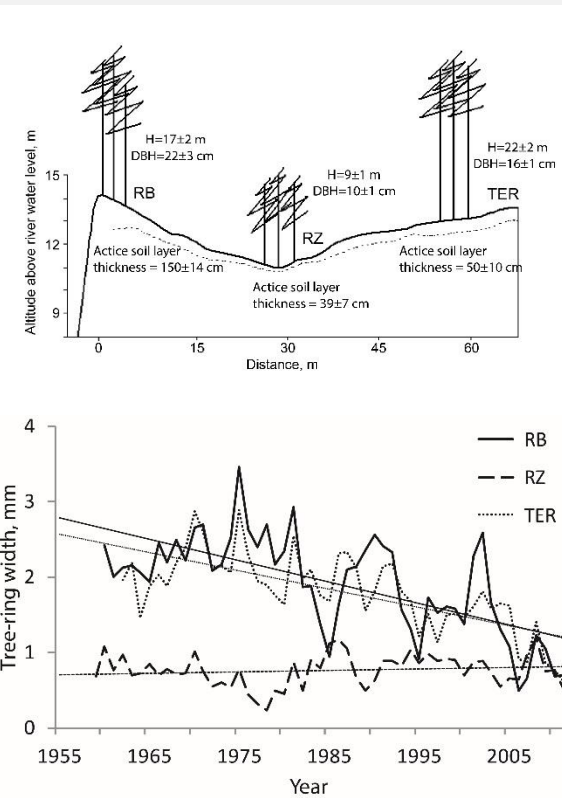


Does permafrost matter? Permafrost related studies of conifer tree-ring growth in northern Siberia

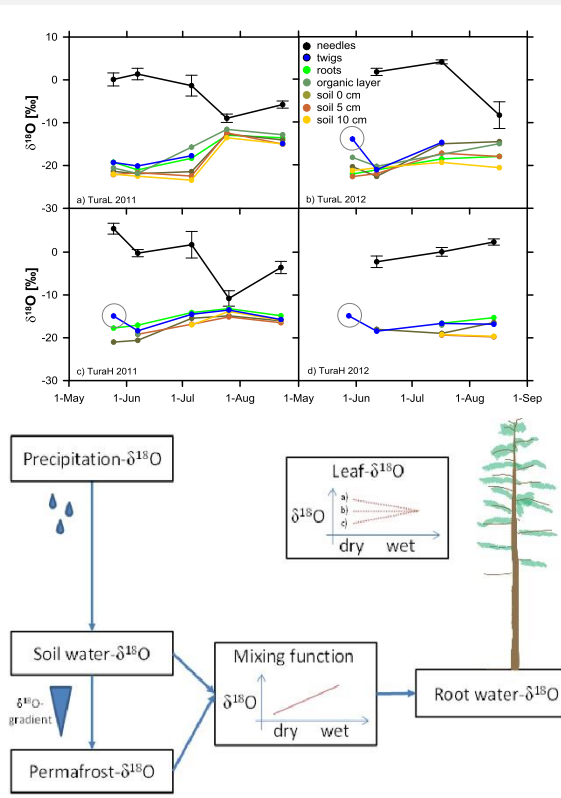
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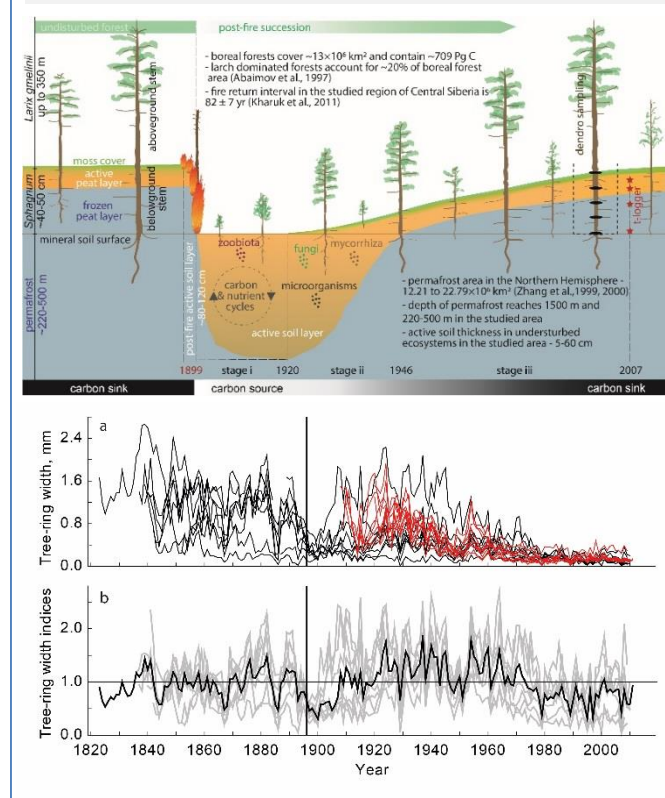
A field experiment with three close stands developed on soils with different active soil depth thickness testifies of the importance of soil temperature regime for tree growth



$\delta^{18}\text{O}$ of soil, roots, twigs and needles measured over two seasons demonstrate that permafrost may serve as water source for trees dampening the effect of drought



Post-wildfire dynamics of permafrost ecosystems shows a long-term impact of forest fires on seasonal tree growth and stand development via deeper seasonal permafrost thaw



Conclusions: Our study indicates that seasonal dynamics of the active soil layer and possible permafrost degradation must be taken into account when modelling tree growth variability and forest productivity

Further details may be found in:

- Kirilyanov A.V. et al. 2013. Tree-ring growth of Gmelin larch under contrasting local conditions in the north of Central Siberia. *Dendrochronologia* 31(2): 114-119. DOI: 10.1016/j.dendro.2012.10.003.
- Bryukhanova M.V. et al. 2015. The response of $\delta^{13}\text{C}$, $\delta^{18}\text{O}$ and cell anatomy of *Larix gmelinii* tree rings to differing soil active layer depths. *Dendrochronologia*, 34: 51-59, DOI: 10.1016/j.dendro.2015.05.002
- Saurer M. et al. 2016. The impact of an inverse climate-isotope relationship in soil water on the oxygen-isotope composition of *Larix gmelinii* in Siberia. *New Phytologist*, 209: 955–964. DOI: 10.1111/nph.13759
- Knorre A.A. et al. 2019. Tree ring-based reconstruction of the long-term influence of wildfires on permafrost active layer dynamics in Central Siberia. *Science of the Total Environment* 652: 314–319. DOI: 10.1016/j.scitotenv.2018.10.124.
- Kirilyanov A.V. et al. 2020. Long-term ecological consequences of forest fires in the continuous permafrost zone of Siberia. *Environ. Res. Lett.* 15, 034061. <https://doi.org/10.1088/1748-9326/ab7469>

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