

# Climate working group

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# Climate humour ...

- TOVS and the follow-up ATOVS package has now been operational for 29 years 324 days, six hours and seven minutes (precisely).

# Clouds

- Recommendation Climate 6: We recommend that the HIRS data record be reanalyzed for cloud cover characteristics with more robust techniques, i.e. the trend in the frequency of Deep Convective Clouds (DCC).
- Action Climate 4: J. Schulz to bring recommendation climate 6 concerning the potential of analysing deep convective clouds to the attention of the leader of the Climate Action Team for CEOS climate Action-A3 that is concerned with investigations of trends from combined imager and sounder measurements.

# Hyperspectral

- Recommendation Climate 7: The capability to extract trace gas abundances and dust concentrations should be maintained and restored for CriS. Clean window channel 2616 wave number is also key for absolute calibration and should be included.
- Action Climate 5: J. Schulz to pass on this recommendation to IPO through Mitch Goldberg.
- Recommendation Climate 8: The information loss resulting from using principal components instead of the full spectrum should be quantified with regards to both NWP and climate study objectives before making any decision concerning the distribution of level 1 data.
- Action Climate 6: EUMETSAT to be informed of Climate recommendation 8 through Dieter Klaes.

# RSSC/CM

- Recommendation Climate 10 to R/SSC-CM network: The R/SSC-CM network should include the relevant expertise from ITWG climate working group members when it formulates its first pilot activities. In particular, the activity on upper tropospheric humidity can strongly benefit from work done by ITWG group members.
- Action Climate 7: J. Schulz to add to ITWG climate group web page and act as an international focus for the provision of information regarding current and future developments of the global network of R/SSC-CMs.

# Earth Radiation Budget

- Recommendation Climate 9 to agencies:  
The ITWG climate working group supports the recommendation of the GCOS/WCRP AOPC-XIV and recommends to space agencies to include polarimetric devices to measure aerosol on operational sensors to complement observations of cloud properties and Earth Radiation Budget.

# NPOESS recommendation?

- Would like to recommend OMPS limb sounder on NPOESS (and associated action).
- Would this have any impact?
- NPOESS program participants feedback required ... 😊

# Post-EPS

- Recommendation Climate 11: The Climate working group recommends that for future missions (in particular for Post EPS) all mission data will be completely archived at all processing levels, in particular level 0, level 1 (all processing levels) and Level 2, along with all necessary information to allow full reprocessing of the mission data.
- Recommendation Climate 12: The Climate working group recommends to plan for reprocessing capabilities in the ground processing facilities of the future post-EPS missions (and other agencies programs) including full reprocessing of level1b at least at mission end.
- Recommendation Climate 13: AMSU replacement on post-EPS must be cross-track to enable a continuation of the “lower tropospheric” retrieval which is viewing geometry dependent and to minimise the risk of change to other instruments which are tied in some sense to the AMSU footprint.

# More post-EPS

- Recommendation Climate 14: post-EPS to improve the radiometric noise of post-IASI in the 4 micron band, by at least a factor of 2, without degrading the spectral resolution so that it can be usefully utilised in CO<sub>2</sub> monitoring.
- Recommendation Climate 15: The coverage with simultaneous UV/VIS and IR observations for synergistic ozone and trace gases retrieval established by the MetOp system should be made available on future satellite systems for post-EPS systems. Depending on the launch schedule of the new missions the EPS system should be kept alive as long as possible.
- Action Climate 8: Jörg Schulz to report climate recommendations 11 to 15 to post-EPS Mission Team.

# Characterising biases

- Recommendation Climate 1: ET-EGOS to recognise that if data are to be used for climate, given typical satellite refresh rates inter-satellite biases need to be constrained within 10% of expected climate signal. This would necessarily include the impact of any change in measurement technology, viewing geometry, footprint etc and the need to maintain the channel spectra. It is particularly applicable to heritage measures that offer the potential for monitoring of long-term climate changes. It is key that climate has a strong voice in such planning activities.
- Action Climate 1: Jörg Schulz to communicate above recommendation to ET-EGOS via its GCOS representative Matthew Menne, and John Eyre to ensure it is covered at next ET-EGOS meeting.

# Cal / Val

- Recommendation Climate 2: Satellite agencies need to recognise the critical importance of actively supporting a long term calibration framework if their data are to prove of the envisaged high utility in climate monitoring. This would consist of a fully functioning GRUAN network of 40 very high quality ground cal/val sites run for climate and a precessing orbit satellite carrying a range of microwave and infrared radiometers/sounders and a GPS-RO.
- Action Climate 2: ITWG CGMS representative to communicate recommendation Climate 2 to CGMS and request that it be on the agenda.

# More cal / val

- Recommendation Climate 3: The Climate working group of ITSC recommend that GRUAN launch a subset of “Satellite overpass coincident” launches which would consist of dual launches at t-1 h and t as has been done for EAQUATE and JAIVEx as well as the EUMETSAT IASI calibration and which have proven to be of high utility.
- Recommendation Climate 4: One or more GRUAN sites should be sited in an area where there is a prevalence of each of the following: dust events, black carbon from seasonal burning, Indian Ocean brown cloud, to help fully characterise hyperspectral sounders in these challenging situations.
- Recommendation Climate 5: GRUAN to recognise the vital role of CO<sub>2</sub> validation with measurements from the surface to the upper-troposphere to support satellite based climate monitoring of changes.
- Action Climate 3: Peter Thorne to report recommendations Climate 3-5 to AOPC WG-ARO.

# Future of climate in ITWG

- Recommendation Climate 16: That a very concerted effort be made to increase the climate content and presence at future ITSC conferences so that a critical mass of climate scientists attend. The mix of operational and instrument expertise affords a unique opportunity to aid the production of climate quality data that it would be remiss not to act upon.
- Action Climate 9: ITWG co-chairs to consider recommendation climate 16 and with help from climate WG members to attempt to significantly redress balance to more accurately reflect agency priorities on both operational and climate usage of the data at future ITSC meetings.