

ITWG Climate Working Group

Status of actions from ITSC-16

Compiled by Jörg Schulz and Peter Thorne

Actions Statistic

- Total number of actions – 11
- Actions fulfilled – green – 6
- Actions partly fulfilled – amber – 4
- Actions not fulfilled – red – 1

Action 1: Constraint on Intersatellite Biases

- It was recommended to recognise that if data are to be used for climate, intersatellite biases should not be larger than 10% of the expected climate change signal, i.e., if 0.2 K are predicted, intersatellite bias needs to be in the order 0.02 K. This was communicated to GSICS.
- GSICS stated that it has concentrated on infrared and recently also on solar channels. Bias found in the infrared are usually larger, i.e., their inter-calibration is less accurate than the stated requirement for them of +/-0.02K. Consequences of this needs to be discussed.
- GSICS has started to also develop a strategy for the inter-calibration of microwave instruments including sounders (workshop on CDRs from microwave data at NOAA was in March 2010). Several activities are underway to create a consensus calibration and intercalibration for the microwave instruments.

Action 2: Critical Importance of Ground- and Space-Based Calibration Framework

- This has not specifically mentioned to CGMS as one of the top seven recommendations from ITSC-16 – however support for the GRUAN network is mentioned in CGMS meeting reports.
- At the last GRUAN meeting in Payerne, Switzerland in March 2010 several satellite people participated and were providing information on and requirements for the potential usage of GRUAN for instrument cal/val and/or evaluation of other space based intercalibration techniques.
- For the space based component, the CLARREO has a planned payload consisting of a “reflected solar suite” covering 320-2000 nm, an “infrared suite” covering 5-50 μm and an RO receiver. More details at <http://clarreo.larc.nasa.gov/index.php>.

Action 3: Specific Requirements for GRUAN

- Three recommendations were given to GRUAN via the GCOS AOPC WG-ARO concerning the launch schedule w.r.t satellite overpass of GRUAN radiosondes, the geographical distribution of GRUAN stations, and on the necessity to also measure CO₂.
- Peter Thorne has a poster on the status of GRUAN. Because it is not operational now we still can influence it. So join Peter at the poster and us in the Climate Working Group.

Action 4: Reanalysis of the HIRS record using robust techniques to derive cloud properties

- This should have been mentioned to some specific CEOS action that is concerned with the generation of cloud climatology but most participants of that action are/were using imager data.
- However, some new plans emerge at the EUMETSAT SAF level to make a joint effort to perform a full reanalysis of the TOVS, ATOVS time series with data starting in 1979.
- This would include a specific version of AAPP that includes the intercalibration part and the use of one or several retrieval schemes including the IAPP to derive consistent T and q profiles and cloud properties.
- Need to discuss here cooperation on this with US and other interested parties.

Action 5: OMPS Limb Sounder on NPOESS or now JPSS

- At the last meeting there was the concern that the OMPS limb sounder will not be part of the NPOESS program after the Nunn-McCurdy Certification in 2006.
- Details on the US status of climate observations was presented in the talk of John Bates.
- Since then demanifestation of climate sensors took place with the effect that OMPS Limb subsystem was cancelled and only nadir observations will be available from the satellites after NPP.
- However, if a limb subsystem would be restored on another satellite that needs to be flown in train constellation with the nadir capability.

Action 6: Restoration of specific channels on CrIS for trace gas monitoring

- This should have been mentioned to the IPO through Mitch Goldberg.
- Basically, there is still work needed to avoid spectral degradation of the measurements before they are sent to ground to make them suitable for trace gas retrieval.

Action 7: Potential Information Loss in Principal Components

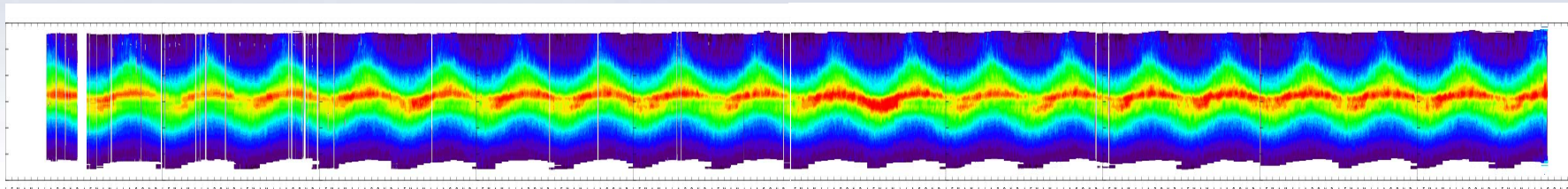
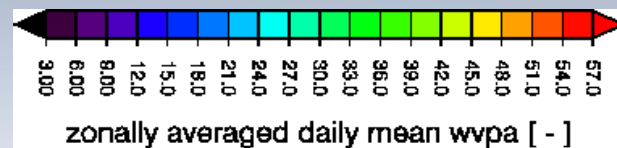
- It was recommended to EUMETSAT that information loss resulting from using principal components instead of the full spectrum of IASI data should be quantified with regards to climate study objectives before making any decision concerning the distribution of Level 1 data.
- This recommendation was distributed within EUMETSAT.
- The danger of information loss is currently rather low as principal components are distributed in parallel to full level 1 data.
- Original level 1 data are also fully archived at EUMETSAT.
- However, information loss itself is still a research area, some work was done for trace gas data where signals in the infrared are rather small. Some results were presented at the IASI conference in January 2010.

