Precipitation product retrieved from EUMETSAT geostationary satellites.

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Abstract

EUMETSAT derives an operational precipitation product, the Multi-Sensor Precipitation Estimate (MPE) product, which retrieves precipitation by combining infrared (IR) brightness temperature and passive microwave data. The IR brightness temperature is derived from the SEVIRI instrument onboard the geostationary satellite Meteosat Second Generation (MSG) and the MVIRI instrument on board the first generation of Meteosat geostationary satellite. The passive microwave data comes from the SSMIS instrument onboard polar orbiting satellite DMSP-F16. The rain-rate retrievals from the MPE product are provided for each Meteosat image at the pixel resolution. As MPE is mostly suitable for deep convective precipitation, the focus of the current EUMETSAT product is mainly on users in Africa. The MPEs have been proven to be stable and reliable for real time precipitation applications. However it is not state-of-the-art anymore and some improvement of the product could be considered. Very recently, EUMETSAT implemented a new cloud algorithm for MSG instruments. This cloud algorithm is based on an optimal estimation method (OCA) that derives hourly, at pixel resolution, the cloud microphysical properties. EUMETSAT is currently testing a new rain-rate retrieval and rain-rate error estimates product, based on the KNMI Cloud Physical Properties (CPP) method that uses the cloud microphysical products from OCA product. This paper will present the existing MPE product and discuss the potential new rain-rate MSG product. Finally, a very preliminary validation attempt will be presented using CLOUDSAT data.

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