Temporal and spatial change in crustal movements after the 1995 Eruption of Mt. Hossho, Kyushu, Japan detected by JERS-1 D-InSAR

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D-InSAR processing of the L-band SAR (JERS-1 SAR, ALOS PALSAR) data is very effective to monitor crustal movements on the vegetated and steep terrains.

There are some reports on the D-InSAR crustal movement monitoring in the Kuju volcanic area where the eruption occurred at Mt. Hossho on October 1995 (e.g. Tomiyama et al., 2004). More detailed studies have been required on the relationship between the monitored deformation and geoscientific data observed, on the temporal and spatial changes of the crustal movements. Thus we carried out D-InSAR analysis for 28 scenes of the JERS-1 SAR (78-245) acquired in the period of September 1992 to September 1998. The analyses were performed based on the data of 20 September 1995 just before the eruption. The results showed remarkable deformation in the time when the distinct increase of volcanic gas (Saito et al., 2003). It is also detected that remarkable movement (uplift: just after the eruption, subsidence: after March 1996) around the eruption site occurred between October 1995 and the end of 1997. Another subsidence was detected in the Hatchobaru geothermal field near the eruption site after the autumn of 1996. Further discussion on the size of the deformed area will be done in the presentation after the atmospheric correction for the D-InSAR results.

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[References]

Saito E., S. Suto, K. Watanabe (2003), Kazan, 48, 275-282.

Shimada M. (1999), Adv. Space Res. 23, 8, 1477-1486.

Tomiyama N, K. Koike, M. Omura (2004), Adv. Space Res. 33, 3, 279-283.