

2005年11月26日九江—瑞昌 M_s 5.7、 M_s 4.8地震的震源机制解与发震构造研究

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摘要 利用来源于江西区域台网和中国地震台网共6个台的宽频带数字地震记录, 采用CAP方法反演了2005年11月26日九江—瑞昌5.7级地震和4.8级强余震的震源机制解, 并结合地震序列的精确定位结果和区域地质背景讨论了发震构造. 结果显示, 5.7级主震的最佳双力偶解为节面 I 走向 223° , 倾角 75° , 滑动角 144° ; 节面 II 走向 324° , 倾角 55° , 滑动角 18° . 4.8级强余震的最佳双力偶解为节面 I 走向 54° , 倾角 71° , 滑动角 -160° ; 节面 II 走向 317° , 倾角 71° , 滑动角 -20° , 这两次地震的震源机制解不完全一致. 地震序列在震中空间分布和震源深度分布上也具有复杂性. 5.7级主震发生后, 余震活动从SE向NW、从浅部往深部发展, 在破裂过程中可能遇到障碍物, 触发了4.8级强余震. 5.7级主震的发震构造可能为隐伏在瑞昌盆地内的洋鸡山—武山—通江岭NW向断裂, 4.8级强余震的发震构造可能为瑞昌盆地西北缘的丁家山—桂林桥—武宁NE向断裂北段.

关键词 [九江—瑞昌地震](#), [震源机制解](#), [地震构造](#), [CAP方法](#)

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Focal mechanisms and seismogenic structures of the M_s 5.7 and M_s 4.8

Jiujiang Ruichang earthquakes of Nov. 26, 2005

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Abstract Based on the records of 6 stations in Jiangxi regional seismic network and CSN, we obtained the focal mechanisms of the M_s 5.7 Jiujiang Ruichang earthquake and its M_s 4.8 aftershock of Nov. 26, 2005 with the "Cut and asete"

(CAP) method, and analyzed the seismogenic structure combining with relocation of the aftershock sequence and the geologic settings in the region. Our result shows that the best double couple solution of the M_s 5.7 event is 324° , 55° and 18° for strike, dip and rake angles respectively, the other nodal plane is 223° , 75° and 144° ; for the M_s 4.8 aftershock the solution is 54° , 71° , -160° respectively with the other nodal plane of 317° , 71° and -20° .

Complexities can be found from aftershock distribution and source depth of the sequence. After the occurrence of the M_s 5.7 main shock, aftershocks occurred and propagated from SE to NW and from shallower to deeper crust, then they probably encountered an asperity and triggered the M_s 4.8 strong aftershock. This complexity and the different focal mechanisms

imply that the two earthquakes may not occur on the same fault, we infer that the M_s 5.7 main shock is caused by the NW striking Yangjishan-Wushan-Tongjiangling fault buried in Ruichang basin and the M_s 4.8 aftershock occurred on the NE striking Dingjiashan-Guilingqiao-Wuning fault in the northwest margin of the basin.

Key words [Jiujiang-Ruichang earthquake](#) [Focal mechanism](#) [Seismogenic structure](#) [CAP method](#)

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