

Interactive comment on “Hydrometeorological analysis and forecasting of a 3-day flash-flood-triggering desert rainstorm” by Yair Rinat et al.

Anonymous Referee #1

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General comments The paper presents a detailed hydrometeorological analysis of a flash flood that occurred in an arid area of Israel. The study also assesses the value of meteorological forecast for the early warning of such a devastating event. The paper is very well written and very clear. The study relies on an exceptionally rich data set including radar rainfall, post event survey estimation of peak discharge and a well-calibrated distributed hydrological model. The paper also capitalizes on previous work that characterized Intensity Duration Frequency of rainfall using a long archive of 5 min well calibrated radar rainfall fields. All the available information allows describing the spatio-temporal variability of the event and of the hydrological response. The paper interestingly shows that the return period of the flash flood can be much smaller from

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that of the rainfall, due to a low connectivity of generated runoff with the river course. The paper lacks a discussion section that could be useful to better highlight the interest of the present study as compared to the existing literature. I also have some minor comments that are detailed below. After addressing them and adding a discussion section the paper will be acceptable for publication in Natural Hazard and Earth System Science.

Specific comments 1/ Line 122: the paper refers to Table 1, but this table does not seem to be related to the sentence 2/ Line 143-145: The authors could mention the general methodology for post event survey proposed by Gaume and Borga (2008) 3/ Lines 190-194: the use of the bootstrap method is not clear: on which variable is the bootstrapping performed? 4/ Line 224: the authors mention that the video provided by the witnesses gives information on the spatial and temporal variability. I would say that it only gives information on the temporal variability as the witnesses are located at only one point. 5/ Line 262 The model resolution is ... 6/ Lines 273-274 and lines 320-321. The authors should refer to the work of Vincendon et al. (2011) that already proposed a method to move the location of intense cells from deterministic meteorological forecast. The method of Vincendon et al. (2011) is very close to the method proposed in the present paper. 7/ Table 1: The content of this table is not clear: does it include the estimated peak discharge from the post event survey? References: Gaume, E., Borga, M., 2008. Post-flood field investigations in upland catchments after major flash floods: proposal of a methodology and illustrations. Journal of Flood Risk Management, 1(4): 175-189. DOI:10.1111/j.1753-318X.2008.00023.x Vincendon, B., Ducrocq, V., Nuissier, O., Vie, B., 2011. Perturbation of convection-permitting NWP forecasts for flash-flood ensemble forecasting. Natural Hazards and Earth System Sciences, 11(5): 1529-1544.