Crustal Deformation of Earthquakes on New Guinea, Indonesia, Detected by ALOS/PALSAR

Shinobu Ando[1]; Hiroshi Ueno[2]; Naoki Hayashimoto[3]

[1] MRI; [2] SVD/JMA; [3] JMA

On January 3, 2009(UTC), two earthquakes of M7.6 and M7.4 hit the northwestern part of New Guinea Island, Indonesia. These earthquakes caused plural casualties and some damage. Also, tsunami were observed at the Pacific coast and Ogasawara Islands in Japan. According to USGS, CMT solutions of these earthquakes are the reverse fault with pressure axes in NE-SW.

L-band SAR (PALSAR), which is not affected by the vegetation, and the interference is good even in the mountainous area. Therefore InSAR method using this sensor is effective for the crustal deformation observation in tropical rain forest area such as Indonesia. We tried to detect crustal deformation of this earthquake, using InSAR of ALOS 'Daichi'. We used the data of Oct. 14, 2008 - Jan. 14, 2009 for Ascending orbit and Jul. 16, 2008 - Jan. 16, 2009 for Descending orbit. The interference processing in each pairs has good correlation and was effective for the detection of the crustal deformation. We were able to obtain an almost congruent interference result with CMT solution by USGS. However, we were not able to obtain the model that satisfied each interference result. Because the images were obtained ten days after of the main shock, the crustal deformation by afterslip may be including in the interference result. Moreover, we are going to try to analyze of the source rupture process with teleseismic body wave.