

引用本文(Citation):

石玉涛, 高原, 张永久, 王辉, 姚志祥. 松潘-甘孜地块东部、川滇地块北部与四川盆地西部的地壳剪切波分裂. 地球物理学报, 2013,56(2): 481-494,doi: 10.6038/cjg20130212

SHI Yu-Tao, GAO Yuan, ZHANG Yong-Jiu, WANG Hui, YAO Zhi-Xiang. Shear-wave splitting in the crust in Eastern Songpan-Garzê block, Sichuan-Yunnan block and Western Sichuan Basin. Chinese Journal Geophysics, 2013, 56(2): 481-494, doi: 10.6038/cjg20130212

松潘-甘孜地块东部、川滇地块北部与四川盆地西部的地壳剪切波分裂

石玉涛^{1,2}, 高原^{1,2}, 张永久³, 王辉¹, 姚志祥^{2*}

1. 中国地震局地震预测研究所(地震预测重点实验室), 北京 100036;
2. 中国地震局地球物理研究所, 北京 100081;
3. 四川省地震局, 成都 610041

Shear-wave splitting in the crust in Eastern Songpan-Garzê block, Sichuan-Yunnan block and Western Sichuan Basin

SHI Yu-Tao^{1,2}, GAO Yuan^{1,2}, ZHANG Yong-Jiu³, WANG Hui¹, YAO Zhi-Xiang^{2*}

1. Key Laboratory of Earthquake Prediction, Institute of Earthquake Science, China Earthquake Administration, Beijing 100036, China;
2. Institute of Geophysics, China Earthquake Administration, Beijing 100081, China;
3. Earthquake Administration of Sichuan Province, Chengdu 610041, China

摘要

参考文献

相关文章

Download: [PDF](#) (6169 KB) [HTML](#) (0 KB) Export: [BibTeX](#) or [EndNote](#) (RIS) [Supporting Info](#)

摘要

松潘-甘孜地块东部、川滇地块及四川盆地西部属青藏高原东部,是中国大陆内部强烈地震发生的主要地区之一.本研究利用四川区域数字地震台网2000年1月至2010年4月的地震波形资料,使用剪切波分裂系统分析方法(SAM),获得了研究区内44个台站的快剪切波偏振方向和慢剪切波的时间延迟.剪切波分裂参数的空间分布特征显示,由于受到区域主压应力场以及局部地质结构的影响,快剪切波的偏振方向表现出复杂的特征.龙门山断裂带北东段和西南段的快剪切波偏振方向分别显示北东和北西的优势方向,川滇菱形地块西北部和东南部的快剪切波偏振方向分别显示近东西和北北西的优势方向.青川断裂北侧和南侧地震的快剪切波偏振方向分别为近南北向和近东西向,北侧地震的慢剪切波的时间延迟大于该断裂南侧地震的慢剪切波时间延迟.研究表明,复杂的地质结构以及活动断裂的几何形态会造成剪切波分裂参数的区域化的分布特征.

关键词 松潘-甘孜地块, 川滇地块, 四川盆地, 各向异性, 剪切波分裂, 地壳, 主压应力

Abstract:

In eastern Tibetan Plateau, there are eastern Songpan-Garzê block, Sichuan-Yunnan block and western Sichuan Basin, where is one of the areas with strong seismic activity in China. In this study, the polarization of fast shear waves (PFS) and time delay of slow shear-wave beneath the 44 stations in this area were computed using shear-wave Splitting Analysis Method (SAM) based on the seismic data during January 2000 to April 2010, recorded by Sichuan Regional Digital Seismic Network. Due to the impact of the regional principal compressive stress and local geological structure, the spatial distribution of polarization of the fast shear-wave shows the localized characteristic. The dominant PFS beneath the northeast and southwest segment of Longmenshan fault belt exhibits the North-East and North-West direction, respectively. PFS beneath the northwest and southeast part of the Sichuan-Yunnan block shows nearly East-West and North-Northwest direction, respectively. The dominant direction of PFS beneath the north and south side of Qingchuan fault respectively are nearly North-South and East-West. The time delay beneath north side is larger than that in the south side of Qingchuan fault. This study suggests that the localized distribution of shear-wave splitting parameter could be caused by complex geological structure and the geometry of active faults.

Keywords Songpan-Garzê, block, Sichuan-Yunnan block, Sichuan Basin, Anisotropy, Shear-wave splitting, Crust, Principal compressive stress

Received 2012-02-23;

Service

- [把本文推荐给朋友](#)
- [加入我的书架](#)
- [加入引用管理器](#)
- [Email Alert](#)
- [RSS](#)

作者相关文章

- [石玉涛](#)
- [高原](#)
- [张永久](#)
- [王辉](#)
- [姚志祥](#)