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## Long-term afterslip after the 2008 Iwate-Miyagi Nairiku earthquake deduced from InSAR data

Yusaku Ohta<sup>1\*</sup>, Taku Ozawa<sup>2</sup>, Mako Ohzono<sup>1</sup>, Satoshi Miura<sup>1</sup>

<sup>1</sup>RCPEVE, Tohoku University, <sup>2</sup>NIED, Japan

We detected the anomalous long-term crustal deformation after the 2008 Iwate-Miyagi Nairiku earthquake (hereafter IMEQ) deduced from ALOS/PALSAR interferograms. This anomalous crustal deformation possibly caused by afterslip near the mainshock fault.

The 2008 Iwate-Miyagi Nairiku (inland) earthquake occurred beneath the border between the Iwate and Miyagi prefectures at northeastern Japan in 13 June 2008. Based on the long-term GPS time series (~1.5 years), Ohzono et al. (in revision) detected clear postseismic signal, which indicates wider-area crustal shortening between the focal area and the subsidence signal in the focal area. They conclude that this postseismic signal is caused by viscoelastic relaxation process in the lower crust and/or upper mantle, and constructed a simple spherical 2-layered (elastic and Maxwell viscoelastic layer) model. The viscoelastic model, however, could not explain the large GPS displacement near the focal area. In this study, we discuss the long-term crustal deformation after the IMEQ deduced from ALOS/PALSAR InSAR data.

We use SAR data from the JAXA ALOS satellite acquired between July 2008 and December 2010 to construct interferograms across the focal area that include 14 scenes. A single frame (2830) from descending (north to south) orbit path 57 was used. Several obtained interferograms show the LOS (Line of Sight) anomaly. For example, between July 2008 and June 2009 interferograms clearly show the increase in LOS in the footwall side of the mainshock fault. In contrast, LOS shortening appears in the hanging wall side, which is mainly concentrated in the northerly of Mt. Kurikoma. In contrast, there is no similar anomaly between July 2008 and October 2008 interferogram. It suggests that the anomalies may generate during October 2008 to June 2009. These LOS anomalies are possible to explain by a simple reverse fault model at a deeper portion of the mainshock as a first-order approximation.

### Acknowledgements

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