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**Title:** *Tree-ring growth variations of polar willow (*Salix polaris* Wahlenb.) within the alluvial fan of Dynamiskbekken (Ebbadalen, central Spitsbergen)*

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Global warming observed nowadays causes an increase in geomorphic activity in Polar regions. An alluvial fan in Ebbadalen has been selected to determine how these dynamic conditions affect growth of *Salix polaris*, and to trace geomorphic processes which might be reflected in wood anatomy.

Thirty dwarf shrubs were collected within an alluvial fan of a small creek Dynamisk. The whole shrub bodies were sampled within selected microforms differentiated by origin, age and stability.

Analyses of microsite diversity within the alluvial fan and their influence on age and annual tree-rings formation of polar willows were performed. Traditional dendrochronological methods were used, including measurements of average ring-widths. Observations of scars indicating mechanical stress were also conducted.

The analyses of the average ring-widths of *Salix polaris* individuals showed that most favourable conditions for shrub growth occur within stable parts of the Dynamisk fan, at its base. There the oldest individuals (ca. 30 years old) can be found. The youngest (i.e. 4 - 10 years old) and most affected by geomorphic processes individuals can be found close to the apex of the fan.