

Detection of a climatological short break in the polar night jet in early winter and its relation to cooling over Siberia

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The polar night jet (PNJ) is a strong stratospheric westerly circumpolar wind in winter, and the strength of the climatological PNJ is widely recognized to increase from October through late December. We found the PNJ stops increasing temporarily during late November, when the upward propagation of Rossby waves from the troposphere increases. The upward propagation of Rossby waves, which is strongest over Siberia, is related to strengthening of the low pressure over Siberia. We suggest that longitudinally asymmetric forcing by land–sea heating contrasts caused by their different heat capacities might cause the strengthening of the low pressure.

Keywords: Stratosphere, Rossby wave, Land–sea heating contrast, Seasonal evolution

Deviation of WAFz100 (16 NOV-30 NOV)

