

The propagation characteristics of short-period gravity waves and acoustic waves in the Martian atmosphere

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There are few observations and theoretical works about short-period waves in planetary atmospheres, because it is difficult to observe them. However, short-period waves suffer less damping by molecular diffusion than long-period waves, so they can propagate to higher altitudes. It is expected that upper atmospheres are affected by the dissipation of such waves.

Here we focus on the Martian atmosphere. In Martian atmosphere, airborne dust absorbs incoming sunlight and heats the atmosphere in short time scales. So short-period gravity waves and acoustic waves might be generated and propagate to high altitudes. Then we studied the propagation characteristics of such waves in the Martian atmosphere by using a non-hydrostatic, linear model which extends from the surface to thermospheric heights.

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