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Daily lsa-saf evapotranspiration product

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In the framework of the EUMETSAT's Satellite Application Facility on Land Surface Analysis (LSA-SAF), some models have been implemented in view to characterize continental surfaces by using information obtained from MSG and EPS satellites. In this context a method has been developed in order to monitor the flux of water (Evapotranspiration) between the land surface and the atmosphere. The method is based on a physical approach in which radiative data derived from Meteosat Second Generation (MSG) satellites together with land-cover information are used to constrain a physical model of energy exchange between the soil-vegetation system and the atmosphere. The implemented algorithm provides instantaneous ET estimates over four regions defined in the MSG FOV (the defined regions cover Europe, Africa and the west of south America), with MSG spatial resolution (3km at sub satellite point) and a temporal time step of 30 minutes. The scope of the method is limited to evaporation from terrestrial surfaces rather than from lakes or oceans. The instantaneous product has been validated over different vegetation cover and climatic conditions, providing evidence that the algorithm is able to reproduce ET estimates with accuracy equivalent to the accuracy of ET obtained from observations.

In 2009 the instantaneous ET product has been declared pre-operational by EUMETSAT, allowing the product to be disseminated to a larger community of users (http://landsaf.meteo.pt). In some areas like agriculture, hydrology, water management, ecology and climate studies the main concern is not instantaneous but accumulated values over days, months or longer periods. To encompass the need for these community of users, a daily ET product in which daily evapotranspiration is obtained as temporal integration of instantaneous values has been developed.

In this contribution we will present the methodology used to obtain instantaneous ET estimates and the procedure applied to derive daily-cumulated values. Examples at local and regional scale will be presented.