

## **Vhf Radar Observed Characteristics of Convectively Generated Gravity Waves During Wet and Dry Spells of Indian Summer Monsoon**

*K.N. Uma<sup>1\*</sup>, Karanam Kishore Kumar<sup>1</sup> and T. Narayana Rao<sup>2</sup>*

*<sup>1</sup>Space Physics Laboratory, Vikram Sarabhai Space Centre, Trivandrum, India*

*<sup>2</sup>National Atmospheric Research Laboratory, Tirupati, India*

*\*e-mail : urmi\_nmrf@yahoo.co.in*

A powerful VHF radar observed characteristics of convectively generated gravity waves (CGW) excited during the wet and dry spells of Indian summer monsoon over a tropical station Gadanki (13.5°N, 79.2° E) are discussed. The characteristics of gravity waves in the lower stratosphere during these two spells are discussed in terms their wavelet spectra along with height-time sections of vertical velocities. In most of the cases, the lower stratospheric gravity wave amplitudes were found to be relatively more in dry spell compared to wet spell. The wavelet analysis of lower stratospheric vertical velocities showed a dominant periodicity of about ~20- 40 min in wet spell and ~15-20 min in dry spell. The analyses also showed clearly that wet spell is found to be more conducive for the generation of gravity waves. However, the propagation of these waves to the stratosphere is found to be more efficient during dry spell of monsoon. The strengthening/weakening of the tropical easterly jet during wet/dry spell of monsoon is found to be the main reason for the inhibited/enhanced wave activity in the lower stratosphere during wet/dry spell. The present analysis also suggests that the static stability of the mid and upper troposphere during dry and wet spell have implications in the observed frequency of the CGW. Thus, the present analyses brought out for the first time the features of CGW during two distinctive regimes of convective systems and emphasized the importance of prevailing background conditions in exciting them.