



The Climate Monitoring SAF TOA Earth Radiation Budget Dataset

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Since 2004, accurate top-of-the-atmosphere (TOA) broadband reflected solar and emitted thermal fluxes are available from the Geostationary Earth Radiation Budget (GERB) instruments on board the Meteosat Second Generation satellites.

In the EUMETSAT Climate Monitoring SAF, those data are used to estimate monthly and daily mean TOA radiation products as well as a monthly mean diurnal cycle product. The daily and the diurnal cycle products take obvious advantage of the 15 minutes observation frequency allowed by the geostationary orbit of GERB. Although the averaging process of geostationary observations could seem to be an easy task, different issues have to be considered to derive datasets with the highest possible accuracy. The main ones concern (i) the approach used to deal with missing data in the averaging process, (ii) the homogenization of radiometric level between different GERB instruments, and (iii) the correction of drift in instrument sensitivity. Furthermore, from the user point of view, realistic characterization of the monthly, daily and diurnal cycle accuracies is needed. To this end, the inter-comparisons with similar products from CERES (e.g. EBAFs and SYN1deg) is especially interesting as the products for these 2 missions are based on totally independent assumptions and modeling steps.

In this contribution we present the new CM SAF GERB dataset, the validation results and comparisons with CERES, as well as the improvements foreseen for the next phase of the project (2012-2017).