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## Spatial structure of the 8200 cal yr BP event in northern Europe

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**Abstract.** A synthesis of well-dated high-resolution pollen records suggests a spatial structure in the 8200 cal yr BP event in northern Europe. The temperate, thermophilous tree taxa, especially *Corylus*, *Ulmus*, and *Alnus*, decline abruptly between 8300 and 8000 cal yr BP at most sites located south of 61° N, whereas there is no clear change in pollen values at the sites located in the North-European tree-line region. Pollen-based quantitative temperature reconstructions and several other, independent palaeoclimate proxies, such as lacustrine oxygen-isotope records, reflect the same pattern, with no detectable cooling in the sub-arctic region. The observed patterns challenge the general view of the wide-spread occurrence of the 8200 cal yr BP event in the North Atlantic region. An alternative explanation is that the cooling during the 8200 cal yr BP event took place mostly during the winter and spring, and the ecosystems in the south responded sensitively to the cooling during the onset of the growing season. In contrast, in the sub-arctic area, where the vegetation was still dormant and lakes ice-covered, the cold event is not reflected in pollen-based or lake-sediment-based records.

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