

Interactive comment on “Flood trends and variability in the Mekong river” by J. M. Delgado et al.

J. M. Delgado et al.

jdelgado@gfz-potsdam.de

Received and published: 23 January 2010

We thank the anonymous referee for her/his valuable comments and suggestions.

Reply to major comments:

1

We followed your suggestion and improved the methodology of parameter estimation in order to test each of the parameters individually by adding the parameters to the model on a forward selection. Instead of adding the two linear parameters at one step and checking the significance of the model, we now only added a second linear parameter if the first was statistically significant. Then, the significance of the second parameter was

C3176

estimated with regard to the previous model (chi-square with one degree of freedom) and to the stationary GEV model (chi-square with two degrees of freedom). If both tests are passed, we accept location and scale parameters as time variable, otherwise only the most statistically significant or none of the two parameters are considered.

We will nonetheless approximate the covariance matrix by bootstrap and derive the significance of each parameter by t-tests.

2

In fact, the explanation including variations in strength between EAM and IM in time was included in the first version of our paper. We then opted to remove it. Summarized, the EAM has an enhancement in variance to the end of the 20th century (starting in the 80s), coinciding with the one detected in Kratie, Pakse and Thakhek. The IM, on the other hand, suffers an enhancement in the variance during the 60s, then returning to lower levels of variance. When comparing GPCP precipitation over the basin with both Western North-Pacific Monsoon Index and Indian Monsoon Index, a spatial pattern arises, that shows a correlation of precipitation and WNPMI on the eastern and southeastern areas of the basin, but no correlation between IMI and precipitation.

We will definitely add on the discussion of this issue.

3

We agree with you that a moving variance could have been used in this case, provided that all the time window sizes were used that cover the periods of interest. We would like however to keep the wavelet, as it allows for reliable significance testing in both time and frequency domain, and describes, by definition, the variance of the time series. It is also a tool that we would like to keep exploring in our future work.

Reply to minor comments

We thank you for the minor comments. They will be very useful for improving the revised paper.

C3177

- Page 6702, lines 19-20. It is not clear what is meant by "covariates" here. Do you mean that both parameters are estimated simultaneously?

This was now changed, as explained in the reply to major comment 1.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 6, 6691, 2009.

C3178