

QBO AND SOLAR INFLUENCES ON POLAR MIDDLE ATMOSPHERE DYNAMICS

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We present some observed effects of the equatorial QBO and the Sun on polar atmospheric dynamics. The analysis primarily uses data from mesospheric wind radars and ECMWF and NCEP reanalysis. The results demonstrate the importance of treating the atmosphere as a single connected system both vertically from the troposphere to the thermosphere, and horizontally from one pole to the other. Examples include the combined solar and QBO influence on (i) planetary wave propagation between the winter troposphere and summer polar mesosphere, (ii) the dynamics of the polar vortex in the Antarctic mesosphere, and (iii) the variability of major polar atmospheric modes.

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