Action 8: Provide Information on WMO SCOPE-CM (the former R/SSC-CM)

- The R/SSC-CM has been renamed to SCOPE-CM that stands for Sustained COordinated Processing of Environmental Satellite Data – Climate Monitoring.
- The SCOPE-CM concept was discussed at the 2009 GEWEX Radiation Panel Meeting and also presented to the GEWEX SSG in early 2010. The general aim of SCOPE-CM to perform transition from research to operations for mature climate data sets and work to assess maturity of such data sets was greatly acknowledged by the GEWEX SSG.
- The individual SCOPE-CM pilot activities have gradually moved forward. Reanalysis of the HIRS and other sounder data could certainly be a part of SCOPE-CM - ITWG may request this.
- Update of the climate group web site was not done - mainly because there is still no web site from SCOPE-CM to link to.

SCOPE-CM Pilot Project Examples: Project 2

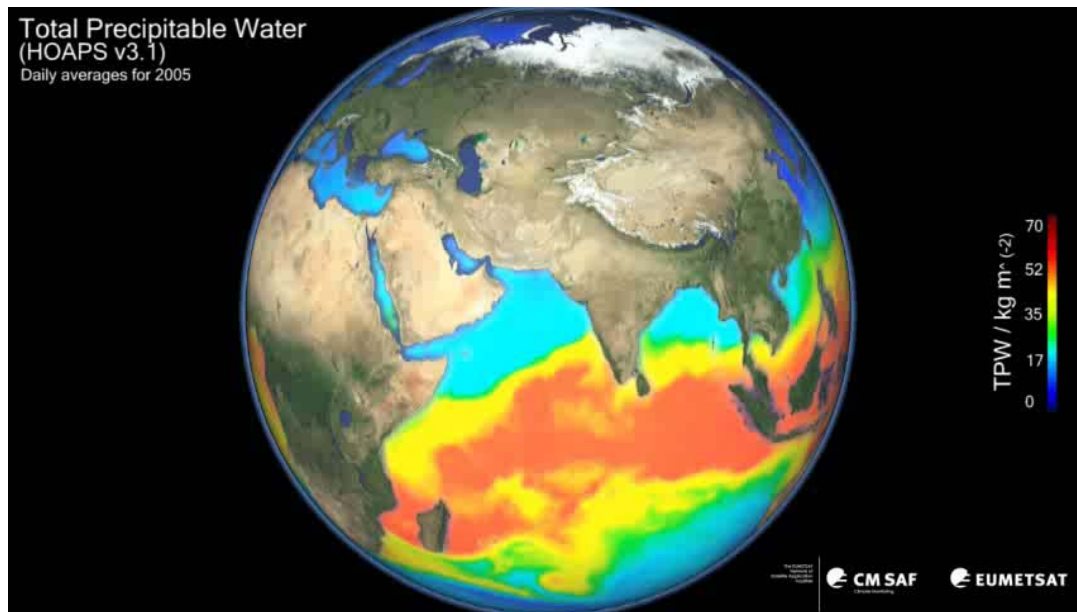
SSM/I 20 years data set water vapour over ocean:



