Parameterization of space-time precipitation extreme events model from TRMM rainfall estimates in a multifractal framework

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Previous work has shown that small-scale variability of rainfall, as well as its scaling structure, are correctly reflected in the departures of TRMM-PR rainfall estimates from their terrestrial counterparts. In this work, we therefore use TRMM-estimated singularity spectra of the rainfall field, in order to estimate the large-intensity limiting behaviour of space-time rainfall in a multifractal framework. We are using TRMM-PR surface rain-rate estimates from the years 2000 to 2004, over an area located at the Mexico-USA border, around 30N-100W. Results are also compared with earlier estimations from the smallest digital-videographically resolvable scales above drop size, which were obtained in a surface-bound experimental setting. The comparison allows an inference on scaling continuity between the respective ranges of scales.