

*Crustal Deformation Associated with the 1998 Seismo-Volcanic Crisis of Iwate Volcano, Northeastern Japan, as Observed by a Dense GPS Network (Abstract)*

SATOSHI MIURA, S. UEKI, T. SATO, K. TACHIBANA and H. HAMAGUCHI

Graduate School of Science, Tohoku University, Aramaki-Aoba, Sendai 980-8578

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Mt. Iwate (2,038 m) is an active volcano located in northeastern Japan and having histories of magmatic eruptions in 1686 and 1732. Unrest of Iwate volcano started in September, 1995 with intermediate-depth tremor. The shallow seismicity in the west of the summit gradually became active in February, 1998, and reached a peak at the end of April. Increase in fumarolic activity was also reported during the same period. Associated with the seismo-volcanic crisis, notable crustal deformation was observed by our dense GPS network including 12 continuous-observation sites. From February to August, 1998, we observed significant deformations amounting to about 5 cm in horizontal components and 2 cm in vertical one. The pattern of the horizontal displacements is characterized by radial displacements pointing outward from the volcano. We tried to locate the source by an inversion method, assuming two kinds of source models; Mogi models and, a tensile faults. The comparison of AICs for the two kinds of model shows that the later is proper from February to April, while the former is plausible from May to August. The result shows that the source was located at about 4 km WSW of the summit and 5 km in depth in March, and it moved to a region about 10 km W of the summit and 3 km in depth in July. It is noteworthy that the pressure source is located near to the western end of the seismic area for each period. The synchronicity of the crustal deformation and seismic activity suggests that the both phenomena were caused by a movement of magma from depths beneath the summit to the western shallow part.