

Interactive comment on “Multiproxy records of climate variability for Kamchatka for the past 400 years” by O. Solomina et al.

Anonymous Referee #3

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Quick comment on the manuscript by Solomina et al

This is an innovative effort to combine various proxy records to provide a more comprehensive history and discussion of the environmental signal in ice core and tree ring data from Kamchatka, a significantly under-reported region bordering the Pacific. It is the first attempt I know to estimate seasonal mass balances using ice core and tree-ring data.

The English needs a fair amount of work and more detail and precise documentation is needed in places. I have made many suggestions for improvement of the manuscript throughout the text and can send an annotated file. More information is needed about the climate records and signal strength of the tree-ring records used. There are a

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number of places where additional or revised diagrams are suggested e.g. where comparisons are made with solar forcing or the PDO and a summary histogram or other figure for the glacier record would be useful.

The major issues are as follows.

The BY chronology (Gostev et al.) was, I suspect an early collaborative project with the Lamont group and this should perhaps be more clearly specified. The comparisons with the new data indicate that it was a reasonably good regional estimate and it should possibly be included in the analysis in Table 1.

The authors should be careful throughout to identify that they are discussing relationships between glacier records and temperature and precipitation proxies- rather than directly measured variables or quantitative reconstructions. This is important as they do not actually present conventional reconstructions of these parameters which is surprising given that Gostev et al. did so with a much smaller data set.

The discussion of the glacier record and discussion section could be more clearly organized to identify the major inferred periods of positive balances and compare them with the known glacier history. Perhaps the authors could split the discussion clearly into the two periods based on the two diagrams with appropriate subheadings. It is difficult to read this discussion when it starts with Figure 5 and then goes back to figure 4. A moraine histogram might be useful here.

The discussion about solar forcing of the glacier record is based mainly on the interrelation of the tree-ring record and correlation with other glacier records. It would be better to introduce this when discussing the tree-ring record (e.g. indicate the solar minima on the diagram) so that readers may better judge this synchronicity

The description and attribution of the change in relationship between the TR record and ice melt prior to the 1860s is somewhat overplayed. Firstly the combined record prior to 1860 is short and secondly it is the earliest and most poorly dated period of the

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ice core.

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