmd-10-1903-2017 ; Miralles et al., 2011; https://doi.org/10.5194/hess-15-453-2011) needs to be reported here as it was used in Figure 8.11 [Wouter Dorigo, Austria]	Taken into account. The Annex in FOD is known to be incomplete as some chapters provided limited input. The SOD version is more complete. It should also be noted that data sets are not included where the only reference to them is the direct citation of a result from a paper.
48914	1	3	1	5	While the purpose of the Observational Annex is clearly stated, as an introductory section, referring the chapters and sections where general discussions on how observations are used could be helpful? A reader may first go to the Observational Annex for this information. For example, 1.4, 10.2. [Chaincy Kuo, United States of America]	Taken into account. A cross-section to the relevant part of Chapter 1 will be included.
26162	3	3	3	7	It should start "This section provides a reference list of all data sets used in this report and contributing papers.". [Stephen Taylor, United Kingdom (of Great Britain and Northern Ireland)]	Taken into account. The annex only covers the report itself and results directly cited in it, not all contributing papers.
48934	3	17	3	21	The observational annex is used in the FOD as a reference for specific data used in the AR6 figures, etc. If that becomes its sole purpose, it could make sense to order the data sequentially by chapter number. However, the observational annex is referenced in some chapters, seemingly with the understanding that the data will be grouped by data type (10.2.1.2, for example). The observational annex could have one table listing the data used in the AR6 sequentially by chapter number, and then other tables regrouped based on the type such as satellite remote sensing, in situ observational networks, reanalysis, etc. [Chaincy Kuo, United States of America]	Taken into account. No attempt was made to order the entries in FOD other than in the order in which the information was received by the CLA. More systematic ordering is used in SOD.
44494	3	22	16	1	The reference Rajeevan, et al., 2006 is for the gridded precipitation data only. For gridded temperature data, the reference Srivastava et al., (2009) should be used. Srivastava, A.K., Rajeevan, M., Kshirsagar, S.R. (2009) "Development of high resolution daily gridded temperature data set (1969-2005) for the Indian region" --Atmospheric Sci. Lett., 10, 249–25, DOI: 10.1002/a.s.l.232. [VIJAY SONI, India]	Accepted. Additional reference has been added.
35338	7		7		HadISD 2.0.2.2017f only includes data to 31/12/2017 at 23:00 and has a Dunn 2016 reference. Dunn 2012 refers to HadISD version 1 (1973-2015). HadISD 3.0.0.2018f goes to 31/12/2018 (Dunn et al, 2019 Hadley Centre Technical Note) and HadISD 3.0.1.2019x are monthly updates thereafter. [Dunn Robert, United Kingdom (of Great Britain and Northern Ireland)]	Accepted. Citations and version number amended. The 2018 version was used for the work cited in this chapter.
12530	8	0	8	0	The current version of ESA CCI Soil Moisture (v4.4) goes through June 2018 -> to be updated; The data have a daily, not monthly resolution -> to be updated. In general, for all datasets I recommend using the DOIs instead of the ftp URLs, when available. In this concrete case, this would be http://catalogue.ceda.ac.uk/uuid/dff5410043ee4d2094cdf3b9b5284a63 [Wouter Dorigo, Austria]	Accepted. We are not currently using DOIs as many data sets (especially older ones) in the annex do not have them, but will reassess that in later drafts.

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55456	9	8	9	8	The time period ends in 2014. However, on the link provided, the periods end in 2015 (for precipitation) and 2016 (for temperature). [GENITO MAURE, Mozambique]	Accepted. Precipitation end date changed to 2015 (temperature is dealt with separately).
29096	10	15	10	15	Iguchi et al. (2000, 2009) is suitable instead of Haddad et al. (1997). [Takuji Kubota, Japan]	Accepted. Reference to be changed.
29098	10	16	10	16	"GPOF" is a typo. "GPROF" is correct. Kummerow et al. (2015) will be suitable. [Takuji Kubota, Japan]	Accepted. Name changed but reference remains, as is more current.
