**Biogeosciences
Discussions**

Interactive
Comment

Interactive comment on "Factors promoting larch dominance in Eastern Siberia: fire versus growth performance and implications for carbon dynamics" *by* E.-D. Schulze et al.

E.-D. Schulze et al.

Detlef.Schulze@bgc-jena.mpg.de

dot 1) Given the low coverage of climate data and their low quality (e.g. maintenance and changes in instrumentation, EDSchulze did visit these stations) in this region, we decided to use longitude as a proxi for the climate gradient under study. Using climate data from the re-analysis does not alleviate the problem as the reliability of the interpolation depends strongly on the regional data coverage and data quality of the surrounding stations. We acknowledge that having better and more climate data would bring our study closer to the proposed mechanisms. As it stands, there is a trade-off between using a well-defined proxy versus relatively uncertain measurements. We

Full Screen / Esc

Printer-friendly Version

Interactive Discussion

Discussion Paper

decided for the first option.

dot 2) The calculation of a Nesterov index suffers from the same problem as mentioned above. In general terms: It is not the main purpose of the paper to identify the driver of changes in fire regime as we don't think that our data are sufficient to answer this question. Instead, our data allow us to assess the relative roles of growth performance versus fire history on the tree species composition of forest stands along the latitudinal gradient. As Fig. 7 clearly shows, the relation between precipitation (at least the data we have available) and fire regime is highly non-linear which suggests the existence of thresholds or additional processes in the climate-fire regime relationship. We agree that this topic is very interesting and important and should be pursued in future studies, preferentially side-by-side with appropriate process modeling. We like to point out, that Mollicone et al (as cited) showed that the majority of fire events is set by humans, which would require a fire model which includes human activities.

dot 3) We have not studied the Angara basin, but to our knowledge Scots Pine is growing in the Angara basin on podsolized quaternary sands. It has also spread by large-scale logging activities. Thus, there is mainly a pedological reason for the distribution of Scots Pine, which has a deep reaching tap toot. This contrasts Larix sibirica and its hypbrids which grows on nutrient rich soils and on permafrost. Thus, the separation of Scots Pine versus Larix is driven by soil type, logging, and permafrost.

Jena, February 28, 2012 EDSchulze

Full Screen / Esc

Printer-friendly Version

Interactive Discussion

Discussion Paper