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利用三维地震属性分析识别阿尔金断裂新生代早期构造活动

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摘要:

阿尔金断裂是青藏高原最显著也是最重要的地质构造单元之一,其新生代起始活动时间的认定一直都是大家关注的热点,对研究高原的形和应力传递均有着重要的意义.前人的研究成果证实阿尔金断裂新生代的开始活动时间大约在35.5Ma,在柴达木盆地其对应的沉积层位为干柴沟组上段.本文以盆地内部近阿尔金断裂带的红柳泉-七个泉地区为例,开展了钻井约束下的三维地震资料属性提取及分析工作,并进行早期岩相古地理研究.结果表明在干柴沟组上段从XG2时期起,研究区岩相古地理从深湖相开始分异,逐渐发育为控制岩性差异的同沉积水下起,这些隆起带渐次演化为与左旋剪切相关的雁列褶皱带,对应于与阿尔金早期隆升相关的构造演化过程.表明阿尔金断裂新生代活动的沉积应最早在约40Ma开始,该方法对于和构造隆升相关的沉积记录识别比直接的地质学方法更为敏感.

英文摘要:

The Altyn Tagh Fault is one of the most prominent and important tectonic units within the Tibet Plateau, and has great significance in understanding the growth of the plateau. The initiation of the Altyn Tagh Fault has always been a hot topic. Previous studies demonstrated the Altyn Tagh Fault was started at ca. 35.5Ma in the Cenozoic, the time when the uppermost Xiaganchaigou Fm. (XG) was accumulated in the Qaidam Basin as well. A study of lithofacies and paleogeography of upper XG is performed in Hongliuquan-Qigequan area of Qaidam Basin, adjacent to the Altyn Tagh Fault, based on the analysis of 3D-seismic attribute and drill-hole data. Our results illustrate that the paleo-environment during the deposition of upper XG was started with deep lake and then shifted to shallow lake and lake shore facies upwardly. Such geological process may be controlled by syn-sedimentary uplift, which was subsequently evolved into an echelon folds related with sinistral shear of the Altyn Tagh Fault. Considering the sedimentary response in the Qaidam Basin, we conclude the Altyn Tagh Fault was started at ca. 40Ma. Our method present in this study could detect the sedimentary response to tectonic uplift with higher sensitivity than traditional geological methods.

关键词: [阿尔金断裂](#) [早期构造活动](#) [三维地震属性](#) [岩相古地理](#) [青藏高原](#)

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