

SSS014-12

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チベット高原北西部で発生した干田地震(Mw7.1, 2008年3月20日)に伴う地殻変動の観測とモデリング

Observation and Modeling of the Yutian Earthquake (Mw7.1) on March 20, 2008 in NW Tibet

古屋 正人^{1*}, 安田貴俊¹

Masato Furuya^{1*}, Takatoshi Yasuda¹

¹北海道大学理学研究院

¹Hokkaido University

On 20 March 2008, an earthquake (Mw7.1) struck Yutian county, Xinjiang, China. Here we report our detection of the associated crustal deformation signals using ascending ALOS/PALSAR and descending Envisat/ASAR data, and its fault source model. Except for snow covered areas, PALSAR data covered almost the entire deformed area. PALSAR data show that maximum changes in radar line-of-sight (LOS) reached ~170 cm in extension, and its azimuth offset data revealed >100 cm changes. The earthquake rupture reached to the surface, and its strike direction changes in the middle of the fault. The earthquake source mechanism was, as a seismological study already suggested, of normal faulting, but the slipped areas were much smaller than the reported preliminary modeling derived from teleseismic data.

The west-dipping normal fault earthquake is the largest event ever recorded near the boundary between Tarim basin and Tibet. The inferred bended fault geometry as well as the absence of large thrust events in recorded history may suggest complicated fault distributions in the upper- to lower- crust.

キーワード:チベット高原,地震,正断層,合成開口レーダー,地殻変動

Keywords: Tibetan plateau, earthquake, normal fault, SAR, crustal deformation