29100	10	17	10	17	Caylor et al. (1997) is not a paper of the TRMM PR 3A25. This can be merged to a line of the TRMM PR. [Takuji Kubota, Japan]	Accepted. Reference to be modified.
29102	10	18	10	18	Kummerow et al. (1998) is suitable instead of Wentz et al. 2001 [Takuji Kubota, Japan]	Accepted. Reference to be changed.
29104	10	18	11	1	3B42 is "TRMM Multi-satellite Precipitation Analysis (TMPA)", not "TRMM 3B42". Huffman et al. (2007) should be cited. [Takuji Kubota, Japan]	Taken into account. TRMM references have been consolidated.
43850	10		11		Please add the following dataset: Name: Tropical Rainfall Measuring Mission (TRMM) Precipitation Radar (PR) 2A25, Version: 7.0, Type: Remote sensing, Resolution: Orbital, 5km horizontal, 250m vertical, Chapter: 10, 11, Time Period: 1997-2014, Citation: Iguchi et al. 2000: Rain-profiling algorithm for the TRMM Precipitation Radar. J. Appl. Meteorol. 39, 2038–2052. [Izuru Takayabu, Japan]	Accepted. Reference changed.
43852	10		11		Name: Global Precipitation Measurements (GPM) Dual-frequency Precipitation Radar (DPR), Version: 6.0, Type: Remote sensing, Resolution: Orbital, 5km horizontal, 250m vertical, Chapter: 10, 11, Time Period: 2014-2019, Citation: Iguchi, T., 2019: Dual-frequency Precipitation Radar (DPR) on the Global Precipitation Measurement (GPM) mission's core observatory. Satellite precipitation measurement, Springer, submitted. [Izuru Takayabu, Japan]	Rejected. Iguchi 2019 is not cited in the current versions of either Chapter 10 or Chapter 11.
43854	10		11		Please add the following dataset: Name: Global Satellite Mapping of Precipitation (GSMaP), Version: GSMaP-NWV, Type: Remote sensing, Resolution: 1-hourly, 0.1deg x 0.1deg, Chapter: 8,10, Time Period: 1997-2019, Citation: Kubota,T., S. Shige, H. Hashizume, K. Aonashi, N. Takahashi, S. Seto, M. Hirose, Y. N. Takayabu, K. Nakagawa, K. Iwanami, T. Ushio, M. Kachi and K. Okamoto, 2007: Global precipitation map using satelliteborne microwave radiometers by the GSMaP project : Production and validation. IEEE Trans. Geosci. Remote Sens., 45, 2259-2275. [Izuru Takayabu, Japan]	Rejected. No specific results are cited from GSMaP.
43856	10		11		Please add the following dataset: Name: TRMM Spectral Latent Heating (TRMM SLH), Version: 7.0, Type: Remote sensing, Resolution: Orbital, 5km horizontal, 9 layers in troposphere, Chapter: 10, Time Period: 1997-2014, Citation: Shige, S., Y. N. Takayabu, W.-K. Tao, and C.-L. Shie, 2007: Spectral retrieval of latent heating profiles from TRMM PR data. Part II: Algorithm improvement and heating estimates over tropical ocean regions. J. Appl. Meteor. Climatol., 46, 1098-1124. [Izuru Takayabu, Japan]	Rejected. No specific results are cited from this dataset.
43858	10		11		Please add the following dataset: Name: GPM Spectral Latent Heating (GPM SLH), Version: 6.0, Type: Remote sensing, Resolution: Orbital, 5km horizontal, 250m vertical, Chapter: 10, Time Period: 2014-2019, Citation: Takayabu, Y. N. and W.-K. Tao 2019, Latent heating retrievals from satellite observations, Satellite precipitation measurement, Springer, submitted. [Izuru Takayabu, Japan]	Rejected. No specific results are cited from this dataset.

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46518	10		11		please check "TRMM Microwave Imager (TRMM 3B42)" to "TRMM 3B42" [Park Kyungwon, Republic of Korea]	Taken into account. TRMM references have been consolidated.
