

Report on Climate Working Group Action items since ITSC-19

Co-Chairs:

Cheng-Zhi Zou (NOAA)

Nathalie Selbach (DWD)

Co-Chairs

- Thierry Phulpin retired – we wish to thank him for his work as co-chair of the Climate WG and all his contributions to ITWG
- New co-chairs for ITSC-20:
 - Cheng-Zhi Zou (NOAA)
 - Nathalie Selbach (DWD)

Level 1 Analysis

Recommendation Climate-1 to EUMETSAT:

EUMETSAT to reprocess Level 1c IASI products in a shorter timeframe.

Status:

Thierry Phulpin reported that EUMETSAT did not start any reprocessing of IASI Level1c (not a priority)

Level 1 Analysis

Recommendation Climate-2 to EUMETSAT:

EUMETSAT to deliver inter-calibration results for IASI on Metop-A and Metop-B and a method to recalibrate one instrument to the other.

Status (information provided by T. Hewison, EUMETSAT):

- Lots of comparisons have been done with both IASI and CrIS (presented in e.g. Likun Wang et al., 2015, [doi:10.5194/amtd-8-7161-2015](https://doi.org/10.5194/amtd-8-7161-2015))
- GSICS planning to perform a meta-analysis of various intercomparison results to support choice of reference instrument and provide traceability to other references, double-differences against the relatively broad IR channels of Meteosat/SEVIRI suggest small but significant differences (<0.05K) in radiometric calibration of longwave channels between IASI-A and –B (IASI-B being warmer)
- Prime GSICS Corrections submitted as demonstration GSICS products, [algorithm](#) available, feedback welcome
- More information available via co-chairs

Level 1 Analysis

Action Climate-1

NESDIS (Lihang Zhou) to provide a focus day of AIRS and IASI data that are spectral convoluted to CrIS data.

Status: ongoing

- The algorithms for convoluted/collocated AIRS with CrIS is ready for processing real time and historic global data.
 - Algorithm developed by Likun Wang, based on the basic idea from Nagel and Holz (2009)
 - Collocation is performed on a celestial space by checking the angle of AIRS and CrIS line-of-sight (LOS) pointing vectors
 - Histogram search is utilized to speed up the algorithm
 - The method is very fast and efficient but also can meet accuracy requirements.
- Focus granules, days, can be processed and posted on ftp site by request
- All SNPP sensor data records (equivalent to level 1 data) have reached validated maturity by far. JPSS Cal Val program is going to produce science-quality data record for SNPP with the most advanced validated maturity calibration algorithms/look up tables.

Level 3 Analysis

Action Climate-2

WG Co-Chairs to distribute to the WG the requirements defined by the Climate community.

Action Climate-3

The WG to agree by mail exchange on the scales and other aspects of the intercomparison.

Action Climate-4

Nadia Smith to take the lead of the inter-comparison with help from others.

Action Climate-5

Results of the inter-comparison will be presented at the next conference.

Status: **ongoing**

Nadia Smith will present first results and outlook during WG meeting, EUMETSAT has launched inter-comparative study, Nadia will visit EUMETSAT in early 2016 as visiting scientist to contribute to the Retrieval Algorithm Inter-comparison Study

Level 4 Analysis (Reanalyses)

Action Climate-6

Communicate information on current reanalyses for use in climate studies.

Status: closed

- NESDIS/STAR C. Zou provided recalibrated SSU level-1c radiance data to NCEP for potential assimilations in climate reanalysis to improve stratospheric climate change information in reanalysis. Roger Saunders/Met Office recommended the SSU data to ECMWF for assimilation into ERA-I reanalysis.
- Three channels of recalibrated MSU, all three channels of SSU, and 11 channels of AMSU-A radiances are ready for reanalysis data assimilation
- WCRP/SPARC is conducting inter-comparisons of climate reanalyses developed from different operational centers for evaluation of their capability in climate change investigations, especially long-term trend studies; Their report will be coming out sometime in the next year or so

Level 4 Analysis (Reanalyses)

Action Climate-7

Viju John to circulate information about maturity index and let it be put on the ITWG Climate WG website.

Status: closed

Viju John distributed the maturity matrix and its instruction material to WG members

Recommendation Climate-8

The realization of absolute calibration missions (such as CLARREO) is further supported including flight opportunities on the ISS.

Action Climate-8

ITWG Co-Chairs to communicate Recommendation Climate-8 to CGMS.

Status: closed

This recommendation has been presented to CGMS.

The Way forward

Action Climate-9

Group shall try to update the Climate Group web pages.

Status: ongoing

M. Stengel started setting up a new [page](#), which will need more input. However, work should be aligned with planned overall re-design of ITWG page.

The Way forward

Action Climate-10

The group shall try to summarize the current usage of TOVS/ ATOVS data for Climate studies to give more visibility on the benefits of such sounding data.

Status: **closed**

- NESDIS/STAR (C. Zou) will give a presentation at ITSC-20 on SSU/AMSU temperature CDR development and its application in climate trend detection and validation of climate model simulations
- NESDIS has developed merged MSU/AMSU, merged SSU/AMSU, and AMSU-A only temperature CDR spanning from 1979 to present
- Other two Groups, RSS and UAH also developed MSU/AMSU CDR
- Met Office has six-monthly, global mean SSU time series
- NESDIS is also working on inter-calibration of AMSU-B and AMSU-A surface channels for hydrological CDR development (TPW, CLW, rain rate, ice water path, snow cover, snow water equivalent, sea ice) from 2000 to present
- NOAA/NCEI developed HIRS upper tropospheric humidity CDR
- All TOVS/ATOVS data are currently used as key input for climate reanalyses
- TCDR of temperature and water vapor products available from EUMETSAT's CM SAF
- Will provide links of these datasets to the Climate WG website