

CM SAF Newsletter 12

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The EUMETSAT
Network of
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Facilities



Release of a new dataset of radiation budget at top of atmosphere: CM SAF TOA radiation “GERB” dataset

The CM SAF TOA radiation GERB dataset provides monthly mean, daily mean and monthly mean diurnal cycle of the TOA Reflected Solar (TRS) and TOA Emitted Thermal (TET). The product is based on the observations of the Geostationary Earth Radiation Budget (GERB, Harries et al., 2005) instruments, on board the Meteosat Second Generation. Additionally, data from the Spinning Enhanced Visible and Infra Red Imager (SEVIRI) and from the Cloud and Earth Radiant Energy System (CERES) are used, respectively, to fill gaps in the GERB data record and for Northern latitudes coverage.

This dataset complements the global datasets produced by the CERES team, in particular in providing a better observation of the diurnal cycle of the TOA radiation. Potential applications include the validation of the radiative scheme in NWP and climate models in particular in their dynamical dimension (e.g. the convection process) and the study of cloud and aerosol forcing.

The dataset currently covers 7 years (February 2004 to January 2011) and is provided on a sinusoidal equal-area grid with $(45 \text{ km})^2$ resolution.

Comparisons of these data against the CERES products have shown that the products are within the required accuracy.

Details on the products in general, on retrieval methods and physical basis as well as on quality can be found in the [User Manual Products](#), the [ATBD](#) and the [Validation Report](#).

The products are now available for ordering via CM SAF's [Web User Interface](#). For more information contact our [User Help Desk](#)

Release of CM SAF Fundamental Climate Data Record of SSM/I Brightness Temperatures

The CM SAF Fundamental Climate Data Record of SSM/I Brightness Temperatures covers the time period from July 1987 to December 2008 including all available data from the six SSM/I radiometers aboard F08, F10, F11, F13, F14, and F15. It provides homogenised and inter-calibrated brightness temperatures in a user friendly data format. SSM/I data are used for a variety of applications, such as analyses of the hydrological cycle and related atmospheric and surface parameters, as well as remote sensing of sea ice. The improved homogenization and inter-calibration procedure ensures the long term stability of the FCDR for climate related applications. All available raw data records have been reprocessed to a common standard, starting with the calibration of the raw Earth counts to ensure a completely homogenized data record. The new inter-calibration model incorporates a scene dependent inter satellite bias correction and a non-linearity correction to the instrument calibration. Furthermore, the data processing accounts for several known issues with the SSM/I instruments and corrects calibration anomalies due to along

scan inhomogeneity, moonlight intrusions, and sunlight intrusions. The data files contain all available original sensor data and metadata to provide a completely traceable climate data record. Inter-calibration and Earth incidence angle normalization offsets are available as additional layers within the data files in order to keep this information transparent to the users. The data record is complemented with radiometer sensitivities, quality flags, surface types, and Earth incidence angles. The FCDR is available from the [CM SAF web user interface](#). Detailed information about the data processing, the file format and content and the performance of the FCDR are available in the [Algorithm Theoretical Basis Document \(ATBD\)](#), the [Product User Manual \(PUM\)](#) and the [Validation report](#), respectively.

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