

Abstract

Title of M. Sc. Thesis: Atmospheric blocking and its relationship to the weather in the Czech Republic

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Atmospheric blocking is considered an event at which the high pressure interrupted zonal flow. Blocking is determined by the blocking index is used the absolute topography of level 500 hPa as a data source. Thesis evaluates the period from 1957 to 2002. The research subject is the relationship between atmospheric blocking in the Euro-Atlantic area and the weather in the Czech Republic. Correlation analysis between monthly mean air temperature in Prague-Klementinum and blocking has pronounced annual cycle. Negative correlation was found in winter, when a greater frequency of blocking leads to a lower mean air temperature. In other seasons, the relationship between air temperature and blocking is weak. Precipitation in the CR become significantly higher values in the presence of blocking in the vicinity of CR only in summer and autumn. Effect of blocking on the weather extremes are significant. Assessing of the impact of blocking was done by comparing the average frequency blocking and frequency in extreme events. In extremely warm winter months, there is rarely blocking. In contrast, the extremely cold winter months is more frequent of blocking. In the cases of strong winds (wind storms and squalls) usually does not blocking. Between extreme precipitation events, and blocking was detected stronger association.

Keywords: atmospheric blocking - meteorological extremes - teleconnection patterns - annual cycle