Atmospheric gravity waves (GWs) are known to play a key role in the general circulation of the lower and upper atmosphere. Excited primarily in the lower atmosphere these waves efficiently transfer energy and momentum to the upper atmosphere, changing the state of the atmosphere. Ground based MF radar observations of horizontal winds provide the most practicable wave of studying waves with reasonable temporal and spatial resolution. In this study, we summarize the recent MF radar measurements of wave velocity variances of high frequency gravity waves observed at equatorial latitudes. Using the satellite measurements of cloud top temperatures from outgoing long wave (OLR) and the convective rain rate from the TRMM precipitation radar (as a proxy for deep convection) we also investigate the role of the tropical convection on the GW variability in the upper atmosphere. Together, the satellite and radar observations will provide better understanding on wave sources, variability and propagation of gravity waves into the upper atmosphere.