

Crustal Deformation and Fault Model of The Noto Hanto Earthquake in 2007

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GPS network of the Geographical Survey Institute detected coseismic deformation from the 2007 Noto peninsula earthquake on 25 March 2007 with a moment magnitude (M_w) of 6.9 and the maximum intensity of upper 6 on the Japanese scale. The result shows around 21 cm southwestward displacement and around 7 cm upheaval at Togi GPS site (Togi in the town of Shikamachi). At Anamizu GPS site (Oomachi in the town of Anamizu), around 12 cm northwestward movement and around 2 cm uplift occurred. The survey after the earthquake showed slight tilting of Togi and Notojima stations, so that the movements at Togi and Notojima are corrected by the observed tilting amount in this study.

From the observed crustal deformation, we estimated a rectangular fault model with uniform slip employing a linearized least squares method. The resulting fault model trends northeast-southwest with 21 km length and 14 km width. This fault model dips southeastward with a dip angle of 63 degrees. The upper depth of a rectangular fault is around 1 km and slip amount is estimated at around 1.7 m. These results indicate that the hanging wall in the southeast area moved up northwestward. The estimated moment magnitude from the model is around 6.7. It was confirmed that the locations of the estimated fault and aftershocks are consistent among them.

Reverse faults in the bottom of the sea and a fault which appeared in the inland area were also plotted in the same figure for a comparison.