29106	11	2	11	2	This line should be merged to a line of "3B42". Huffman et al. (2014) is not a paper of the TRMM. [Takuji Kubota, Japan]	Taken into account. TRMM references have been consolidated.
46520	11		11		please correct "15-minute, 4km" to "3-hourly, 8km" from GRID-sat. [Park Kyungwon, Republic of Korea]	Accepted. Details corrected.
12532	12	0	12	0	ESA CCI Soil Moisture Dataset is repeated here -> to be removed [Wouter Dorigo, Austria]	Accepted. Duplicate deleted.
29108	12	2	12	2	Imaoka et al. (2010) is suitable for the AMSR2, instead of Kummerow et al. (2015) [Takuji Kubota, Japan]	Rejected. Imaoka et al 2010 appears to be a reference for the instrument, whereas Kummerow et al. 2015 is more relevant to the specific data cited in the chapter.
15626	13	1			The reference for the Randolph Glacier Inventory is not Scherler et al. 2018 but: RGI Consortium (2017). Randolph Glacier Inventory – A Dataset of Global Glacier Outlines: Version 6.0: Technical Report, Global Land Ice Measurements from Space, Colorado, USA. Digital Media. DOI: https://doi.org/10.7265/N5-RGI-60 [Michael Zemp, Switzerland]	Accepted. Reference changed.
9810	AI-11				1.5 km horizontal resolution is misleading. This is the footprint size but there are big gaps in spatial coverage (nadir looking sensor) and much of the space is simply not sampled. I believe that vertical resolution is wrong too, at least for some products for which it is 240 m (2C-SNOWPROFILE and so on) [Christophe Genton, France]	Taken into account. 1.5km x 500m are the stated specifications for the most recent instrument. A note has been added stating that resolution varies over time.
13330					Only two atmospheric inversion reanalyses are reported in this chapter, while many more are used in Chapter 5. This is abusive. If IPCC does not support the datasets it uses, it may have less material to exploit next time. Being explicitly used by IPCC is important not only for the two happy few here. [Frederic Chevallier, France]	Taken into account. The Annex in FOD is known to be incomplete as some chapters provided limited input. The SOD version is more complete. It should also be noted that data sets are not included where the only reference to them is the direct citation of a result from a paper.
37546					In the entry for ERA5, "ERA-5" should be "ERA5". The reference should be Hersbach et al. (2019, submitted) for the time being. [Adrian Simmons, United Kingdom (of Great Britain and Northern Ireland)]	Accepted. Citation amended.
37548					In the table entry for NOAA GlobalTemp, specifying version 4.0.1 is not sufficient. The year and month of the version downloaded has to be specified. This is because a version of the complete dataset is issued each month, and newly acquired data for months prior to the latest month may be used to update the values for these prior months. [Adrian Simmons, United Kingdom (of Great Britain and Northern Ireland)]	Taken into account. The WGI AR6 will archive the exact data set used for calculations in the IPCC data repository.
37550					In the table entry for GISTEMP, the latest month and year of the downloaded data must be specified. This is because, as for NOAA GlobalTemp, a version of the complete dataset is issued each month, and newly acquired data for months prior to the latest month may be used to update the values for these prior months. [Adrian Simmons, United Kingdom (of Great Britain and Northern Ireland)]	Taken into account. The WGI AR6 will archive the exact data set used for calculations in the IPCC data repository.

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37552					The table entry entitled ERA 20th Century (ERA-20C) reanalysis ensemble mixes up two datasets. There is an analysis ensemble that is properly part of ERA-20C, for which the reference is Poli et al. (2016), as in the previous table entry. Then there is ERA-20CM, which is an ensemble of AMIP-type runs of a model similar to those used to produce recent ERA reanalyses. The reference for this is Hersbach et al. (2015) as specified. [Adrian Simmons, United Kingdom (of Great Britain and Northern Ireland)]	Accepted. This will be changed.