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Discussions

Interactive comment on "A climatological interpretation of precipitation-based δ^{18}O across Siberia and Central Asia" *by* Tao Wang et al.

Anonymous Referee #2

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The manuscript by Tao Wang et al. presents the correlation analysis between the GNIP data in Siberia and Central Asia and the circulation patterns. This analysis is very important for the understanding of the precipitation isotopic composition formation as well as for the atmospheric circulation modeling. However, there are two major critical points that should be improved before the paper can be accepted for the publication.

Firstly, the dataset chosen for the analysis is rather poor. The datasets from the Siberian stations (Table 1) contain less than 30 points which is not enough for the proper correlation analysis. Many stations provide data for less than five years which is also not enough for the analysis of the seasonal cycle. Moreover, the datasets from the GNIP were not quality-checked. For instance, in the study of Butzin et al. (2014) several stations and data points were excluded from the analysis because of their un-

realistic values.

Another point is the lack of new information in the study. Similar studies have already been conducted in Siberia and Central Asia. For example, Butzin et al. (2014) analyzed the GNIP data from the same monitoring sites combined with the ECHAM-wiso calculations and concluded that the precipitation isotopic composition depends mostly on the local temperature and on the NAO.

The paper is not well structured. The study region is not defined; the borders of Siberia and Central Asia assumed in the study are not described. The results from the previous studies in the region are not used (e.g. Ala-aho et al., 2018a, 2018b; Butzin et al., 2014; Opel et al., 2010). The description of the calculation methods is missing. How was the correlation calculated? How was the significance estimated? Finally, the English language should be improved by a native speaker.

To conclude, the paper at present can not be published in ESD. I would recommend the editor reject the manuscript.

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