

Interactive comment on “Atmospheric circulation patterns associated to the variability of River Ammer floods: evidence from observed and proxy data” by N. Rimbu et al.

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Response Anonymous Referee #1

We are thankful for the reviewer constructive comments that helped us to improve and clarify the manuscript. Below there is point by point response to the reviewer comments.

General comment

The manuscript ‘Atmospheric circulation patterns associated to the variability of River Ammer floods: evidence from observed and proxy data’ is mainly focused on the large

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scale mid and upper tropospheric patterns associated with both observed and reconstructed flood events of River Ammer. The manuscript is well written and well structured. Results are clearly presented and discussed. Therefore, my only main comment is about the choice of using Z500 at the annual scale when flood events mainly occur from May to August. I think the authors should better clarify this choice and in case correct.

Response

The choice of annual resolution was motivated by two reasons:

1) The composite maps of daily fields should be based on daily maps corresponding to all flood events (daily discharge $> 125 \text{ m}^3/\text{s}$). However, the patterns based on May-August daily fields should be very similar with those presented in the paper because most of the flood events occur during this time interval.

2) The proxy flood record has annual resolution. Therefore, we used annual resolution atmospheric fields to identify the associated atmospheric circulation patterns. The composite maps based on annual data reflect all processes related to flood variability, not only those specific to May-August.

Comment

I would talk of ‘the Atlantic branch’ and ‘the African branch’ of the jet as in summer (where most of the flood events have occurred) the 200/250mb wind forms almost a ‘continuous’ system with local maxima.

Response

Indeed the upper level winds associated with flood events form almost a continuous system with two regional maxima in the Atlantic and African region respectively. Therefore we reformulate the sentence as follows:

“The composite map of 250hPa circulation associated daily River Ammer floods indi-

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cates a continuous high speed wind system with two regional maxima in the Atlantic and African region respectively (Fig. 3a). A pronounced convergence zone, which is indicative of descendent motions, is reflected between the exit region of the Atlantic branch and the entrance region of the African branch of the jet (Fig. 3a, dashed contour lines). "

We corrected all language errors mentioned by the referee.

Interactive comment on Clim. Past Discuss., 11, 4483, 2015.

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