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## Crustal deformation of Kirishima Volcano before eruptions in January 2011

Shigeru Nakao<sup>1\*</sup>, Yuichi Morita<sup>2</sup>, Kazuhiko Goto<sup>1</sup>, Hiroshi Yakiwara<sup>1</sup>, Shuichiro Hirano<sup>1</sup>, Hideki Ueda<sup>3</sup>, Tomofumi Kozono<sup>3</sup>, Jun Oikawa<sup>2</sup>

<sup>1</sup>GSSE, Kagoshima Univ, <sup>2</sup>ERI, Univ. of Tokyo, <sup>3</sup>NIED

Shimoedake in Kirishima Volcano began eruption activity on 26 January 2011. On 27 January blast eruption occurred after 52 years. Activity of Shinmoedake is kept high.

In 2007 three continuous GPS (CGPS) observation started around Kirishima Volcano and an additional CGPS started in October 2010. Joint GPS analysis with GEONET site is carried out and crustal deformation with volcanic activity was able to observe. We discuss source of volcanic activity.

Three CGPS, which is KVO, KRSP and YMNK started in March in 2007 and KKCD occupied in October 2010. KRMV and KRHV of NIED started CGPS observation in April, 2010. Bernese GPS Software Ver. 5.0 is used for GPS data analysis for our CGPS and GEONET sites. IGS precise and rapid ephemeris and earth rotation parameters are used, and troposphere delay parameters and gradient estimate every one hour and 24 hours, respectively. IGS2005 coordinate system is used.

Crustal deformation, 1 to 15 mm, in the period from October 7, 2010 to January 25, 2011 is detected. Source of this deformation is estimated about 4 km WNW from Karakunidake, whose depth and volume change are 9.7 km and 6.8 million cubic meter. Crustal deformation, 1 to 14 mm, in the period from January 25, to January 31, 2011 is detected, whose source is estimated also about 3- km WNW from karakunidake. Its depth and volume change are 6.9 km and 10 milion cubic meter.

Keywords: Kirishima Volcano, GPS, Crustal deformation