

Temporal variation of acoustic resonance estimated from magnetic pulsations and barometric oscillations after earthquakes

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We have observed long lasting oscillations in geomagnetic field associated with the 2004 Sumatra earthquake ($M=9.3$) and in micro-barometric data associated with 2007 Mie earthquake ($M=5.4$). By taking power spectra of the oscillations, three peaks at known resonance frequencies appear. However, the relative power spectral density varies with time, and we traced their temporal variations. The results show that the first and second overtones appear firstly and the fundamental mode appears one hour later and has a maximum amplitude 3 hours after the origin time of the Sumatra earthquake. On the other hand, for the Mie earthquake, the fundamental mode appeared first. In both cases, the resonance lasted for 4 or 5 hours. We discuss these results taking into account other observations including aftershocks and theoretical expectations.