

## ***Interactive comment on “Estimating the flood frequency distribution at seasonal and annual time scale” by E. Baratti et al.***

### **Anonymous Referee #1**

Received and published: 24 August 2012

I found the paper to be well-written and the approach interesting; however, the significance of the topic and the new method presented in the manuscript needs further detail for publication in HESS. With respect to this issue, I have included specific comments below.

1) While the authors do cite other work related to the research on the flood frequency distribution at seasonal scales, further detail is needed about why most of the published literature has focused on the annual series. Why has the seasonal flood not been emphasized in the past? Is it because of record lengths, lack of appropriate methods, or has there not been a need for this analysis? For these reasons, the significance of the authors' contribution is unclear.

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2) It might be of value to demonstrate the importance of this new technique by showing the tradeoffs between traditional annual flood frequency analyses versus a seasonal analysis. What new insights are gained by using the seasonal analysis that would have been overlooked in only analyzing the annual peaks? This question lingers to the example – especially the comment on p. 7958, lines 10-12 – where the authors state that the seasonal distribution is similar to that of the annual. What then were the real gains in the additional seasonal analysis if the result is not much different? Under what seasonal conditions would this method be of value?

3) I do think the idea presented to express flood timing through directional statistics is quite novel and could have application for flood trend detection. Perhaps this idea might be worth cultivating and presenting further in this manuscript? Could this metric be used as a screening method for whether a seasonal analysis of flood peaks is needed? If the authors can provide additional detail about the significance of their work and its advantages over the traditional use of annual peak series, then I do think this manuscript is relevant to HESS and should be published.

Editorial comments:

Title: Pluralize “scale” p. 7950, line 24: Add “it” before the word “combines” and pluralize “allow” p. 7953, lines 1-3: This phrase, “presents in the second term at the right hand. . .” does not seem to fit with the rest of the sentence.

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