Error structure of MSG rainfall operational product in Italy

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The operational use of observation products of rainfall for forecasting/nowcasting purposes is nowadays widespread in several regions in the world. While the applications for such data are numerous (flood early warning systems, agriculture, urban flood, etc.) the dealing with the uncertainty of the data when they come from different sources is still an open question. In fact, due to the extreme spatial variability of the rainfall fields also when limited (but intense) rain events occur, even a quite dense ground raingauges network can be not sufficient to effectively describe the precipitation. Thus, there is the need to employ multi-sources observation systems by exploiting, when available, meteo-radar and satellite products that provide spatially continuous maps, without neglecting their limits. With specific reference to the satellite products, there are several issues about the accuracy of the reconstruction of the actual rainfall fields in terms of intensity, timing and even presence of rainfall. In this work the EUMETSAT operational rainfall product based on MSG (Meteosat Second Generation) is evaluated by comparison with the observed time series of the ground network of raingauges in the Italy territory. The focus of the comparison is to investigate on the properties of the MSG product error, in particular on how it varies with the spatial and temporal scales of aggregation, in different regions and different seasonal periods. The analysis was conducted on the whole Italian territory, in the period 2009-2013.