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阿拉善地块新生代构造作用——兼论阿尔金断裂新生代东向延伸问题 [点此下载全文](#)

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摘要:

阿拉善地块在新生代的变形是青藏高原北部活动的直接结果, 各方面的资料显示这种影响仅发生在中新世中晚期, 前的活动性已经很低。阿尔金断裂的延伸并不能穿过阿拉善与南蒙古相关断裂相连, 我们的研究更偏重认为阿尔金断裂没有进入阿拉善地区, 而是经过金塔—花海盆地南缘的宽滩山—黑山地区与合黎山—龙首山南缘断裂相连, 中新世中晚期, 由于青藏高原北部重要的构造事件, 青藏高原由南向北挤压河西走廊地区, 造成了金塔—花海盆地内部由近北向构造转变为近东西向构造。同时形成北山地区控制上第三系沉积(上新统)的东西向断裂。而阿拉善南缘产生右行走滑运动, 地块的北部及内部则产生了近北向的第三纪伸展构造, 这些伸展构造以及金塔—花海盆地第三纪断裂控制的沉积与前人认为的强前陆、弱限制性边界的侧向挤出类似。我们认为阿拉善及蒙古地区中新世—上新世期间, 由于受到青藏高原近南北向的挤压, 产生区域性的“共轭”断裂系统, 由于这些地区早期构造的控制, 这些新活动的断裂主要迁就于老构造, 以脆性活动为主, 在蒙古国形成了沿阿尔泰山的北西—南东向断裂和东南部的北东—南西向“共轭”断裂系统, 而阿尔金断裂与合黎山—龙首山南缘断裂则形成南侧的“共轭”断裂系统。北山以及金塔—花海地区则是这两组断裂的交汇地区, 挤压作用明显, 控制了新生代的沉积, 并导致了新生代金塔—花海盆地的形成。阿拉善地块作为夹持在这两组断裂之间的地块, 发生了一定程度的向东挤出运动, 在其东缘贺兰山西侧形成了新生代的挤压构造, 而在其东北缘和西南缘则迁就早期的韧性剪切带分别向北东和南西运动, 产生相应的变形。该模型能够合理地解释阿拉善周围地区及其内部中新世以来的变形及其与青藏高原北部构造运动之间的关系。

关键词: [阿拉善地块](#) [新生代](#) [青藏高原](#) [有限侧向挤出](#) [阿尔金断裂](#) [龙首山南缘断裂](#) [巴彦乌拉山断裂](#)

The Cenozoic Deformation of the Alxa Block in Central Asia—Question on the Northeastern Extension of the Altyn Tagh Fault in Cenozoic Time [Download Fulltext](#)

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Fund Project:

Abstract:

Cenozoic deformation of the Alxa Block results directly from development of the northern Qinghai-Tibetan Plateau; however, a great volume of data show the deformation just occurred in the Middle and Late Miocene, and present activity of it is very weak. Our studies show the Altyn Tagh fault did not go through the Alxa block, on the contrary it went along the southern boundary of the Jinta-Huahai Basin, and linked with the fault to the southern Heli Mt. and Longshou Mt. During the Middle and Late Miocene, the important tectonic events occurring in the northern Qinghai-Tibetan Plateau compressed the western part of the corridor region, resulting in a tectonic change from NS trending to EW trending in the Jinta-Huahai basin and an EW-trending faulting in the Beishan region which controls the Tertiary deposition. The right lateral movement of the southern margin of the Alxa Block resulted in an NS-trending Tertiary extensional structure in the northern and central parts of the block, which, along with the deposition in the Jinta-Huahai basin controlled by the Tertiary faults are very like basins developed in the lateral extrusion with strong foreland and weak limited boundaries. The authors believed that the regional "conjugate" fault system resulted from the nearly NS-trending compression of the Qinghai-Tibetan Plateau during Miocene and Pliocene in the Alxa and Mongolian regions. With brittle faults as the most active ones, new structures occurring in this area are subject to the old ones dominating the whole area, which were responsible for the formation of one conjugate fault system along the Altai Mountain in Mongolia. The faults in the Altyn Tagh and the southern margin of the Helishan-Longshouhan resulted in the formation of another conjugate fault system in the south of this area. The Beishan area and Jinta-Huahai basin are the convergent area of the two sets of faults, and characterized by distinct compression, which controls the Tertiary deposition and is responsible for the development of the Cenozoic Jinta-Huahai Basin. The Alxa Block bounded by these two sets of faults moved eastwards resulted in the development of Cenozoic compressive structures to the west of the Helan Mountain, and correspondingly, deformation occurred in the northeast and southwest margins. This model could explain the Cenozoic deformation occurring in and around the Alxa region and the relationship between the block and northern Qinghai-Tibetan Plateau reasonably.

Keywords: [Alxa Block](#) [Cenozoic time](#) [Qinghai-Tibetan Plateau](#) [limited lateral extrusion](#) [Altyn Tagh fault](#) [Southern Longshou fault](#) [Bayanwulashan fault](#)

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