

Progress and characteristic of ground deformation of Kuchinoerabujima volcano detected by GPS

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We have continued GPS observation at a site 250m NW of the Shindake crater of the Kuchinoerabujima since April 2004. Significant inflations of the ground around the crater were detected during the periods from January to June 2006, September to December 2006, and after September 2008. The horizontal displacements amounted to 2- 3 cm for each inflation event and the inflation continued for several months. The displacements were accumulated by the 3 inflation events and are characterized by plastic deformation. The rate of the inflation during the 2nd event was much larger than the 1st event and it is possible that fracture zone was newly formed beneath the crater at the second half of the 2nd event (Saito and Iguchi, 2007). The temporal change pattern of deformation of current event from last September is similar to the first half of the 2nd inflation; however, the location of the pressure source migrated to the fracture zone formed in the second half of the 2nd event.

After that, the inflation seems to have progressed on the northeast side, although the inflation was able to be explained by a pressure source at depths 200-400m (bsl) beneath the summit crater before 2006. Moreover, upheaval of northeast side preceded the inflations around the summit area in 2006 and 2008.