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摘要:

下古生界是塔里木盆地内最有潜力找到大油气田的层位。通过盆地内48口钻至下古生界钻井的沉积层序与沉积相分析、9800km地震剖面的地震相分析、大量Sr、C同位素及微量元素分析,并结合相关资料,开展了寒武纪—奥陶纪的以世或期为单位的岩相古地理研究,定性探讨海平面变迁。在此基础上,运用沉积地球化学定量探讨海平面的波动。分析表明,早古生代塔里木地区经历了两次大规模的海侵与海退过程,寒武纪和奥陶纪各经历了一次。每个海侵与海退过程内各包含了两个较高频的海平面升降旋回,即早寒武世早期海侵—早寒武世中期至中寒武世晚期海退、中寒武世末期海侵—晚寒武世晚期海退、早奥陶世早期至中奥陶世中期海侵—中奥陶世晚期海退、晚奥陶世早期海侵—晚奥陶世中至晚期海退。在上述2次大规模的海侵与海退以及4个较高频的海平面升降旋回中,两次大的海侵分别发育于早寒武世早期以及晚奥陶世早中期,三次较大的海退出现于中寒武世晚期、晚寒武世末期、晚奥陶世早期。岩溶在地层格架中的发育支持了上述结论。

关键词: [海平面波动](#) [沉积地球化学](#) [岩溶](#) [塔里木盆地](#) [早古生代](#)

Sea-Level Fluctuation of the Tarim Area in the Early Paleozoic: Response from Geochemistry and Karst [Download Fulltext](#)

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Abstract:

The Paleozoic is the most favorable horizon for exploring giant hydrocarbon reservoirs in the Tarim Basin, northwestern China. Lithofacies and paleogeography of the Early Paleozoic in the basin was researched based on 48 wells which reached or penetrated the Paleozoic, 9800 km seismic profiles, a large amount of isotopes and trace elements composition analyses and other relevant data. Eight samples of lithofacies and paleogeography of the Cambrian and Ordovician in the basin were filed with the unit of epoch and age in order to discuss the sea-level change characteristics qualitatively. Furthermore, the sea-level fluctuation during the Early Paleozoic in the basin was studied quantitatively with the help of sedimentary geochemistry. The study reveals that there were two long-termed regressions and retrogressions during the Early Paleozoic in the basin with one in the Cambrian and the other in the Ordovician. Each regression and retrogression consists of two high-frequency sea-level fluctuations. The biggest regressions occurred in the early Early Cambrian and the early to middle Late Ordovician respectively, and the biggest retrogression occurred in the late Middle Cambrian, the end of the Late Cambrian, and the early to middle Late Ordovician respectively. From the development of the karsts in stratigraphic frameworks we can draw the same conclusion as above.

Keywords: [sea level fluctuation](#) [sedimentary geochemistry](#) [karst](#) [Tarim basin](#) [Early Paleozoic](#)

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