

Sichuan CHINA Earthquake

CATASTROPHE RESPONSE

May 12, 2008: Most destructive earthquake in China since 1976

On 12.05.08 a strong earthquake hit the eastern part of Sichuan Province in China at 2:28 PM local time. The USGS has confirmed that the earthquake had a moment magnitude (M_w) of 7.9. The epicenter was located 90 km WNW of Chengdu, the capital of Sichuan province, and 1,545 km SW of Beijing.

Numerous aftershocks with magnitudes larger than 5.0 have occurred, the largest of which was a magnitude 6.0 earthquake that occurred around 15 minutes after, and was located to the north-east of the main shock. According to the USGS website, the earthquake occurred as the result of motion on a northeast striking reverse fault or thrust fault on the northwestern margin of the Sichuan Basin. On a continental scale, the seismicity of central and eastern Asia is a result of northward convergence of the India plate against the Eurasia plate with a velocity estimated at 50mm/year. The convergence of the two plates is broadly accommodated by the uplift of the Asian highlands and by the motion of crustal material to the east away from the uplifted Tibetan Plateau.

Although the magnitude 7.5 Tangshan earthquake on 27.07.1976 in northeastern China was the most destructive in recent times, the northwestern margin of the Sichuan Basin has historically experienced strong earthquakes. A magnitude 7.5 earthquake on 25.08.1933, killed more than 6,800 people, and a magnitude 6.4 earthquake on 23.08.1976 killed 41 people (USGS).

Commercial catastrophe modeling companies have released initial estimates of losses: RMS estimated on 14.05.08 that the property losses resulting from this event will be between USD10-15 billion. This includes insured and non-insured damage to property structures and contents, and does not account for losses that may occur as a result of businesses interruption, or wider economic effects such as infrastructure damage. AIR estimated on 13.05.08 that the property losses resulting from this event will exceed USD 20 billion and that insured loss will be between USD 300 million and USD 1 billion.

On 15.05.08, Xinhua news agency reported that the rescue headquarters of the State Council said that more than 50,000 people were feared dead. Sichuan Vice Governor Li Chengyun said that the confirmed death toll in Sichuan alone was 19,509 by 4 p.m. the same day.

Est. Modified Mercalli Intensity	City	Population (Thousands)	Perceived Shaking	Potential Damage to vulnerable structure
VIII	Jiangyou	127,000	Severe	Heavy
VIII	Tianpeng	60,000	Severe	Heavy
VII	Deyang	152,000	Very Strong	Moderate/Heavy
VII	Linqiong	55,000	Very Strong	Moderate/Heavy
VII	Chengdu	3,950,000	Very Strong	Moderate/Heavy
VII	Mianyang	264,000	Very Strong	Moderate/Heavy
VII	Guangyuan	213,000	Very Strong	Moderate/Heavy
VI	Tongchuan	58,000	Strong	Moderate
V	Nanchong	7,150,000	Moderate	Light
V	Chongqing	3,967,000	Moderate	Light
V	Lanzhou	3,200,000	Moderate	Light

Source: USGS

Damage to property has been reported across a wide region. Significant damage has been encountered along the entire fault line, due to the nature of the earthquake. Five schools have collapsed in Deyang City. Two chemical factories have collapsed in Shifang City leaving hundreds buried and 80 tonnes of liquid ammonia leaking.

The government has reported that 3.5 million buildings in Sichuan Province have been damaged. Deaths and damage have been reported from; Wenchuan County, Mianyang City, Deyang City, Chengdu City and Guangyuan City. Damage and casualties have also been reported from the following regions: Gansu Province, Shaanxi Province, Chongqing Municipality, Henan Province, Yunnan Province and Hubei Province.

There has also been damage and disruption to transportation which has hampered rescue and relief operations. Disruption to communications has been considerable; the mobile network was largely shut-down immediately after the event, and power lines and water supplies have been disrupted. Roads and railways have been damaged and destroyed by the earthquake itself, and by consequent landslides.



Source: Xinhua



Source: BBC

Rains have worsened the landslide situation. Dave Petley, Wilson Professor at Durham University and a member of the Willis Research Network, UK, has highlighted the danger of landslides following the earthquake: "the occurrence of landslides increases dramatically after large earthquakes, especially in the rainy season (May to September)... The implications for the earthquake affected areas are very clear - assuming that the rains do occur as per usual (and there is no reason to believe that they will not), landslides are going to be a very serious problem in the coming months". The key road linking Dujiangyan to Wenchuan was blocked by rock and mud slides, holding up rescue, medical and other disaster relief teams.

According to analysts in China, property claims in the area will be moderate, while life claims will be relatively higher. In China, life, health and accident insurance generally cover earthquake risk, however the affected area generally has very low insurance coverage. Most Chinese insurance companies have been very cautious about offering earthquake coverage. For residential property, earthquake cover is not included, whilst Commercial and Industrial property has "add-on" coverage for earthquake. Consequently the loss to property insurance is not expected to be high. Non-life insurance penetration in China in 2007 was 0.72% whilst property insurance penetration in 2005 was 0.09% (AXCO)

The earthquake had an immediate effect on the financial markets. The Shanghai Stock Exchange suspended trading in 45 companies and the Shenzhen exchange suspended 21, most of them based in Sichuan province. As a result, on 13.05.08, the benchmark Shanghai Composite Index fell 1.8 percent to 3,560.24, after dropping as much as 3.3 percent in early trading. Thirty-four companies from Sichuan and the adjacent municipality of Chongqing resumed trading on 14.05.08 and mainland share prices closed above prices prior to the event.

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Sources: USGS, Willis Research Network, AXCO, RMS, AIR, Xinhua, BBC, IIC, Chinadaily

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