

Interactive comment on “Annual flood sensitivities to El Niño Southern Oscillation at the global scale” by P. J. Ward et al.

Anonymous Referee #2

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The manuscript presents a global assessment of ENSO influence on river discharge, specifically annual maximum and annual median values. Discharge values are modeled, and deemed appropriate, based on prior studies. The manuscript is scientifically sound and well written. The following comments are all minor, not requiring additional analysis, but rather clarification for the Reviewer and perhaps minor changes to the manuscript.

1. Can the authors provide some justification for selecting the basin outlet cell to represent flood timing / quantity for the full basin (or sub-basin.) Physically it is logical, but how well does the WaterGap model perform on a gridded basis? Are the sub-basins relatively homogeneous from a gridded perspective?

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2. When the first batch of results are presented (e.g. correlations between SOI and Qmax), it is not clear which season (or 3 month period) for SOI is selected, first referenced on P 10237, Line 5. Is it DJF like the ensuing results section?

3. Little is mentioned about evaluating the skill in various 3 month periods. Was this performed, or was a single 3 month period selected for all evaluations?

4. On P 10242, last paragraph, the authors mention high sensitivity in Qmax to ENSO for arid regions. Could this also be a function of the low absolute values of discharge? For example, a doubling in discharge may not necessarily be surprising if mean discharge is relatively low.

5. Are 21 windows enough data points to confidently justify (or even evaluate) the strength of the ENSO relationship with Qmax? And enough to claim non-stationarity? There may also be other modulating factors happening concurrently that are less tied to ENSO (e.g. local features.) This may be worth mentioning at the least.

This is a nice overall contribution.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 10, 10231, 2013.

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