

## Atmospheric Gravity Waves from the 2010 Maule, Chile earthquake (Mw8.8)

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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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