



The surface radiation budget from the CM-SAF: Validation of short- and long-wave data sets for African and Oceanic sites

R. Hollmann, R.W. Mueller, H.D. Behr

Deutscher Wetterdienst, 63067 Offenbach, Germany

(rainer.hollmann@dwd.de / Fax: +49 69 8062 4955 / Phone: +49 69 8062 4923)

Since January 2005, the CM-SAF produces, archives and distributes high-quality satellite-derived products relevant for climate monitoring in operational mode. (CM-SAF, <http://www.cmsaf.dwd.de>) in high spatial resolution for an area now covering full Africa, Europe up to 80° N and parts of the North Atlantic. The mandate of the CM-SAF is climate monitoring at regional scale, realized by the generation of validated, homogeneous and consistent data sets with long term processing and reprocessing capability. The CM-SAF has started its 2nd phase lasting until 2012 making major steps forward towards a reprocessing of the MSG-data and creating climate data sets.

Until now, all cloud and surface radiation products are based on data from polar orbiting satellites NOAA, and since October 2005, from MSG (METEOSAT-8), in addition. The surface radiation product suite covers the short- and long-wave fluxes as well as radiation budgets and the surface albedo as well. Monthly means, daily means and monthly mean diurnal cycle (MSG only) are retrieved in 15x15 km² resolution. Since Beginning of 2007 the full disc of MSG is covered, whereas until 2007 the processed area have been restricted to 30°– 80° N. With almost three years of operational production, the CM-SAF is now able to provide the full yearly cycle of all radiation components.

As the algorithms for the operational surface radiation retrieval data were presented at the EGU-2005 (Hollmann et al., EGU05-A-07821) the focus of this paper will be the validation of the individual radiation components. Short- and long-wave radiation components recorded at the measuring sites of Payerne, Carpentras, Cabauw, Linden-

berg, and Belsk were used for the validation of the satellite derived data on hourly and daily mean scale. For the full disc of MSG validation efforts have been increased towards a validation for desert and oceanic areas. First results of a validation for African sites and validation with a research vessel are shown.

The goal of the validation procedure is to improve the algorithms for the evaluation of satellite derived products and of course, to track the effect of their improvements. First results can given here: the bias of the short-wave components (monthly means) are about 3-4 W/m², for the long-wave (monthly means) about 9-10 W/m², i.e. the „target accuracy“ of 10 W/m² for monthly means (SIS, SOL, SDL) is in general achieved.