

Interactive comment on “Rainfall nowcasting by at site stochastic model P.R.A.I.S.E.” by B. Sirangelo et al.

B. Sirangelo et al.

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We thank the referee for his comments on our paper. We consider the comments as very useful and below we provide the answers to the questions raised. Reply on the specific comments: 1. PRAISE forecasting is referred to instants successive to the current time; consequently, convergence towards mean of variable H appears of no interest in this context. Mean of H conditioned to the Z value appears more interesting. 2. As regards the hypothesis of weak (i.e. second order) stationarity, it is not possible, because of the present hourly rainfall sample size, to identify a suitable typology of non-stationarity and then to carry out a parameter estimation with small uncertainty. For this reason, we use a stationary model, and his application is referred to the rainfall data measured during the “rainy season” 1 October - 31 May; in this period correlation structure, mean and variance of the sample appear significantly homogeneous (see

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De Luca, D. L.: Metodi di previsione dei campi di pioggia. Tesi di Dottorato di Ricerca, Università della Calabria, Italy, 2005). Because of the present hourly rainfall sample size, it doesn't seem possible the use of a non-linear model. 3. In the revised paper we will modify the Introduction following his advices. 4. In the revised paper we will use only the term "rainfall heights". 5. Following the advice of the referee, we will cut down the description of the partial autocorrelation calculation (section 2.1) substituting it with reference. As regards the chosen threshold value ($=0.025$) for estimating the correlation length, it is evaluated by generation of time series using autoregressive models of order equal to the correlation length, and considering the 95 % confidence interval of the sample maximum absolute scattering (see eq. 3 at page 155). Nevertheless, using autoregressive models appears unsuitable for the rainfall feature, and it cannot be used as statistical test.

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