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## Changing low flow seasonality in Central European headwaters

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In the environment of the changing climate in Central Europe, the seasonality and magnitude of low flow events and hydrological droughts are projected to change in the near future. Ongoing increases in the air temperature, rates of evaporation and decreasing snow cover will significantly affect the summer deficit volumes even in the rivers of humid montane and highland areas in mid-latitudes. However, what if the significant changes have already been happening during the last decades? Therefore, this research is focused on analysis of the variability and seasonality of low flow events and hydrological drought events in fifteen near-natural catchments along the Czech–German and Czech–Polish national borders. To quantify the low flow regime changes of the study regions in the last 52 years (1968–2019), we applied tools from the R package *lfstat*. The 30-year moving averages of seasonality ratio (SR) and the seasonality index (SI) were derived to address the degree of change in each catchment. Moreover, the 7-day and 30-day mean summer minimum discharges were computed, as well as the streamflow deficit volumes for every episode of hydrological drought. The results showed a continual increase in the proportion of summer low flow and drought events during the study period along with a significant shift in the average date of low flow occurrence towards the beginning of the year. The most marked shifts in low flow seasonality were found mainly in catchments with the average altitude 800–1000 m a. s. l. Conversely, the low flow regime in catchments above 1000 m a. s. l. and also in the catchments below 800 m a. s. l. remained nearly stable throughout the 1968–2019 period. Moreover, the analysis of 7- and 30-day mean summer minimum discharges indicated a much-diversified pattern in the behavior of long-term trends than it was expected.