Frequency of blocking anticyclones in the Northern Hemisphere

from RIHMI data: Interannual variability

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There are different data sets for blocking anticyclones obtained with the use of different methods of their detection (e.g. [1]). Here, the data for blocking anticyclones in the Northern Hemisphere from RIHMI-WDC (All-Russia Research Institute of Hydrometeorological Information - World Data Centre) are analyzed for the period 1949-2010 [2] (see also [3,4]). Carrying out the analysis, we used the data on the blocking anticyclones whose duration was not less than 5 days. Also anticyclones with their centers located southward of 35 N were not considered.

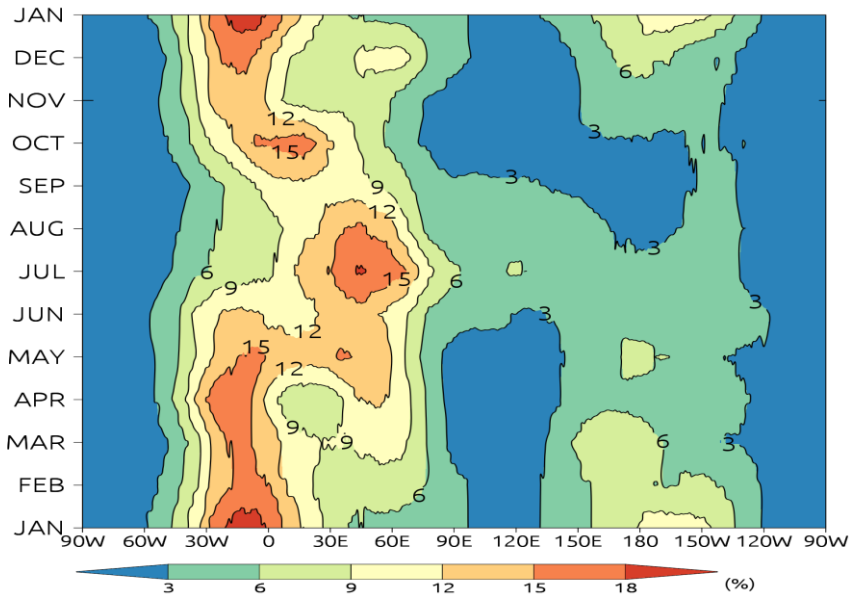

Fig. 1. Mean annual cycle of blocking frequency in the Northern Hemisphere.

The annual cycle of blocking frequency is presented in Fig. 1. Figure 1 shows larger frequency of blockings during winter in comparison with summer with a longitudinal shift of the frequency maximum in the annual cycle. So, in the Euro-Atlantic region from November to April the maximum frequency is observed within 0-35 W, while during the period from May to October it tends to shift eastward to 30-60 E. For the Pacific Ocean the maximum frequency region of blockings tends to shift in the opposite direction: during the winter period it is located eastward of 180, while in summer it shifts to the western part of the Pacific Ocean. The specified features of the blockings annual cycle generally correspond to those that have been obtained on the basis of other methods of the blocking anticyclones detection (e.g. [5]).

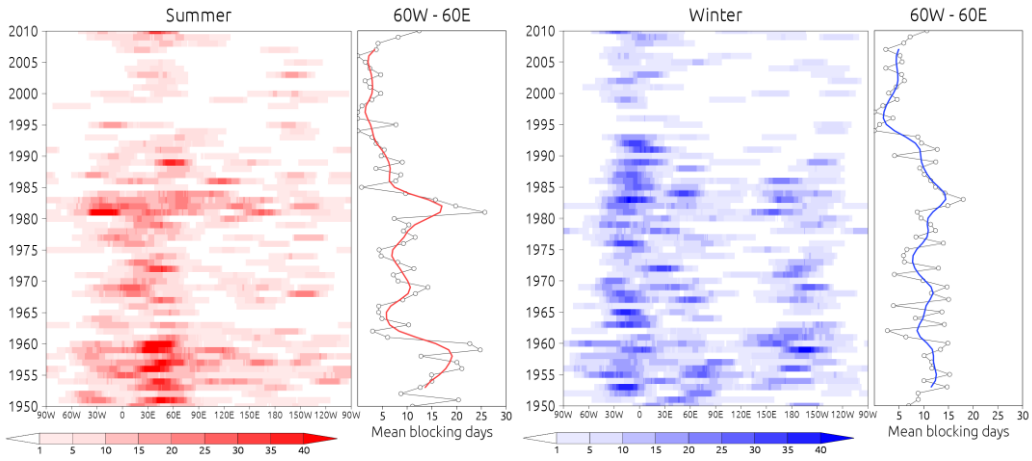

Fig. 2. Interannual variability of blocking days number in the Northern Hemisphere in summer and winter. Time series of the mean number of blocking days in Euro-Atlantic region (60W-60E) are also shown (10-years running means are shown with solid lines).

Interannual variations of blocking frequency in winter and summer are presented in Fig. 2. For the period of 1985-2005 the prominent negative trend of blocking days number is noted both in Euro-Atlantic and Pacific regions of the Northern Hemisphere in winter and in summer. At the same time, it is necessary to take into account the existence of nonlinear interdecadal variability of blocking days number.

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References

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