Release of CM-SAF HOAPS v3.2

Products Based on Improved Data Record of SSM/I Radiances

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Motivation

- Transition of HOAPS (Hamburg Ocean Atmosphere Parameters and Fluxes from Satellite data; http://www.hoaps.org/) into CM-SAF.
- 20-year Thematic Climate Data Record (TCDR) of total column integrated water vapour derived from SSM/I has been released in 2009.
- Next release of HOAPS parameters within the CM-SAF framework is planned for autumn 2010 and will include precipitation, evaporation, the resulting freshwater flux, near surface wind speed and near surface humidity.
- Dataset users will use the data to analyse trends and statistical patterns → high quality data and extensive documentation is required.
- Fundamental climate data record of inter-sensor calibrated brightness temperatures is required.
- Analysis of available climate data records.

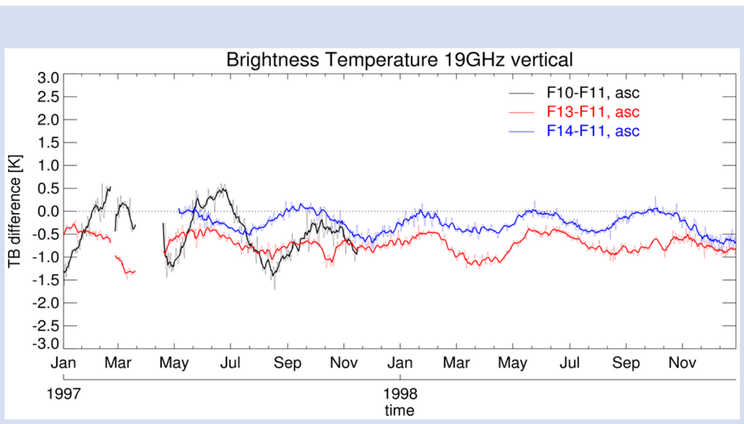

Fig 1: Differences of uncorrected TB (19GHz, vertical)

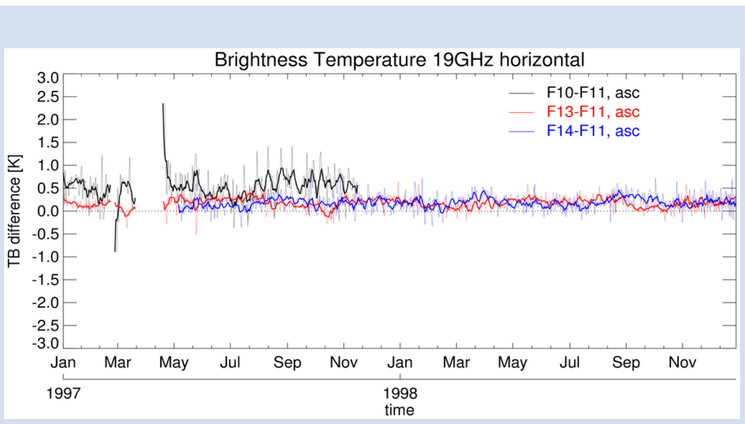

Fig 2: Differences of uncorrected TB (19GHz, horizontal)

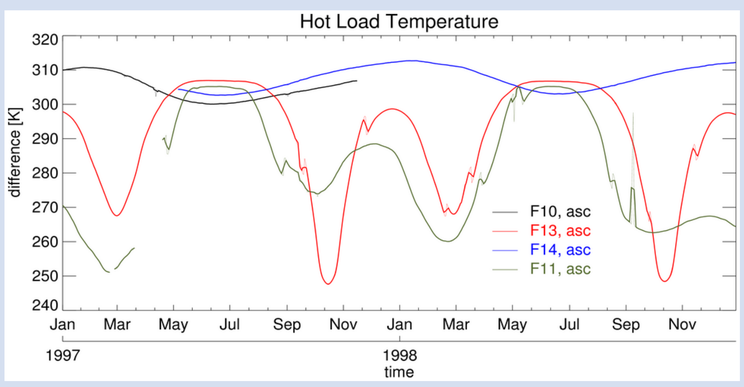

Fig 3: Temperature of the warm calibration target.

