



Interseismic Slip Rate of the Garze-Yushu Fault Belt in the Tibetan Plateau from C-band InSAR observations between 2003 and 2010

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On April 14, 2010, a Mw 6.9 earthquake occurred in the Garze-Yushu fault belt, located in the center of the Tibetan Plateau. The Garze-Yushu fault belt strikes northwest, and runs through Zhiduo, Dangjiang, Yushu, Dengke, Yulong, and Garze countries from NW to SE, with a length of about 500 km. Together with the Xianshuihe Fault belt, the Garze-Yushu fault belt forms the northern boundary of the Sichuan-Yunnan active tectonic block and the southern boundary of Bayankala active tectonic block, and dominates the tectonic activities and the recurrence of the characteristic earthquakes.

Previous geological studies have suggested that the Quaternary strike-slip rate of the Garze-Yushu fault belt ranges from 6 mm/yr to 14 mm/yr. The GPS velocity field (from 1999 to 2004) across the fault belt indicates that the decennial-scale strike-slip rate of the fault belt can be up to 10 mm/yr, which is consistent with the magnitude on the millennial-scale. We examine the ENVISAT ASAR data (Track: 276D; Time: from 2003 to 2010) covering the Yushu segment of the Garze-Yushu fault belt to measure the interseismic surface deformation field using InSAR time series technology. Our preliminary results suggested that the slip rate and locking depth are 6.04 ± 0.69 mm/yr and 15 km, respectively; our slip rate is slightly smaller than most of previous results, but meets the lower limit of the pre-existing estimations. Furthermore, we also estimate the slip property by combining the InSAR deformation field with the GPS velocity field (from 1999 to 2004) across the Yushu fault.