ABSTRACT

Presented thesis is focused on the development of Norway spruce (*Picea abies* (L.) Karst.) dendrochronologic standard for the high elevation zone of the Eastern Krkonoše Mts.. Samples were taken from individuals growing either in supramontane forest or in the treeline ecotone. Additional increment cores were sampled in old cottages and chalets. Various elements of roof constructions and timbering were the source of dendrochronologic material. Aim of the thesis was to develop long and reliable tree-ring chronology using standardisation techniques which retain also lower frequency climate variations.

Two standard tree-ring chronologies were developed – first using double detrending standardisation (DD, 1792-2006), second using regional curve standardisation (RCS, 1811-1970). Analyzed historic material significantly differs from tree-ring curves derived from standing trees, thus achieving the composite chronology was impossible. Cottage no. 9 in Svoboda nad Úpou is with its origin after AD 1711 outstanding among thirteen successfully dated historic buildings. Both RCS even DD chronologies retain lower frequency variations. DD chronology can be successfully used in events and some buildings dating. Response function analysis was made using monthly instrumental records from the Sněžka meteorological station. Growth of Norway spruce is more strongly related to mean summer temperature (June – August) than to other thermal and precipitation variables. More significantly correlating RCS chronology and more robust DD chronology were calibrated against that temperature record using simple scaling method. Resultant dendroclimatic reconstruction seems to be a good estimate of historical high elevation summer temperatures in the Eastern Krkonoše Mts..