

2008 Wenchuan earthquake: a landmark in China's history

November 6 2010

The devastating 2008 Wenchuan earthquake marks a defining moment for China's earthquake science program. The focus of a special November issue of the prestigious *Bulletin of the Seismological Society of America (BSSA)*, the M 7.9 earthquake has garnered intense interest among seismologists, allowing the Chinese science community to demonstrate its capability to a global audience.

The [earthquake](#) produced an enormous disaster, killing more than 80,000 people and leaving more than four million people homeless. Destruction was widespread, though recent new building codes in Wenchuan mitigated the damage.

The May 12, 2008 Wenchuan earthquake ruptured the Longmenshan margin of the eastern Tibetan Plateau, producing a 240-km-long surface rupture along the pre-existing Beichuan-Yingxiu fault and an additional 72-km-long surface rupture along the Guanxian-Jiangyou fault. The size and extent of the earthquake surprised many since the region was not considered a location with a high seismic hazard risk. Published in this special issue, research by Liu, et al., constrains the most recent comparable major earthquake at 1000 to 2000 years ago.

The special issue features 34 papers that primarily focus on strong-motion studies and surface-rupture studies. Other papers focus on aspects that relate to the earthquake, from structural geology to engineering aspects, including:

- Research by Deng, et al., suggests that the filling of the nearby Zipingpu reservoir did not trigger the Wenchuan earthquake, whose hypocenter depth was between 14 km and 19 km (8.5 to 11.5 miles). The authors determined that filling the reservoir could only result in an increase in the rate of shallow earthquakes with a hypocenter depth less than 5 km (3 miles) in the nearby region.
- Zhou, et al., document a setback, or no-build zone, for the post-Wenchuan quake reconstruction. In large earthquakes, severe damage to man-made structures constructed directly on surface rupture zones cannot be avoided even with the utilization of modern technology and engineering measures. The no-build zone delineates an area around an active fault to allow an appropriate level of safety.
- Earthquake prediction in China is a government-sanctioned and law-regulated activity, deeply rooted in the country's history. Authors Chen and Wang describe earthquake prediction in China in three stages: an enthusiastic explosion of [earthquake prediction](#) study during the Cultural Revolution (1966-1976), diminishing confidence since the Tangshan earthquake in 1976 and a definitive move toward policies to mitigate damage in the post-Wenchuan earthquake era. The most important lesson from this earthquake, write the authors, is growing acceptance among China's policymakers that it is presently impractical to rely on prediction to prevent earthquake disasters.

Provided by Seismological Society of America

Citation: 2008 Wenchuan earthquake: a landmark in China's history (2010, November 6)
retrieved 8 July 2024 from <https://phys.org/news/2010-11-wenchuan-earthquake-landmark-china-history.html>

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