Abstract

Thesis focuses on the influence of climate on microscopic structure of anatomic features in juniper wood. Dendrochronology as a method reaches its limits in the Arctic regions. Insufficient network of meteorological stations providing sufficiently long series of climatical data is the reason of increasing interest in studying Arctic shrubs, which can occur even beyond the latitudal forrest line. Thirty-three discs from juniper shrubs were collected in Gangasdalen valley on the banks of Jarfjord fjord in the August 2014. The master chronology was developed from 26 cross-dated samples. Eight carefully chosen samples were used for microscopic measurement of wood anatomic features during the reliable period of the main chronology using WinCell Wood Cell Anatomy software. Lumen area, wall thickness, number of cells and tree ring (its part) width were measured for both whole ring, and for earlywod and latewood. It was found that ring width does not necessarily have the highest dependency on climate and therefore may not always be the best climatic proxy. The highest dependency reached the number of cells, which was generally positively correlated with summer temperatures. On the other hand, lumen area shows the lowest dependency on climate.