## Numerical experiment of breaking of convectively generated gravity waves and airglow disturbances

# Takeshi Horinouchi[1]

[1] RASC, Kyoto Univ.

Tropospheric cumulus convection, which is especially active in the tropics, excites upward propagating atmospheric gravity waves, and part of them reach the mesopause and further above. In order to study the whole processes from convective generation to breaking in the mesosphere and lower thermosphere region, we have conducted numerical experiments with a vertically extended meteorological mesoscale model, which includes cloud microphysics calculations. This talk will focus on the wave breaking and resultant airglow modulation. For this purpose, airglow emission of OI5577 is estimated from the simulations. Extensive analyses were conducted with a high resolution numerical experiment (dx=dy=0.5 km and dz=0.3 km), and a new mechanism that cause airglow modulation is proposed. Part of the study (with a lower resolution experiment) has been published as Horinouchi, T., T. Nakamura, and J. Kosaka, Geophys. Res. Lett., 29(21), 2007, doi:10.1029/2002GL016069, 2002.