



## Statistical attribution of mid-term droughts in central Europe

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Occurrence and intensity of meteorological droughts are determined by a number of factors, both anthropogenic and natural. Besides the trend-like components, often attributable to local or global man-induced changes to the climate system, manifestations of internal climate oscillatory modes are also of great importance in establishing the hydrological regime. In this presentation, we focus on identification and quantification of factors responsible for central European drought variability at seasonal time scales. Using multivariable regression analysis applied to predictands reflecting various definitions of meteorological droughts (based on Standardized Precipitation Index, Standardized Precipitation Evapotranspiration Index and Palmer's Z-index, over the 1883-2010 period), components attributable to external and internal climate-forming agents are extracted and evaluated with regard to their statistical significance. Our results confirm presence of strong links of central European droughts to the anthropogenic radiative forcing and to the phase of the North Atlantic Oscillation, but also existence of connections to the climate oscillations originating from the Pacific area. In this context, we demonstrate that prominence of components related to the phase of the Pacific Decadal Oscillation generally surpasses that of El Niño – Southern Oscillation, although the related transfer mechanisms still remain unclear. Finally, it is shown that noteworthy deviations from linearity exist in some of the drought responses, particularly for the effects of the North Atlantic Oscillation.