

Theory on the energy of atmospheric Lamb waves: Proposal of Infrasound Magnitude

*Kensuke Nakajima¹

1. Department of Earth and Planetary Sciences, Faculty of Sciences, Kyushu University

Major tsunamis excite significant atmospheric Lamb waves, i.e. low frequency ground trapped atmospheric waves that propagate with acoustic wave speed, and their signals can be useful for the inversion of tsunami sources (e.g. Arai et al 2011; Mikumo et al 2008). Here I will discuss (i) the result of numerical experiments on the response of compressible atmosphere to the vertical motion of ground surface representing tsunamis, (ii) its theoretical interpretation, and (iii) propose "infrasound magnitude" that can be determined quickly using microbarometric waveform at a single observation point and useful for estimating the magnitude of tsunamis.

Keywords: tsunami, atmospheric lamb waves, infrasound, micro barometric observations