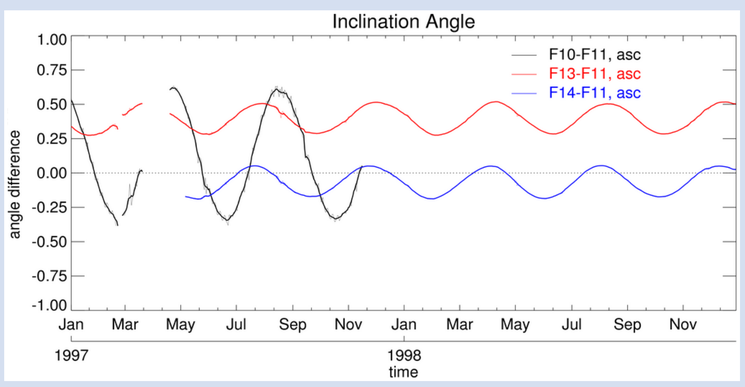

Fig 4: Differences of Earth incidence angle

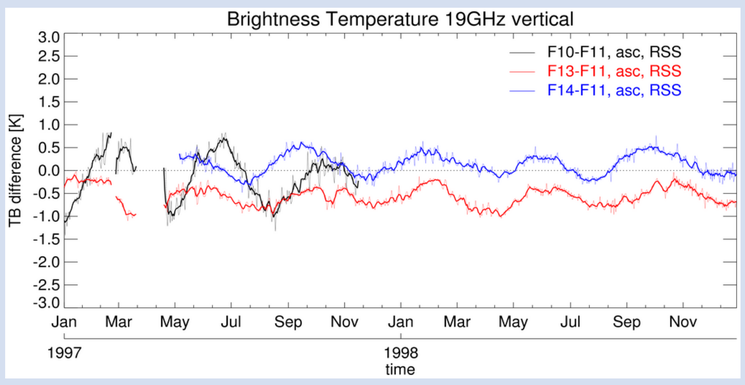

Fig 5: Differences of RSS corrected TB (19GHz, vertical)

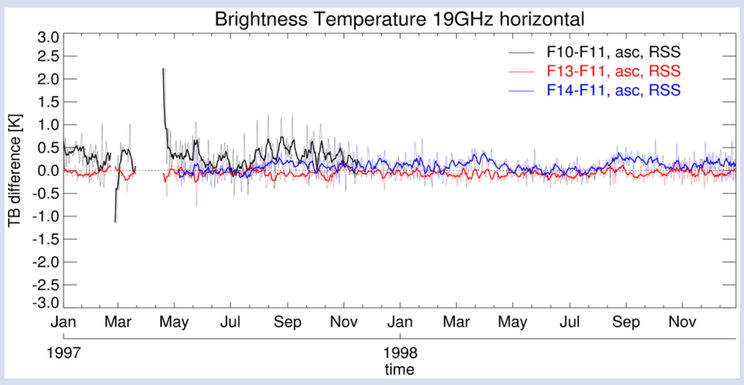

Fig 6: Differences of RSS corrected TB (19GHz, horizontal)

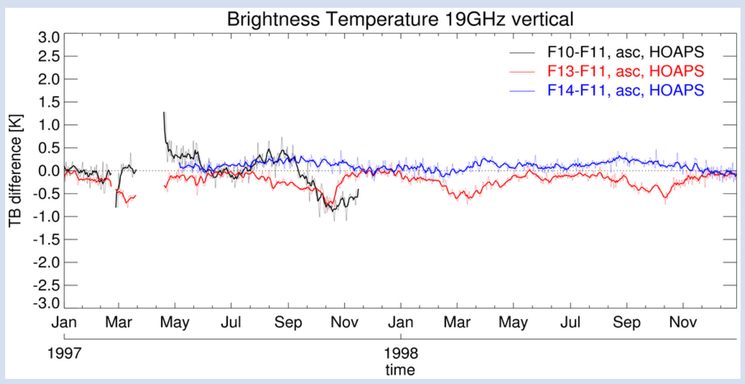

Fig 7: Differences of HOAPS corrected TB (19GHz, vertical)

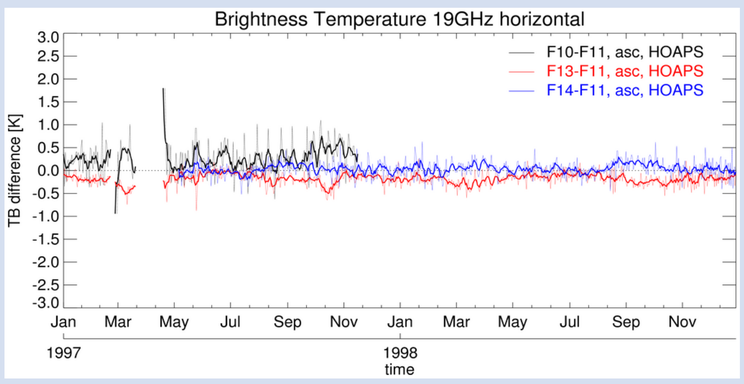

Fig 8: Differences of HOAPS corrected TB (19GHz, horizontal)

