

## Precise Leveling Survey in Aso Caldera(September, 2012)

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In Aso volcano, leveling survey has been conducted since 1937 by Kyoto University. As a result of these surveys, subsidence in Kusasenri about 2km west-southwest of Naka-dake crater has been observed. And this subsidence was considered to be caused by a contraction source located at about 3km west of Naka-dake crater with a depth of 4 to 6 km (Sudo et al. 2006). A seismic tomography showed a low velocity zone of a 2 to 3 km diameter located at a depth of 6km in Kusasenri (Sudo and Kong, 2001), almost in accordance with the position of contraction source. Therefore, this low velocity zone is considered to correspond to a magma chamber.

We conducted a first-order leveling survey in Aso caldera in September 2012. From the obtained survey data, we calculated the relative height change of each bench mark referred to a bench mark (AVL-1) which is located at the northern foot of central cones of Aso volcano. The calculated relative heights were compared with those of the 1998, 2003, 2004 and 2008 surveys, resulting in the relative vertical displacement at each benchmark. The resultant displacements show ground subsidence with amount of 1.5cm in the Kusasenri area in the period of 2008-2012, which is almost 60% of 2004-2008 subsidence. Deflation of the magma chamber decelerated recently suggesting increase of magma supply rate to the chamber from a deeper portion.

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