

Source Process of Very Long Period Seismic Events Observed at Mount Iwate, Japan (Abstract)

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We observed a lot of very long period (about 10 s) seismic events associated with volcanic activity of Mount Iwate in NE Japan for the period of April to August 1998. Results of moment tensor inversion show that mutual inflation and deflation motions at a depth of 2 km can well explain the observed waveform characteristics of the very long-period events. The source regions were located at a high V_p/V_s region (Tanaka *et al.*, 1999) which is on the way of a volcanic pressure source that migrated from the east to the west of the volcano (Ueki *et al.*, 1999). These results strongly suggest that the very long period seismic events are closely related to migration process of magmatic fluid beneath the volcano. On the basis of the basic equations of the one-dimensional compressible fluid motions, I numerically simulate magma migrations and oscillations between the two chambers connected by a narrow channel. The results show long-period inflation and deflation motions of the chambers which is consistent with the source mechanism of the very long-period events at Mount Iwate. The source model also enables us to quantitatively relate the volume of magmatic fluid associated with the very long period seismic events. The volume of magmatic fluid transferred from the east to the west for the period of April to August, 1998, is estimated to be 1.1×10^6 cubic meters from the observed seismic moments, which is one order smaller than the volume estimated from the GPS measurement by Ueki *et al.* (1998).