

Abstract:

This master thesis is focused on the phenomenon of hydrological drought in the Šumava (Bohemian/Black Forest) region. Hydrological drought is defined on seven hydrological stations (Modrava (CZ), Rejštěj (CZ), Sušice (CZ), Zwiesel (DE), Teisnach (DE), Chamerau (DE), Kalteneck (DE)) during period 1931-1937 and 1949-2014. The aim is in finding suitable hydrological drought indexes and other methods and apply them on the data. Results are compared each other and also are compared with studies that were proceed in non-mountainous region. For hydrological drought evaluation the threshold concept and method according Gumbel 1963 were used and deficit volumes were calculated. Seasonality graphs and graphs for number of drought days in hydrological years were constructed, For trends defining, Mann-Kendall and Hirsch-Slack tests were used. Hydrological drought seasonality is different on German and Czech side, it means effect of exposition towards southwest winds. Hydrological drought is concentrated in autumn at German stations and in winter on Czech stations. Number of drought episodes decreases with decreasing elevation. There were found significant decreasing trends in drought episodes occurrence in time. Monthly trends aren't so clear. On Czech side there is significant decreasing trend in winter months, mainly in higher elevated catchments. At German profiles, significance in trends is different, and it is hard to find clues between stations. In the end, results are discussed with antecedent research.

Keywords: hydrological drought, hydrological drought indexes, seasonality, trends, Bohemian Forest