



## **A MECHANISM FOR THE GENERATION OF THE TWO-DAY WAVE IN THE LOWER MESOSPHERE**

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The two-day wave is a major feature of the middle atmosphere dynamics. Still the generation mechanism of the two-day wave is not completely understood. Our aim is to show, that the coupling of barotropic and inertial instability is a generation mechanism for the equatorial two-day wave.

This study considers the solution of the instability problem with both, realistic and idealized basic state. For our instability calculations we solve the Laplace tidal equation, and we use a mechanistic longitudinal dependent model. We focus on unstable waves generated by mixed barotropic-inertial instability.

The properties of waves created by the mixed barotropic-inertial instability mechanism are investigated for zonal mean and for longitudinally varying basic state. Basic states were chosen from periods, when the two-day wave was observed. The results of our calculations were compared to the observations. The two-day wave is classified to a group of mesospheric modes, and by this related to other mesospheric wave observations.