

## **Long-term variability of zonal tropospheric and stratospheric circulation in midlatitudes of the northern hemisphere**

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### **Abstract**

The dynamics of macrocirculation processes in the troposphere and stratosphere of the Northern Hemisphere was considered using daily Kats indices of zonal circulation calculated for 500, 300, 100, 30, and 10 hPa for latitudinal belts 70-50° and 50-35°N in the Atlantic-European, Asian, and American sectors during the 15-year period (1976-1990). Oscillation cycles with different periods varying from twenty days to nine years were determined by means of spectral analysis. A contingency of circulation processes in different latitudinal zones and sectors was estimated. A dependence of low-frequency variability of Kats indices on solar activity and phases of quasi-biennial cycle of the equatorial stratospheric circulation was found. A time lag (1-2 months) in response of the stratospheric circulation in the northern latitudes to the influence of the equatorial atmosphere was brought out. © 1998 by Allerton Press, Inc.

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