

## Gravity wave to the thermosphere

# Susumu Kato[1]

[1] Kyoto Univ

<http://www.sgepss.org/>

Gravity waves (GW) traveling upwards are found to contribute to the atmosphere dynamics in both lower- and upper-atmosphere. However, our understanding on GW has so far been limited to their linear behaviors. It is timely to study GW non-linear behaviors which become increasingly important with heights. In order that GW can reach the thermosphere they must survive saturation, breaking, instability and viscous dissipation in association with non-linearity. We try to discuss basic unknowns relative to these factors complicating GW for traveling to the upper atmosphere.

Besides non-linearity, we shall discuss traveling ionosphere disturbances (TID) which are produced by GW and, as a peculiar phenomena observed recently, seem to be mapped to the geomagnetically conjugate location.