Migration of Early Aftershocks Following the 2008 Mw 7.9 Wenchuan Earthquake

Xinzhong Yin, Jiuhui Chen, Biao Guo, Qiyuan Liu, and Shuncheng Li
Institute of Geology, China Earthquake Administration, Beijing, China (yinxinzhong@ies.ac.cn)

The 12 May 2008 Mw7.9 Wenchuan earthquake occurred on the Longmen Shan fault zone, the eastern margin of the Tibetan Plateau, in Sichuan Province, China, causing a death toll of up to ~80000 and producing enormous economic losses. The temporary Western Sichuan Seismic Array (297 broadband stations; 10–30 km spacing; operational from 2006–2009) covered the central and southern part of the Longmen Shan fault zone, especially the epicentral region of the 2008 Wenchuan earthquake. We use the double-difference relocation and the waveform matched-filter technique to analysis the migration of early aftershocks following the main shock. Our preliminary results can be summarized as follows: 1) our result supported the high-angle listric reverse faulting model; 2) along the strike direction of the Longmen Shan fault, the early aftershocks rapidly evolved with the characteristics of clear spatial and temporal segmentation and inhomogeneous; 3) the aftershocks in the first several hours mostly occurred on or near the Yingxiu-Beichuan and Guanxian-Jiangyou fault interface that ruptured during the main shock.