

2010年Chile大地震(Mw8.8)による地殻変動から発生した長周期大気重力波 Atmospheric Gravity Waves from the 2010 Maule, Chile earthquake (Mw8.8)

三雲 健^{1*}; 岩国 真紀子²; 新井 伸夫²
MIKUMO, Takeshi^{1*}; IWAKUNI, Makiko²; ARAI, Nobuo²

¹ 京都大学, ² 日本気象協会, ³ 日本気象協会
¹Kyoto University, ²Japan Weather Service, ³Japan Weather Service

Atmospheric pressure waves were recorded after the 2010 Maule, Chile earthquake (Mw=8.8) by microbarographs at seven International Monitoring System (IMS) stations in the distance range up to 7,680 km. By applying bandpass-filtering, we extracted low frequency gravity waves, removing atmospheric noise and higher-frequency acoustic modes, and then estimated their phase velocities around 332-341 m/s. To compare with these observations, we constructed synthetic waveforms, referring to the source dimension and coseismic vertical ground displacements based on geodetic measurements (Moreno et al., 2012), and incorporating a standard atmospheric sound velocity structure up to a height of 220 km. The comparison between the observed and synthetic waveforms provides generally satisfactory agreement, and suggests the time constant of ground displacements between 2 and 3 min in the northern and southern segments of the entire source region extending for about 500 km..

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