

GPS observation of crustal movements in Aso Volcano

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In Aso volcano, leveling survey has been repeatedly performed since 1937 by Kyoto University. As the result, subsidence centering on a point about 2km west-southwest of Naka-dake crater is observed. And it is revealed that this subsidence was caused by contraction source located at about 3km west of Naka-dake crater (which is called as Kusasenri) with a depth of 4 to 6 km (Sudo et al. 2006). Moreover, a GPS campaign observation which was performed from 1999 to 2001 has detected shortening of 2-3 cm/year centering on Kusasenri. From the result of seismic tomography, it is shown that a low velocity zone of a 2 to 3 km diameter exists 6km below Kusasenri (Sudo and Kong, 2001), almost in accordance with the position of contraction source. Therefore, this low velocity zone is considered to correspond to magma chamber.

On the other hand, Murakami (2004) and GSI (2005) reported that the dilatation centering on Aso Caldera had occurred in 2003 and 2005 and that the deformation source of this dilatation was located at deeper portion than the above mentioned chamber.

In this study, we try to locate the source which caused the crustal deformation in 2005, using data of a dense GPS network which has been deployed in Aso Volcano since Dec. 2003.