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WIND SPEED VARIABILITY IN THE TROPOSPHERE OF WESTERN SIBERIA

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The article examines the physical, geographical and climatic conditions of changes in wind speed over Western Siberia. The direction and speed of wind in the troposphere are the result of the influence of atmospheric circulation and regional characteristics of the territory. Variability trends vary in different directions in different regions of the globe. A change in the wind regime may indicate a change in the radiation balance, accompanied by a change in the pressure in the atmospheric column above the region under study. This paper presents long-term variability of tropospheric wind speed in Western Siberia. Data were analyzed at the ground surface and at standard isobaric surfaces of 850, 700, 500, and 300 *hPa* at four stations in Western Siberia (“Aleksandrovskoye”, “Barabinsk”, “Novosibirsk”, and “Kolpashevo”) for the period 1975–2020. The study showed that temporal variability is synchronous across all tropospheric layers and is due to variations in macrocirculation processes. All stations demonstrate a tendency toward decreasing wind speed at all levels. Moreover, in the Northern part of Western Siberia, the decrease in wind speed is statistically significant throughout the troposphere. In the Northern Region at altitudes of 850–700 *hPa*, wind speed decreased more than in the Southern territory. The correlation coefficients of wind speed at the ground and in the troposphere are high and statistically significant with a probability of at least 99% at three of the stations under consideration. The decrease in wind speed in the troposphere at Northern latitudes may be due to ongoing climate warming, particularly noticeable in the Northern Regions, which has resulted in a decrease in pressure gradients between the northern and central regions of Western Siberia. In the Southern part of Western Siberia, the decrease in wind speed is more pronounced near the surface. Such variability in wind speed may influence climate change in the study region.

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