

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.

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This is a very well written paper addressing an important biogeographical issue: why is larch dominant in East Siberia and can we uniquely identify whether fire or climate is the critical forcing. The authors try to answer this question by investigating growth and fire characteristics along a West to East transect in Middle Siberia, around the Yenisey. I think the approach is sound, and the authors convincingly show that fire regime is the key player in the establishment and maintenance of Larch populations.

Before this conclusion can be generalized there are however a few comments I wish to make.

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The figures are hard to read in print and there are quite a lot of them. I would suggest the authors to reconsider both the way of plotting and the number of graphs; are they really all needed to support the argument?

To be able to generalize the conclusion one would need to show that the fire regime east of the Yenisey ridge is substantially different from that to the west and supportive of the establishment of primarily larch. Is there any way the authors can reconstruct this from available data, or use (summer) precipitation as a proxy? If so, this would make a strong supportive statement of their hypothesis.

The study areas are close to the discontinuous permafrost zone. Further eastwards permafrost becomes more continuous and the climate colder. The authors appear to suggest that their results would hold there as well. In the discussion this is not really touched upon. While it relates to the comment above, again it would make it more clear whether their results apply to a small geographical area around the Yenisey ridge or whether they are more generally applicable.

Smaller comments.

Abstract. first line role rather than roles.

p35 | 10. While maybe tempting from a statistical point of view to use longitude only, I believe the strength of this paper is in unravelling the mechanisms that play a role, and thus would favour if the authors stick to precipitation and temperature. It makes the interpretation more straightforward and clear.

p 35 | 16 I miss the distance to the river in the correlation matrix. Why?

page 37. See my remark about the number of graphs. 5e is not needed, since it is not mentioned in the text.

page 39. The relation between precipitation and fire interval is important. Is this conjecture soft or can it be made more strong and general (see comment above).

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