



1 How the 1999 Chi-Chi Earthquake terminated at southern end?

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The 1999 Chi-Chi earthquake, M_w 7.6, caused by the activation of the low angle Chelungpu fault with near 100-km surface rupture. According to the focal mechanism and seismicity of earthquakes, Kao and Chen considered that at southern end of the Chi-Chi earthquake was bound by a NW trending lateral ramp; but the other model considers that the SW trending fault was the ending fault of the Chi-Chi earthquake. The controversial models indicate we still have no good answer for how the Chi-Chi earthquake terminated at southern boundary.

Combing the coseismic GPS data, surface deformation and seismicity distribution, the southern end of the Chi-Chi earthquake can be separated into three blocks (Block A, B and C), which are bounded by the N-S strike Chelungpu fault, SW strike Tachien-shan-Meishan fault (T-M fault) and NW strike Luliao fault. The Luliao fault coincides with the NW seismicity. Although all the rupturing process are limited in tens seconds, the deformation of southern end of the Chi-Chi earthquake can be separated into two stages. The first stage, the thrust block of the Chi-Chi earthquake (including Block B and C) was slipped to southwest with developing the T-M fault. The second stage, The Luliao fault (or NW seismicity) was active and acted as a lateral ramp and separated the thrust block into Block B and C and only Block B was slipped to northwest during the second stages.