Simulation of spontaneous rupture of Ludian earthquake

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Ludian M6.5 earthquake is a moderate earthquake occured in the latest seismic active period around Bayan Har block and its adjacent areas located southwest of China. The focal mechanism shows this earthquake is a high dip sinistral strike earthquake. Zhang Yong et al. used the seismic waveform data to retrieve the rupture process of the Ludian earthquake. The inversion results show that the Ludian earthquake is a conjugate rupture earthquake event, However The geological Survey after earthquake showed that the seismogenic fault is BaguNao - xiaohe fault, The precise location of aftershocks also support this result. Therefore, this study aim to simulate the process of spontaneous rupture of Ludian earthquake in the BaoguNao - xiaohe fault, to explore the influencing factors of Ludian earthquake rupture. The results show that the focal mechanism of Ludian earthquake is mainly affected by the background stress field. Distribution of fault slip is affected by fault geometry structure, stress field. Non planar complex fault geometry structure causes the complex sliding displacement distribution of Ludian earthquake.

Keywords: Ludian earthquake; , simulation of spontaneous rupture; , curve finite difference method.

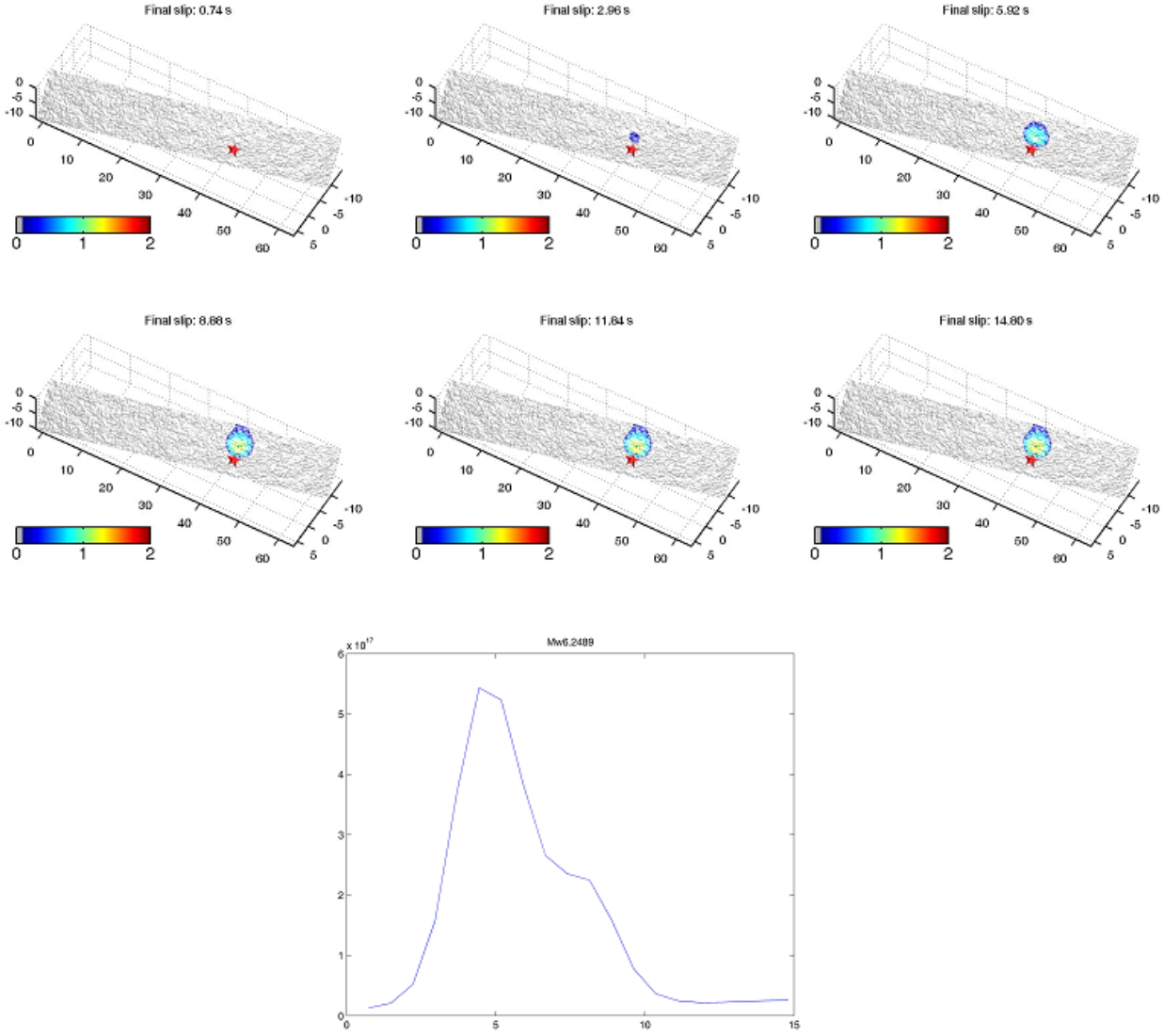

Fig The Slip snapshot and source time function of Ludian earthquake

