Geophysical Research Abstracts, Vol. 7, 06154, 2005
SRef-ID: 1607-7962/gra/EGU05-A-06154

Seismic strengthening in southwest China striggered by Sumatra, Indonesia earthquake

Yongxian Zhang(1), Yongjia Wu(2)

(1) Earthquake Prediction Department, China Earthquake Network Center, Beijing, China, (2) Graduate Department, Institute of China Earthquake Science, Beijing, China (zhang.yongxian@263.net /Fax: +86-10-68218604)

According to the China Digital Seismic Network, a giant earthquake M8.7 occurred in Sumatra, Indonesia at 8:58 on Dec.26, 2004. The magnitude of this quake is M9.0 according to USGS. It's the largest earthquake in recent 40 years and cause a deadly tsunami which killed more than 220,000 deaths.

Nearly 20 minutes after this quake, a significant swarm of M4.6 occurred in Yunnan, southwest of China, which is about 2,600km from the epicenter of Sumatra earthquake. Nearly 7 hours later, another M5.0 earthquake attacked Yunnan, China, which is about 2,500km from the epicenter of Sumatra earthquake. During the next 10 days After the Sumatra earthquake, 8 swarms were recorded in Southwest China, and the response region looks like an ellipse with long axis of about 650km and short axis of about 360km. More than 1,500 quakes were recorded during the ten days, which is to say 150 quakes meanly per day. According to the local seismic network in Yunnan, China, there are about 15 earthquakes in this region every day during the period from Dec.1 to Dec.25, and there are about 10 swarms every year. Obviously, the 8 swarms with about 1500 earthquakes during the ten days after the Sumatra earthquake were directly striggered by it.

Why the seismicity of southwest China was striggered by the giant Sumatra earthquake 2,600km away? Tectonic map shows that the Sumatra earthquake and the swarms in southwest China are all located near the boundary of India Plate. The swarms might related to the redistribution of stress along the India Plate boundary after the Sumatra earthquake.