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山西地区应力场变化与地震的关系

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Research on relationship between stress field variation and ea area,China

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摘要

收集了1970～2006年37年的小震初动符号建立了震源机制解数据库,研究了山西断陷带小震综合机制解时空演化特征.结果
断陷带小震综合机制解以走滑正断层为主,断陷带两端以拉张作用为主,中部地区以剪切作用为主,忻定盆地、太原盆地的区域
华北区域应力场差异较大.利用沿山西断裂带布设的GPS监测网1996～2007年12期复测资料,分析了山西断裂带水平运动与
的关系.结果表明:山西断裂带现主要受NWW-SEE向压应力场、NNE-SSW向张应力场的控制.1998～1999年有一次较为明
扰动,空间上表现为北强南弱,接着发生了1999年11月1日大同—阳高5.6级地震.

关键词： 山西地堑系 地震应力场 地壳水平运动

Abstract:

Based on the focal mechanism solution database established by collecting 37 years initial motion earthquakes (1970~2006), the space-time evolution characteristics of small-earthquake integrated mech Shanxi fault zone are studied in this paper. The results indicate that small-earthquake integrated mech Shanxi fault zone are mainly dominated by strike slip normal faults, at the two ends dominated by tectonics and in the central region by shearing. The difference between the stress field of Huabei and th stress fields of Xinding and Taiyuan Basins is very large. The relationship between horizontal mo earthquake activities in Shanxi fault zone is analyzed according to the 12 stages of re-measuring da monitoring network along the Shanxi fault zone (1996~2007). The results indicate that the Shanxi fault is mainly controlled by compressional stress along NWW-SEE direction and tensile stress along NNE-S obvious stress disturbance occurred during the period of 1998~1999, which was stronger in the south t north. This was followed by Datong-Yanggao *M*5.6 earthquake on 1st Nov.1999.

Keywords: Shanxi Graben system Stress field Crust horizontal movement

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