

**Some seismic and tectonic aspects
about the Ms8 Wenchuan earthquake, Sichuan, China**

XINGLIN LEI

Geological Survey of Japan, AIST, Japan (xinglin-lei@aist.go.jp)

The Ms 8 Wenchuan earthquake of 12 May 2008 at the northwestern margin of the Sichuan basin, China ranks as the largest event ever recorded by modern instrument in China. By 7, June, over 69,130 people were killed with 17,686 listed as missing. Approximately 15 million people lived in the significantly affected area and the earthquake left at least 4.8 million people homeless. It is the deadliest and strongest earthquake to hit China since the 1976 Tangshan earthquake. In this talk, we present several seismological and tectonic aspects about the Wenchuan earthquake including 1) a simple introduction to the Wenchuan earthquake, 2) the ongoing works organized by Chinese Earthquake Administration (CEA), 3) great earthquakes in the history and seismotectonic background of the surrounding regions and in the Longmen Mt. fault zone, 3) a preliminary results on fault model and stress transformation.

[Brief description of the seismotectonic setting of the Wenchuan earthquake]
The Wenchuan earthquake occurred as the result of motion on the Longmenshan fault - a northeast striking thrust fault. Tectonic stresses on the Longmen Mt. fault zone result from the convergence of crust from the high Tibetan Plateau, to the west, against the strong and stable crust block underlying the Sichuan Basin and the southeastern China. The Longmen Mt. fault zone contains three major faults: Guanxian-Anxian fault at the east, Yingxiu-Beichuan fault at the center, and Wenchuan-Maowen fault at the west. The fault zone can be roughly divided into three first-order segments: the southwest segment, the middle segment, and the north-east segment. These faults show NW dip with an angle poorly understudied. According to the ongoing systematic field researches organized by CEA, the major ruptured fault is middle segment of the Yingxiu-Beichuan fault, through there are also significant surface fractures along the Guanxian-Anxian fault. Inversions of seismographs by several different groups in the world show that the rupture initiated at the hypocenter at (E31.0, W103.4, H13km) with almost pure reverse slip, propagated unilaterally northeastward with increasing right-lateral strike slip component, and then extended or stepped over to the northeast segments. It is known that northeast segments of the Longmen Mt. fault zone are inactive during the Quaternary period.