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Occurrences of quasi-stationary anticyclones in the Euro-Atlantic region

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The main objective of the present study is to describe the climatology of the stationary synoptic charts at surface and 500hPa height, and from developed algorithm for detection of stationary anticyclones. The catalog of stationary anticyclones for period from 1949 through 2007 was created from analysis of daily synoptic charts and contains information about time of persistence, localization, maximal pressure value in the center of anticyclones at surface and 500 hPa level. Statistical analysis was applied to the data from created catalog that allows to describe main spatial and temporal characteristics of quasi- stationary anticyclones. The significant trend toward decrease in stationary anticyclones frequency the Euro-Atlantic region was revealed. The minimum of event occurrences was observed at the end of 90-s, but starting from 2000 there is a tendency of increasing. The objective criterion to identify quasi- stationary anticyclones has been developed. The criterion is based on configuration of specific isohypse characterized upper frontal zone using grided reanalysis H-500 data. Temporal and spatial distribution of quasi-stationary anticyclones identified from the objective algorithm was compared against climatology of quasi-stationary anticyclones revealed from synoptic charts.

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