# Modeling of Multi-Scale Gravity Wave, Instability, and Turbulence Dynamics:

# Implications for Measurements Throughout the Atmosphere

Dave Fritts[(1)] and Ling Wang[(1)]

(1) GATS Inc., 3360 Mitchell Lane, Boulder, CO 80301

Gravity waves (GWs) account for the major energy and momentum fluxes throughout the atmosphere because of their many sources and their large vertical group velocities at larger scales and higher frequencies. Superpositions of, and interaction among, GWs and larger-scale motions also account for much of the fine structure and energy and momentum deposition throughout the atmosphere. Modeling of these complex dynamics has yielded many insights into the dominant interactions, instability dynamics, and character and intermittency of turbulence in idealized and more complex flows.

This talk will highlight the major dynamics accompanying GW superpositions and their implications for measurements of multi-scale flow structure, instability forms, and turbulence statistics and intensities.