

Recent eruptions and unrest of Asama Volcano

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Mt. Asama is one of the most active volcanoes of the Japanese islands with recent eruptions in 2004, August 2008, and February 2009. Here we give an overview of the 2008 and 2009 eruptions and the associated phenomena.

Seismic activity of Asama has been low after the 2004 eruptions before starting to increase in early July, 2008, leading to minor eruptions in August 10 and 12, 2008. In particular, number of earthquakes at a depth of several hundred meters below sea level to the ~1 km west of the summit has significantly been increased since July, 2008, and the activity there persists at a high level until the time of writing (February, 2009). In addition, the seismic activity to the ~3 km west of the summit at a depth of about 1 km below sea level has reawakened in September, 2008, after a dormancy since late 2005, and continues until the time of writing. These observations indicate that the magma is fed from depth since July, 2008.

The ground deformation field observed at continuous GPS sites supports the hypothesis above. It shows that the extension to the west of the summit started around July, 2008, and more or less continuing until the time of writing. This suggests the dike intrusion to the west of the summit, as was observed during the 2004 eruptions. Note, however, that the magnitude of the extension is up to 15 mm, about a half of that in 2004. In addition, only a GPS site located at the eastern rim of the crater marks the eastward deformation reaching up to ~30 mm during the latter half of 2008, implying that a pressure source beneath the summit at 1500 meters or so above sea level. This pressure source is identified for the first time due to the installation of the GPS site at the summit.