Hydrology and
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Discussions

Interactive comment on "Simulation of rainfall time-series from different climatic regions using the Direct Sampling technique" *by* F. Oriani et al.

Anonymous Referee #2

General comments:

The manuscript proposes the Direct Sampling (DS) technique to simulate daily rainfall data as an alternative to the parametric models. As this method resamples the data from the training image based on certain criteria, it cannot simulate values larger than the ones in the training image. Based on this one can say that this method is inferior to the other non-parametric methods such as Harrold et al. (2003b) and Mehrotra and Sharma (2007). Apart from this, the model adequately preserves the statistical characteristics of the historical data used in the simulation. The section on non-stationary simulation (Section 4.6) is not clear, confusing and not relevant to manuscript. I cannot understand why PACF was used to assess the correlation in the data. ACF should have been used in its place. The manuscript should be revised before it can be published in

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HESS.

Specific comments:

The word "global" appears at a number of places and I cannot understand what it really means. Please explain.

PACF is not relevant and there is no need to calculate the correlations for lags up to 10 or 20.

Technical corrections:

Page 3214, Line 13: Replace "exhaustively" with "well" or "satisfactorily" Page 3214, Line 23: Change "overtake" to "overcome" Page 3216, Lines 12-15: Sect 3 is missing. Sect 3 describes the application of the method. Page 3219, Line 17: Changed "informed" to "covered" Page 3219, Line 24: Change "respect" to "preserve" Page 3220, Line 5: Change "informed" to "selected" Page 3222, Line 5: Change "showing and extreme" to "showing an extreme" Page 3223, Line 4: Change "respect more strictly" to "preserve" Page 3223, Line 15: Change "showed" to "shown" Page 3224, Line 18: What is the statistics mentioned here? Page 3226, Line 16: Change "Another used validation criterion" to "Another validation criterion used " Page 3226, Line 17: Change "transformed in a" to "transformed into a" Page 3226, Line 19: Change "region" to "spell" Page 3227, Lines 1 -24: PACF is not appropriate here. ACF should be used to assess the correlation with the well-known confidence limits. Delete lines 15 – 24. Page 3228, Line 16: Insert "section" after "following" Page 3229, Line 8: What is meant by "border"? Do the authors mean the start and end of the time series. Page 3230, Lines 12-13: Not clear. Page 3230, Line 17: Change "respected" to "preserved" Page 3231, Lines 8-28: These can be deleted. There is no need to calculate the correlations up to 10 or 20 lags. Lag one correlation coefficient is adequate. Besides, the model only cater for lag one correlation by considering the sum of current and previous day rainfall (2MS) as a covariate. Page 3232, Line 1: What is the non-stationarity imposed? Page 3232, Line 7: What is meant by "global" statistic? This word has been used at

several places Page 3233, Line 21: Change "Goundwater" to "Groundwater"

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