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Climate of the Past Discussions

Interactive comment on "Eliminating the "divergence problem" at Alaska's northern treeline" *by* M. Wilmking and J. Singh

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The reviewers and editor had several points for the MS rejection. Here we just would like to highlight our answer to the main point, the circular reasoning in our selection of trees. Our research is ongoing on different other aspects of this MS:

Circular reasoning, e.g. using climate to select trees and then correlate the selected subset of trees with climate data (basically picking trees with consistent climate growth relationships)

We used this method here to show that the reasons for northern Alaskan chronologies to show a decrease in temperature sensitivity is mainly the result of some trees losing or changing temperature sensitivity. Here actually the vast majority of trees. Our goal was not to provide a new reconstruction (as stated in the MS). To eliminate the a priori

a posteriori problem for selecting trees (we acknowledge that this is a problem) we now ran a clustering procedures on two detrended ring width data sets (one traditional detrending, the other RCS) and thus organized the total sample of trees into two or three groups without using climate data. We THEN tested the stability of chronologies developed from these groups against climate data. The results show that RCS seems not to be best suited for this dataset before grouping (probably because the data set contains trees of very different growth pattern, which we divided in the MS with the help of climate data). However, the traditional detrending groups the trees in a very similar fashion as we show in the MS. One group shows a change in climate growth relationship, the other does not. That means that the growth trends of trees from these high latitude sites shows different pattern, and that these pattern are possibly a reflection of the climate growth relationships. The main question is of course WHY there are different growth pattern on very similar sites. We feel that one of the main clues for understanding the divergence effect or problem lies at this scale, the individual tree and its ecological setting.

Interactive comment on Clim. Past Discuss., 4, 741, 2008.