Plinius Conference Abstracts
Vol. 12, Plinius12-27
12th Plinius Conference on Mediterranean Storms
Corfu Island Greece, September 2010

Precipitation retrieval from satellite within EUMETSAT's H-SAF

A. Mugnai, S. Dietrich, V. Levizzani, D. Casella, E. Cattani, F. Di Paola, M. Formenton, S. Laviola, and P. Sanò
Istituto di Scienze dell'Atmosfera e del Clima (ISAC), Consiglio Nazionale delle Ricerche (CNR), Bologna-Roma, Italy
(a.mugnai@isac.cnr.it)

The EUMETSAT Satellite Application Facility on support to Operational Hydrology and Water Management (H-SAF) was established by the EUMETSAT Council on July 3, 2005 and started activity at the official date of September 1, 2005. The Italian Meteorological Service serves as "Host Institute" on behalf of 12 European countries.
The Project Plan focuses on the generation of the following products for the European and Mediterranean regions:
• instantaneous and accumulated precipitation, including liquid/solid discrimination;
• soil moisture in the surface layer and in the roots region;
• snow parameters such as effective cover, wet/dry discrimination and water equivalent.
In addition to products development and generation, the project includes a products validation programme and a hydrological validation programme. The development programme duration is 5 years, ending on August 31, 2010. A follow-on Continuous Development and Operations Phase (CDOP) will start in September 2010 to provide long-term perspective (2010-2017) to the initiative.
Precipitation products are being generated according to algorithms developed by CNR-ISAC in collaboration with the international community, by exploiting the following satellites and instruments:
• MW conically-scanning radiometers (SSM/I and SSMIS) on LEO satellites (DMSP);
• MW cross-track scanning radiometers (AMSU-A and AMSU-B / MHS) on LEO operational satellites (NOAA and MetOp);
• VIS/IR imagers (SEVIRI) on GEO satellites (MSG).
These products are generated routinely at the Italian Centro Nazionale di Meteorologia e Climatologia Aeronautica (CNMCA), which is responsible of operational product generation and dissemination.
Whilst precipitation products continue to be developed and improved, major focus is now on product validation. Products are generated in a pre-operational fashion, with a delay of few minutes to few hours from observation, depending on product and satellite data access. Access to products is currently limited to Institutions that participate in product development and/or validation activities.
The emphasis of precipitation product generation in H-SAF is on near-real-time applications, as requested by the European hydrological community and, specifically in Italy, by the Civil Protection Department (DPC) – i.e. the Italian Agency which is responsible for disaster management. DPC is a major sponsor of the Italian participation to H-SAF, with increasing involvement in product validation and impact assessment activities.
We will present and discuss the basic algorithms for precipitation retrieval from satellite, that have been developed by CNR-ISAC. We will also discuss the activities that will be performed during CDOP in order to enhance and improve algorithms and processing schemes and extend them to satellites that will be operational in the 2010-2017 timeframe – with special emphasis on the GEO Meteosat Third Generation (MTG) satellite which is scheduled to be launched by EUMETSAT in 2017, and on the LEO Core Observatory of the Global Precipitation Measurement (GPM) mission which will launched by NASA and JAXA in 2013.