



On the direction of wave-breaking in atmospheric blocking

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Many different climatological studies on atmospheric blocking have been conducted. Most of these focused on longitudinal differences in blocking. In our study we focus on differences between blocking events occurring north and south of the storm tracks. The Pelly-Hoskins index, which searches for large-scale breaking Rossby waves on the 2 PVU surface, is used to detect blocking events in the ERA-Interim reanalysis data set. By detecting blocking events in a broad latitudinal band centered around the storm tracks, differences in blocking characteristics can be displayed as a function of their distance to the storm track. Blocking characteristics that are studied include: direction of breaking, lifetime and intensity. It is hypothesized that north of the storm tracks the Rossby waves break mainly cyclonic and south of the storm tracks mainly anti-cyclonic, due to the different background shear in wind. Results support the hypothesis. Regionally there are differences. Over eastern Atlantic and western Europe many anti-cyclonic breaking blocking events are found, while over eastern Asia till the western pacific the cyclonic breaking events dominate. At the traditional blocking regions over the Pacific and western Europe the anti-cyclonic blocking events are more intense. Over Asia the cyclonic blockings last longer.