

## ABSTRACT

Ring - wight chronologies of Norway spruce (*Picea abies*) from the twelve sites in the Hrubý Jeseník Mountains have been developed to study radial growth variability and a response to interannual climate variation.

The sampled sites have been examined at three different elevations along the treeline ecotone according to the southwest and northeast aspect: in the closed-canopy forest at the lowest part of ecotone and in the tree groups at the lower and upper part of ecotone.

The results have shown that the radial increment on the south-facing slopes has been slightly larger in the closed-canopy forest, particularly with the oldest trees. There have not been any differences in increment between the southwest and northeast slopes in the tree groups. The period of growth depression was detected during the 1970s and the 1980s at all sampled sites. This decline was probably a result of the effect of the air pollution combined with decreasing temperatures. An increasing trend in tree growth since the 1990s corresponds with the increasing temperatures and increasing nitrogen inputs at the sampled site.

On each site, there has been a positive relationship between the current-year radial growth and the mean monthly temperatures in the growing season. In the individual months, there is a shift from the strongest correlations with the May – August temperatures in the closed-canopy forest to the correlations with the June – August temperatures in the tree groups. In the closed-canopy forest, the stronger correlations with the June and July temperatures at the southwest-facing sites have been found in comparison with the northeast-facing sites. The trees from the highest parts of the treeline ecotone have also shown a strong relationship with the January – March temperatures of the current year, especially those that are located at the northeast-facing slopes.