The CM SAF Top-Of-Atmosphere Radiation Products

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Existing products

1. An Environmental Data Record (EDR) is being generated since 2004 with the following features:
   • based on the the Geostationary Earth Radiation Budget (GERB) instruments on the Meteosat Second Generation
   • Use CERES for the Arctic region
   • Sinusoidal Equal Area grid with resolution of (45km)²
   • near real time (i.e. within 4 months)
   • monthly mean, daily mean, and monthly mean diurnal cycle, in hourly intervals (see figures).

2. A dataset has been released with the additional features:
   • Coverage 2004 – 2011
   • Homogenization of input data
   • Extensive validation. The dataset shows good agreement with the Cloud and Earth Radiant Energy System (CERES) products, but provides a new dimension: the diurnal cycle of the radiation!

CDOP-2 developments

1. Second edition of the TOA radiation « GERB » dataset whose main features are:
   • Improved GERB fluxes as input
   • Extended time period (2004-2014)
   • All sky and clear sky fluxes. The new clearsky product will allow better model evaluation and estimation of the cloud radiative forcing.
   • Dataset release foreseen Q2 2015

2. A long dataset combining MVIRI/SEVIRI/GERB with features:
   • 1982 – 2012
   • Downscaling of SEVIRI -> MVIRI (Cros et al, 2006)
   • recalibration of the IR and WV channels following GSICS
   • Calibration of VIS channel from SSCc or Decoster et al (2014).
   • GERB offline to tune empirical NB->BB regressions. See figures for examples of performances.
   • Release foreseen Q2 2015