



## **Modeling and Observation of Gravity Waves in the Thermosphere-Ionosphere System**

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The lower atmosphere is the primary source of a broad spectrum of internal gravity waves. A significant portion of these waves survive wave filtering and dissipation processes in the lower and middle atmosphere, and thus reach the thermosphere-ionosphere system, where they appreciably contribute to the energy and momentum budget of the upper atmosphere [1]. This process manifests an important form of vertical coupling mechanism between the lower and the upper atmospheres. Here I present a review of observation and modeling of the impact of gravity waves of lower atmospheric origin on the the thermosphere-ionosphere system. Dependence of the gravity wave processes on the background atmosphere, wave dissipation, magnetic field configuration [2], minor [3] and major [4] sudden stratospheric warmings, and tidal activity [5] leads to a complex picture of gravity wave effects in the upper atmosphere. A whole atmosphere approach is required for a better understanding of gravity wave processes.

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