



Convectively-generated gravity wave spectra

J. Chagnon, S. Gray

University of Reading, UK

Convection is a source of high frequency gravity waves that propagate vertically into the stratosphere. The waves may subsequently break and induce turbulence above or near cloud top. The generation mechanism as well as the full spectrum of these waves is poorly resolved by mesoscale numerical weather prediction models. This study examines the spectrum of gravity waves above cloud top generated by convection in very high resolution simulations using the Met Office Unified Model. Simulations of convective events over the UK are performed at increasingly finer resolution in order to test the sensitivity of simulated waves to model configuration. The simulated wave spectra are then compared to observed wave spectra from the Mesosphere-Stratosphere-Troposphere (MST) wind profiler in Aberystwyth, Wales. A characteristic common among the observed and simulated spectra is the existence of multiple peaks that are demonstrated clearly by a wavelet transform. This talk will examine the possible causes for these multiple peaks.