# Numerical simulation of mesoscale gravity waves observed near the mesopause region

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Mesoscale gravity waves (GWs) are simulated using the specified chemistry whole atmosphere community climate model (SC-WACCM) at the 1/2-degree and/or 1/4-degree horizontal resolutions and at 0.6-km vertical resolution above the lower stratosphere. For comparison with GW images near the mesopause region observed by Day/Night Band (DNB) radiometer on the Suomi National Polar-orbiting Partnership (NPP) satellite (Miller et al. 2015), SC-WACCM is initialized at a specific date and time through dynamic initialization method. Observed atmospheric state variables from the ground to the lower thermosphere, required for dynamic initialization, are constructed employing various sources such as operational meteorological analyses and empirical wind and temperature model results. Modeled GW results allow for studying the sources of the observed GWs and GW's propagation properties throughout the middle atmosphere. At symposium, detailed results of mesoscale GW simulations and their validation will be presented.

Key words: Mesoscale gravity waves, SC-WACCM, DNB radiometer on Suomi NPP satellite

**References**

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