

Power spectral density distribution of micro-barometric variation around the transition region between acoustic mode and internal mode gravity waves

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The vertical acoustic resonance between ground and upper atmosphere having period around 200 –280 seconds has been observed during Earthquakes, volcanic eruptions, tornadoes, etc. (Kanamori and Mori, 1992; Iyemori et al., 2005; Saito et al., 2011; Nishioka et al., 2013) These periods are shorter than the Brunt-Väisälä period and close to the acoustic cutoff period. On the other hand, more slow variation around 10 minutes to 20 minutes are often observed during stormy weather, and they may belong to the internal gravity waves. In this paper, we show statistically the power spectral density distribution of micro-barometric variations near the transition region around 5 –10 minutes.

Keywords: Micro-barometric variation, acoustic gravity waves, internal gravity waves, power spectral density