



EUMETSAT Satellite Application Facility on support to Operational Hydrology and Water Management (H-SAF)

I. Dyras, B. Bizzarri, L. De Leonibus, P. Struzik

(1) Institute of Meteorology and Water Management, Krakow, Poland
(izabela.dyras@imgw.pl)

The recent developments in the satellite technology have enhanced the possibilities of satellite data use by the hydrological community. This improved satellite data quality together with the improved performance of hydrological models including their capability to assimilate observational data is expected to lead to the enhanced operational performance. The recent initiative of the EUMETSAT within the Satellite Application Facility(SAF) network is dedicated to the generation of the satellite-derived products complying with requirements of the operational hydrology and water management. In years 2002-2004 the consultations among EUMETSAT Member and Cooperating States resulted in defining the objectives and the scientific background for the SAF on support to Operational Hydrology and Water Management (H-SAF). This project has officially started on 1st September 2005. The H-SAF Consortium includes operational services and scientific institutes from twelve EUMETSAT Member or Cooperating States, with the Italian Meteorological Service acting as a Host Institute. Since the earliest discussions, the interest for new satellite products was focused on:

- Precipitation rate and cumulate 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.

The generation of these products with the required quality is based on the data from the current or expected availability of highly-performing satellite instruments. Progressive availability of the improved instruments and processing methods will enable

continuous improvement of the products quality in the course of the Development phase (lasting for 5 years). The parallel hydrological validation programme will be carried out to demonstrate the cost effectiveness of the novel data so as to support a follow-up of the operational phase. The hydrological validation programme consists of:

- Development of techniques to up/downscale the information for use at a catchment level;
- Merging satellite and conventional data, and assimilation into hydrological models;
- Assessment of the satellite products impact on the operational hydrological models performance tested on selected test catchments.

Furthermore the validation aims to contribute in filling a gap between the numerical hydrological and meteorological communities. The result of hydrological requirements analysis is to be presented and the tentative convergent interface requirement specification synthesis among Hydrological model and meteorological inputs will be presented. The products generation activity will be performed by the Meteorological Services supported by the Scientific Institutes specialised in remote sensing. The Hydro-meteorological Services, hydrological Scientific Institutes as well as operational units of Civil Defence will perform the hydrological validation programme.