The EUMETSAT Satellite Application Facility on support to Operational Hydrology and Water Management (H-SAF): Precipitation retrieval algorithms and precipitation products

A. Mugnai, D. Casella, E. Cattani, F. Di Paola, S. Dietrich, V. Levizzani, P. Sanò and F. Torricella

Istituto di Scienze dell'Atmosfera e del Clima (ISAC), CNR, Bologna/Roma, Italy.

(a.mugnai@isac.cnr.it / Phone: +39 06 4993.4575)

The "*EUMETSAT Satellite Application Facility on support to Operational Hydrology and Water Management*" (H-SAF) has been established by the EUMETSAT Council on July 3, 2005 and started activity at the official date of September 1, 2005. The initiative moved from the acknowledgment that, in recent years, the interest of the hydrological community for using satellite data has rapidly increased. This is a consequence of (1) improved satellite data quality, and (2) improved performance of hydrological models including their capability to assimilate observational data. The H-SAF Consortium includes operational services and scientific institutes from twelve EUMETSAT Member or Cooperating States, with the Italian Meteorological Service acting as Host Institute. The so-called "Development Phase" will end in late 2010 with the final products release and the proposal for a follow-on "Operational Phase".

The activity will be focused on the generation of products such as:

- precipitation rate and accumulated precipitation, including liquid/solid discrimination;
- soil moisture in the surface layer and possibly in the roots region;
- snow parameters such as effective cover, wet/dry discrimination and water equivalent.

In this study, we describe the algorithms that are being developed by CNR-ISAC with the purpose of being used within H-SAF to derive the required precipitation products from all available satellite observations taken by highly-performing satellite instruments, such as: SEVIRI on Meteosat; AMSU-A and AMSU-B/MHS on Metop and NOAA; SSM/I and SSMIS on DMSP.