Hydrology and Earth System Sciences Discussions

Hydrol. Earth Syst. Sci. Discuss., author comment AC3
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Reply to RC2

Günter Blöschl

Author comment on "Flood generation: process patterns from the raindrop to the ocean" by Günter Blöschl, Hydrol. Earth Syst. Sci. Discuss., https://doi.org/10.5194/hess-2022-2-AC3, 2022

I would like to thank RC2 for the kind assessment and the comments.

The July 2021 in Henan Province will be included in the introduction.

The connectivity at the continental scale would indeed profit from further clarification. The superposition of the polar and the subtropical jet stream over the Western Mediterranean, which often Vb cyclones, I would interpret as a „connection" of atmospheric process (Hofstätter et al., 2019). Another example are precipitation characteristics related to atmospheric rivers (Kim et al, 2021). I will add an explanation of the argument to the paper as follows: "It appears that connectivity is also important at the continental scale, e.g. through preferential pathways of flood-generating cyclones; in the particular case of Vb events through the connection of the eddy-driven polar jet stream and the subtropical jet stream over the Western Mediterranean; and through the role of teleconnections (e.g. as quantified by the Northern Atlantic Oscillation (NAO) and Arctic Oscillation (AO) indices in affecting flood-relevant cyclones (Hofstätter et al., 2019). Another example of connectivity in the atmosphere are atmospheric rivers (Kim et al, 2021)."

References

Hofstätter, M. and Blöschl G.: Vb cyclones synchronized with the Arctic-/North Atlantic Oscillation. *Journal of Geophysical Research: Atmospheres*, 124, pp. 3259-3278, 2019. https://doi.org/10.1029/2018JD029420

Kim, J., Moon, H., Guan, B., Waliser, D. E., Choi, J., Gu, T. Y., and Byun, Y. H. (2021). Precipitation characteristics related to atmospheric rivers in East Asia. *International Journal of Climatology*, *41*, E2244-E2257.