Comparison strategy

- Comparison period 1997 – 1998
- Level 1 TDR data processed (F10, F11, F13, F14)
- Along-scan correction applied to T19, T22, T37
- Calculate TB using fixed APC for all sensors
  → First set of original uncorrected TB
- Apply Earth incidence angle correction.
- Apply HOAPS inter-calibration
  → Second set of HOAPS corrected TB
- RSS data processed to same format.
- Calculate TB using same fixed APC for all sensors
  → Third set of RSS corrected TB
- Data filtered to keep only scans which are in all TB data sets.
- Gridded onto 1degree daily maps for ascending and descending orbits.
- Match-ups of 1degree grid boxes, no filter applied
  → robust statistics

Conclusions

- Fundamental Climate Data Record from SSM/I brightness temperatures as CM SAF product.
- Updated version of HOAPS inter-calibration.
- Independent activity to generate a transparent and fully documented FCDR with all correction, calibration, and inter-calibration methods made publicly available.
- FCDRs from SSM/I TB will be available from different groups using different approaches.
- Intercomparison and examination of the calibration procedures and exchange of methods will finally lead to a consensus FCDR from SSM/I TB.

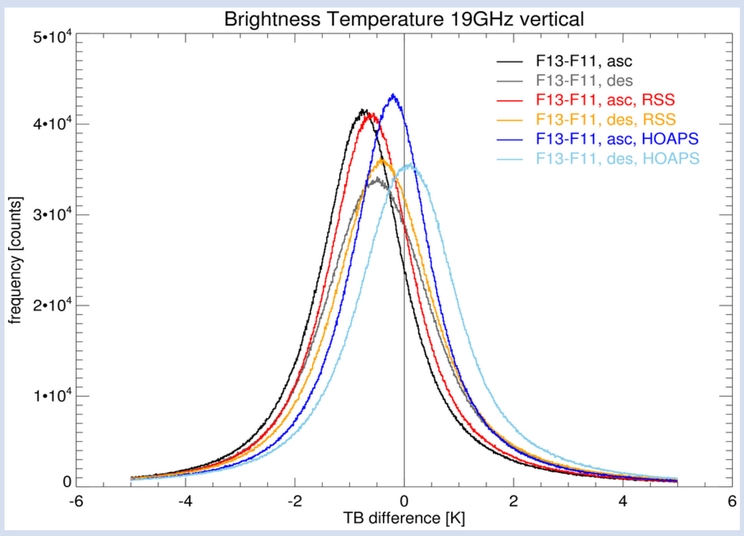

Fig 9: Histogram of uncorrected and corrected T19v F13-F11

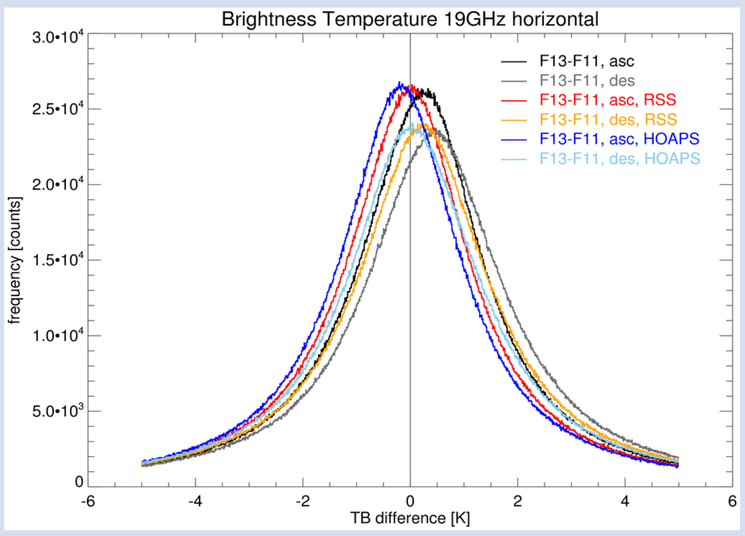

Fig 10: Histogram of uncorrected and corrected T19h F13-F11

http://www.hoaps.org/ **http://www.cmsaf.eu/** **contact.cmsaf@dwd.de**