

Atmospheric blocking and environmental extremes - past, present, future

Atmospheric blockings represent persistent and quasi-stationary flow patterns and play a crucial role for the occurrence and intensity of various types of weather extremes (cold waves, heat waves, storms, heavy precipitation) and related hydrological (droughts, floodings) and other environmental extremes (wildfires, coastal erosion). Although the characteristics of blockings, their dynamics, variability and relation to extreme events have been studied intensively, knowledge gaps still exist. These gaps cover uncertainty in observed trends of blockings, uncertainty in the future changes of blockings due to the limited ability of the models to represent the observed occurrence of blockings, but also gaps in understanding the complex blocking dynamics and the underlying mechanisms of the relations with the above-mentioned extreme events. Furthermore, the inference of blocking events from geological proxy records represents a major challenge. Such knowledge would provide the potential to study their occurrence and impact from seasonal to millennial time-scales.

Funded by the “Geo.X – Grow your Ideas” call we would like to invite Geo.X researchers for an one-day workshop on 20 October 2022 to develop ideas and possible future cooperations of different working groups regarding the theme of atmospheric blocking. Given the great importance for better understanding and predictions of extreme events for the society, the focus will be put on the interaction of atmospheric blockings with various types of extreme events and the underlying physical mechanisms on different spatial and temporal scales.