



An investigation on the scaling properties of the MSG-derived rainfall product

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In the last two decades, several studies were conducted on the downscaling of the available rainfall fields, especially from numerical weather simulations, in order to provide to the hydrological distributed models high-resolution data, for example for flood monitoring or forecasting purposes. The downscaling of this variable, both in time and space, is a complex task due to the extreme variability within the same region, to the different types of events (convective, frontal systems, etc.) and to the spatial and temporal intermittence. These analysis are generally based on the scaling properties of the precipitation fields, in time and space, and on multi-fractal processes that are applied in various manners. In this work the MSG-derived operational product of rainfall H05 was analysed in order to assess its scaling properties both in time and space in terms of statistical moments and probability distributions. The analysis was carried out in order to verify that the satellite estimate present such properties, with the possibility of applying downscaling procedures. The assessment was performed in areas characterized by different surface complexity (seas, land, complex orography, high elevation, etc.) in order to evaluate a mapping of the scaling properties in the period 2009-2013.