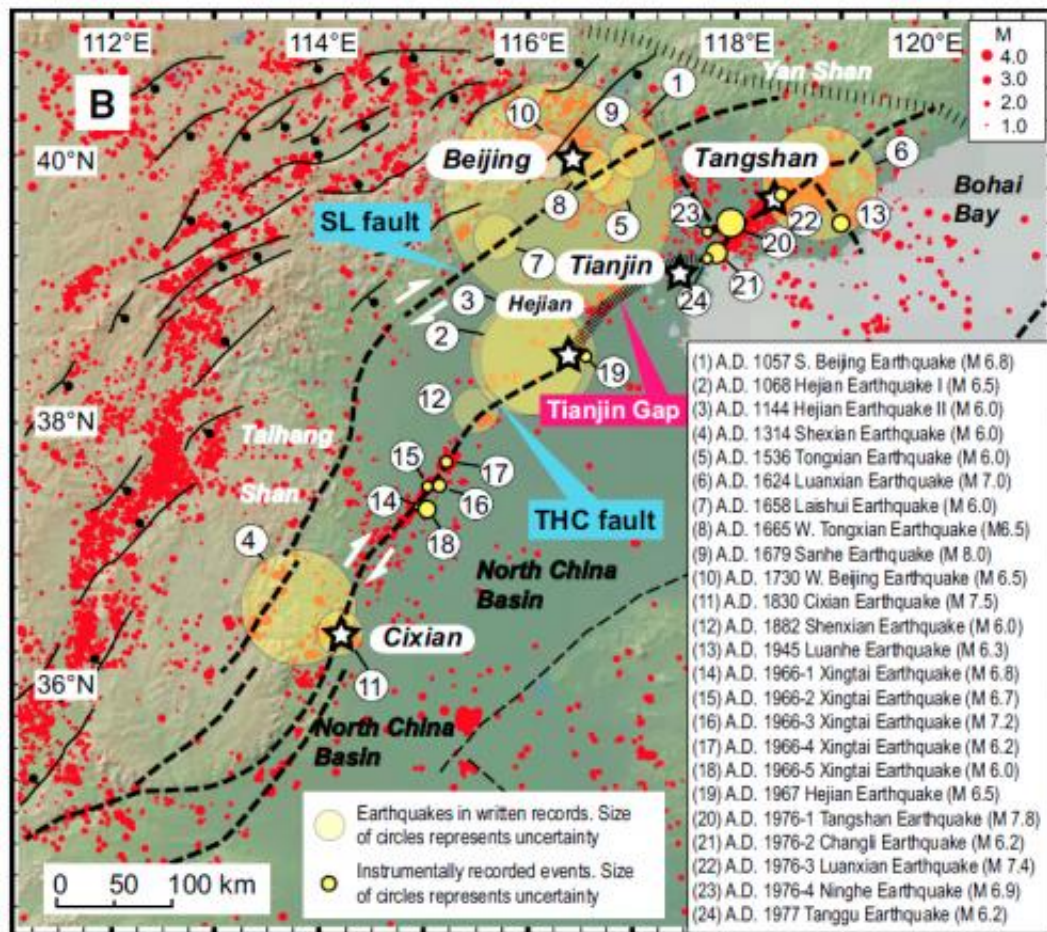


High earthquake danger in Tianjin, China

November 18 2014



Earthquakes greater than or equal to M6 from A.D. 1000 to the present in the North China Basin against a background of microseismicities between 2009 and 2013. Credit: An Yin et al. and Geology

With a population of 11 million and located about 100 km from Beijing (22 million people) and Tangshan (7 million people), Tianjin lies on top

of the Tangshan-Hejian-Cixian fault that has been the site of 15 devastating earthquakes in the past 1,000 years. An example of the disastrous events is the 1976 magnitude 7.6 Tangshan Earthquake, which killed a quarter million people.

To assess future seismic hazards along the fault, scientists from the University of California at Los Angeles (UCLA) and the Chinese Earthquake Administration (CEA) have reconstructed, for the first time, a spatial pattern of [major earthquakes](#) along the fault. Their reconstruction is based on (1) detailed analysis of the available instrumental records in the past few decades; (2) historical records in the past ~4,000 years; and (3) pre-historical records tracing back nearly 11,000 years.

A surprising finding from this work is the existence of a 160-km seismic gap centered at Tianjin, which has not been ruptured by any major [earthquake](#) for more than 8,400 years. As the average earthquake cycle is about 8,700 years, the authors suggest that the 160-km Tianjin fault segment, capable of generating a devastating earthquake similar to the 1976 Tangshan earthquake, may be the next to rupture.

More information: A possible seismic gap and high earthquake hazard in the North China Basin, An Yin et al., Structural Geology Group, China University of Geosciences (Beijing), Beijing 100083, China and Dept. of Earth, Planetary, and Space Sciences, University of California-Los Angeles, Los Angeles, California 90095-1567, USA. Published online ahead of print on 14 Nov. 2014; <http://dx.doi.org/10.1130/G35986.1>.

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