



The interpretation of gravity wave parameters in GPS radio occultation data

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In order to know the lower bounds for detectable gravity waves signatures in GPS radio occultation data, a knowledge of the retrieval signal to different wave parameters is necessary, as well as the relative orientation between wave and sounding. Under the assumptions and simplifications of small departures from spherical symmetry, a dry atmosphere, an exponential decrease of atmospheric density with altitude, a uniform and constant background horizontal wind speed, a linear relationship between refractivity and density, hydrostatic equilibrium and the representation of the refractivity kernel by a delta, we derive analytical expressions in order to find the range of waves that may be detected. We look for the difference between "real" and detected amplitudes. We then find geometrical relations so as to appropriately interpret horizontal and vertical wavelengths extracted from the acquired data.