

Eruptions of 2001 and recent volcanic activity at Ogasawara Iwo-jima

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At the Ogasawara Iwo-jima volcano, small phreatic eruptions took place twice in 2001. The first eruption occurred at the sea bottom near the southeastern coast (Okinahama) on September 21 with an increase of seismicity including significant activity preceding the eruption. On October 19 the second one occurred at the northwestern coast (Idogahama) without any significant seismic activity.

Iwo-jima belongs to the Izu-Ogasawara volcanic arc, and has been known as its high hydrothermal activity and extremely high uplift rate. About 20 phreatic eruptions has been historically recorded in the recent 100 years. The eruptive activity in 2001 followed the 1994 and 1999 small eruptive activities. The NIED has been monitoring seismicity since 1980. We report about the eruptions in 2001 and the recent volcanic activity in Iwo-jima.

In the period from 1995 to early 1997 the seismicity had stayed fairly high level and cracks were observed at Suribachiyama, which is located at the south end of the island. The seismicity became low in late 1997, but opening of the cracks at Suribachiyama continued, suggesting the continuous crustal deformation of Iwo-jima. In 1999 small phreatic explosion took place at Asodai-hole, which was the most active steam vent in Iwo-jima. After the phreatic explosion, the steam activity ceased there. In 2000 seismicity became active again, and in August 2001 the seismic activity became more active. Coincidentally, the GPS observation by GSI detected increase of crustal deformation rate. The first eruption followed the changes of seismicity and crustal deformation rate, which suggest subsurface magma migration beneath Iwo-jima. Video-images, and photographs taken by JDF and our field survey performed just after the second explosion confirm us that the both explosive activities were basically hydrothermal activity. However, the first eruption was possibly triggered by the subsurface magma migration.