



## **An evaluation of the interpolation errors in rainfall fields: a comparison with satellite-derived precipitation estimates**

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The availability of spatially-continuous rainfall fields is increasing in the last decade, due to the presence of a number of satellite-derived operational products, namely MSG H05 product, GPM, etc. On the opposite, the ground networks of sensors often can not reproduce in detail the spatial distribution of a precipitation field, especially in presence of small phenomena like convective events. This is due to the large spatial variability of the variable, the complexity of the patterns at various scales and the intermittence in space and time. At the aim of obtaining spatially continuous rainfall fields, for example to be used as input in hydrological numerical models, various interpolation methods are employed in literature (Inverse Distance Weight, Thiessen Polygons, Kriging, etc.). In this work the MSG-derived operational product of rainfall height H05 was employed as “ground-truth” in order to evaluate, in synthetic experiments, the error that comes from approximating a continuous rainfall field with interpolation of point observations. The experiment are carried on by assuming different methods of interpolation, different densities of the employed synthetic ground network and different temporal aggregation (hourly, daily, etc.). The spatial domain is the Italian territory, the data employed are extracted in the period 2009-2013. The results of the analysis are exposed and discussed in terms of different statistical indexes.