HOAPS MPI-Meteorology University Hamburg UH

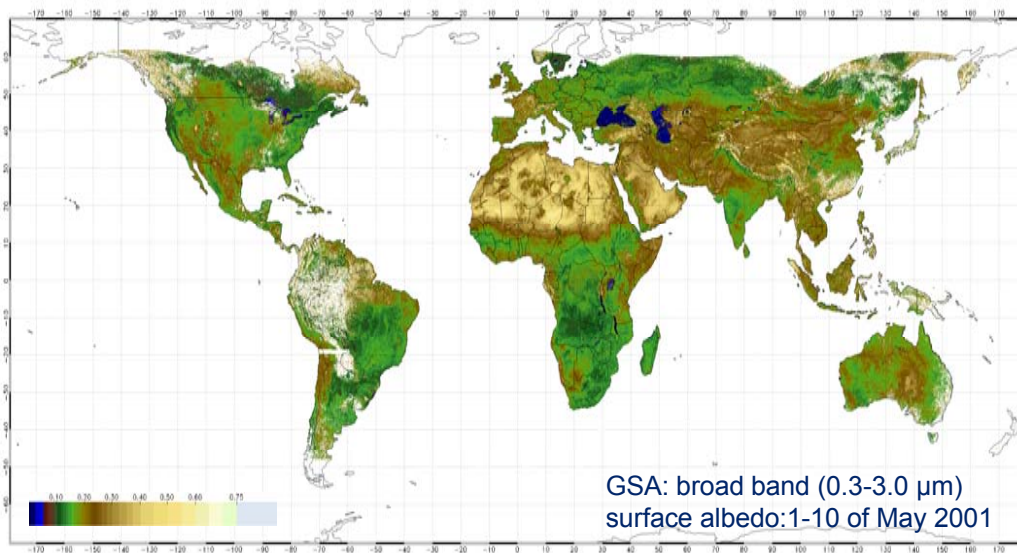


EUMETSAT The EUMETSAT Network of Satellite Application Facilities CM SAF Climate Monitoring



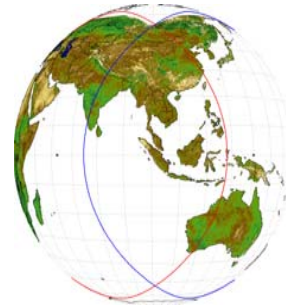
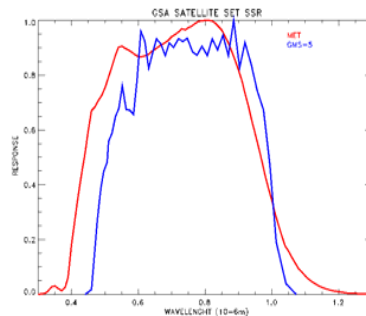
SCOPE-CM Pilot Project Examples: Project 3

Global Surface Albedo from Geostationary Satellites



GSA: broad band (0.3-3.0 μm) surface albedo: 1-10 of May 2001

From east to west, GMS-5, MET-5, MET-7, GOES-8 and GOES-10



Goal:

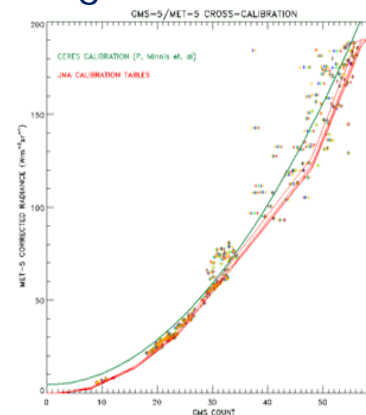
- Global Level 3 product

Current Activities:

- Inter-calibration Meteosat and GMS
- Definition of the Level 3 product

Future:

- Include GOES satellites to go global



Action 9: Post-EPS Issues at Post-EPS mission team meeting and Post-EPS reviews

- All levels of data including 0 and 1 should be completely archived and available at space agencies. - Post-EPS mission has the same requirements as EPS concerning archiving of data. However, for climate the archiving issue is a multi-program issue. How requirements on archiving and maintenance of archives can be implemented across programs needs to be discussed.
- All data, at least level 1b should be reprocessed after the missions life time has ended which is a policy in place for Terra and Aqua missions. Within EUMETSAT a new Reprocessing Working Group has been set up. The group coordinates all reprocessing activities within the EUMETSAT ground segment – including SAFs . Within this group the generation of FCDRs has the highest priority.

Action 9: Continued

- AMSU replacement must be cross-track – It will be cross-track, also see talk by Peter Schlüssel on Tuesday on PostEPS.
- Improve the radiometric noise of post-IASI in the 4 micron band, by at least a factor of 2 to allow for CO₂ monitoring. – It is planned for IASI-NG. A decision if IASI-NG will be build is expected for 2011.
- Synergistic UV/VIS and IR observations should be continued on Post-EPS. – Current planning sees a combination with the EU GMES sentinel 5 that will constitute the atmospheric chemistry mission in polar orbit.
- Action 10: US situation was presented by John Bates.

Action 11: GCOS-AOPC request to cover the climate theme more generally in ITWG climate working group

- At ITSC-16 we saw great potential of the ITWG to support climate work using sounding data – we aimed at increasing the climate presence at future meetings but were not very active on it.
- We have more participants here – but if this is because of interest or location and climate is still an open question – will discuss it again.

Topics for ITSC-17

- New satellite programs / missions still in planning stage - do they meet climate requirements? If not, what specific recommendations do we have and how can we influence them?
- Ensuring the data record - metadata, reprocessing, data archival - is everything as rosy as it should be?
- Cal/val activities - GSICS, GRUAN, CLARREO - are they looking like meeting our needs? How can we most effectively influence / support them?
- Consideration of work programmes for climate already in operation / advanced planning - are there things they should be doing that they are not? Best practices being learnt?
- Gap analysis - are there data that as a global community that we should be looking at but are not? What should the priorities be and why?