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Validation of a rapid update IR/MW satellite rainfall estimation procedure

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At the LaMMA laboratory, presently managed by CNR-IBIMET, a rapid update procedure for the estimation of rainfall fields from MSG data has been recently implemented. It is based on the Turk algorithm, in which the advantages of both IR and MW satellite data are exploited. The first version of the procedure used METEOSAT-7 IR data; a recent upgrade of the algorithm allows to work with MSG IR data. The version based on MSG data is actually operational at LaMMA, and produces rainfall maps every 15 minutes, covering the whole Euro-Mediterranean area. Such maps are available, in *near real time,* on the LaMMA web site.

Very recently even a wide portion of Africa, centred on the Sahel region, is processed by such procedure.

In parallel with the implementation efforts, a careful validation activity has been commenced, in order to assess the actual capabilities of the algorithm and its reliability. The work is aimed also at comprehending eventual deficiencies of the algorithm in specific situations and possible solutions to improve and balance its performances.

Some of the results of such validation process are presented here. They are obtained by comparing the rainfall estimates from both METEOSAT-7 and the MSG based implementations, with rainfall measurements made by the Tuscany region raingauges network. The use of Kriging technique is also explored, in order to better compare the gridded estimations from satellite observations, with the raingauges point measure-

ments.

The validation comparison of the two datasets is performed by means of pluviometric plots as well as by applying statistical techniques, in order to compute some skill scores extensively used in meteorological data evaluation.

The validation results are traced back to the underlying meteorological phenomenology, in order to find out the algorithm behaviour for different cloud system dynamics.

Some preliminary indications on possible procedure improvements are finally inferred from the described analyses.