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Interactive comment on "Integrated high-resolution dataset of high intensity Euro-Mediterranean flash floods" *by* William Amponsah et al.

Anonymous Referee #1

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The paper "Integrated high-resolution dataset of high intensity Euro-mediterranean flash floods" by Amponsah, W. et al. describes a dataset of high intensity flash-floods that occurred in Europe and the Mediterranean region from 1991 to 2015. The paper is quite interesting but I have some important concerns mainly regarding to the dataset itself and the structure of the paper. First of all, I consider that the title should be modified, as in the way it is written it seems that the dataset just contains events from the Mediterranean European region, while the dataset contains also data from the Continental Europe. Secondly, I guess that a dataset containing 49 events for a 25-years period (i.e. less than 2 floods/yr) might not been enough for publication, so author should consider extending it. Next, I am going to state all my comments in the

same order as they appear in the manuscript.

INTRODUCTION Lines 76-77: ""In the few cases.... major limitation". Is not that strange currently to have catchments of a relatively large size (i.e. 3000 km2) perfectly gauged, so authors should reconsider to modify that sentence. Lines 77-79: "For instance...discharge data". That happens (mainly) when the gauging stations have not been properly designed, but if they were built accordingly to the capacity and competence of the stream it should not happen. Lines 92-94: "The large uncertainty... (Amponsah et al., 2016)". This would be excellent but, if there is no data, how reliable could be a model which cannot be calibrated and validated? Lines 111-118. I guess that the structure of the paper must be changed, as I believe the current one is not appropriated. I would move the current section 4 to 3 and the other way around. Moreover, section 2 besides showing the criteria and the summary table, should include the description of the study areas showing their location, so Figure 1 should be here.

CRITERIA FOR THE EUROMEDFF DATABASE DEVELOPMENT Line 123: "digital terrain model... region/catchment". Which is their minimum quality? Lines 125-127: "Rainfall data... estimates)". I guess that a 60 min resolution is probably too high for the small catchments (i.e. less than 100 km2). Lines 129-130: "A unit peak discharge...flood event". A reference is needed here. Lines 131: "at least one measured flood peak". Could this peak be measured also post event? So, my concern is, how did you decide to measure it. In other words, how did you discriminate which flood events were worth to post-survey between all those for which you did not have measurements? Line 139: "The upper limit". Which is the lower limit too? Line 145: "The upper limit... up to 48 hours". I guess that value is rather too long; in micro-meso catchments a 48h continuous rainfall will not produce a flash flood, but a "regular" flood (no matter the magnitude). If that is the "official" definition of flash flood, we should re-define it... Line 147: "basin-averaged...1 mm/h). Why did you select that value? Please, reference it. Line 158: after "Slovenia", you should include a brief description of the study area including a map to show their location. Line 160: "Table 1". How is that table ordered?

Could you explain that or re-order, for example, for date or site? Please, include as well the magnitude of each flood event in the table. Line 162: "climatic region". This should be explained either here or before in the brief description of the study areas (including a figure indicating that could help too).

RAINFALL AND DISCHARGE ESTIMATION METHODS Section 3.1: in general, more details about how did you joined the radar and the gauged data are needed. Lines 181-183: "These floods have been kept...(4 km2)". I guess that is a really interesting point. Could you please try to extend the database by following that approach or criteria? It would be really interesting to include in the database some more floods and from some other locations. I am sure that would be possible and would make the study way more interesting and useful. Lines 187-188. "Discharge data ... through IPEC". How did you join such different methods and reliabilities? Did you calculate/analyze their errors? Did you make any kind of validation of the results? That is just to be sure that all the methods are measuring comparable things and are getting similar results. Line 203: " a wise choice". Not too humble...

THE EUROMEDEFF DATASET Section 4.1: Too repetitive, you do not need to introduce "readme" text file that many times, just at the very beginning. Line 221-222: "with a grid size...problems". I do not think that avoiding data storage problems can be an adequate reason for using grid sizes that coarse. Moreover, in the case of the smaller catchments (less than 1 km2) how representative can be a 90m cell size? Line 224-225: "DTM is... coordinate system". I guess that it would be much better to use the same coordinate system for all the catchments, for example WGS84. Please, apply that comment to all the places when you state that local country coordinate systems have been used. Line 223: "5 m grid". I guess that should be the better resolution for all catchments, no matter the size. Section Radar-rainfall data: adding the raw data could be also interesting. Line 229: "temporal resolution... 60 min or less)". i would recommend to use a unique a more detailed temporal resolution for all the catchments and events. In the case of not having the same resolution, use the most detailed Section

4.3. Flood hydrographs: which is their temporal resolution?

DISCUSSION Lines 271-282: please, move all that paragraph to section 2. Introduce and explain there the different climatic regions Lines 292-298. How similar are the results obtained for the different methods? Did you carry out any type of uncertainty analysis?

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