



马志邦, 马妮娜, 张雪飞, 王宇. 西藏扎布耶湖晚更新世沉积物  $^{230}\text{Th}$  年代学研究[J]. 地质学报, 2010, 84(11): 164

西藏扎布耶湖晚更新世沉积物  $^{230}\text{Th}$  年代学研究 [点此下载全文](#)

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基金项目: 国家自然科学基金重点项目(编号 40531002)、国家自然科学基金项目(编号 40872207)和中国地质科学院(编号 12120108057)

DOI:

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摘要:

本文应用全溶样品的等时线模式, 较成功地测定了藏北高原西南部扎布耶盐湖SZK01孔岩芯中含不等量碳酸盐的U年龄, 建立了青藏高原腹地海拔4000 m以上湖泊120 ka以来连续的同位素年龄标尺, 从而为扎布耶盐湖及其周边地区奠定了时间坐标。根据  $^{230}\text{Th}/^{238}\text{U}$  年龄数据, SZK01孔的平均沉积速率约为68 cm/ka。然而不同层段的沉积速率在0.8~128.8 cm/ka, 其快慢变化反映了该湖从短命深湖、动荡浅湖、滨湖到盐湖的环境变化, 与高分辨率SZK02孔模式的适应性、样品的U封闭性和应用的优越性, 提出开展湖区及周边各类型水体的U、Th同位素化学行为研究和响应将是今后年代学研究的重要内容。

关键词: [湖泊沉积物](#)  [\$^{230}\text{Th}/^{238}\text{U}\$ 定年](#) [全溶样品等时线](#) [扎布耶盐湖](#) [西藏](#)

$^{230}\text{Th}/\text{U}$  Chronology of Late Pleistocene Lacustrine Deposits in Zabuye Salt Lake, Tibet

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Fund Project:

Abstract:

The authors used the U series isochron model of total sample dissolution to determine successively the ages of sediments with varied contents of carbonate in the core taken from hole SZK01 in Zabuye Lake in the Tibetan Plateau and established the continuous isotope timescale of lakes 4000 m above sea level in the interior of the Tibetan Plateau, thereby providing the time-space coordinates for the research on paleoenvironment in the Lake Zabuye region and its neighboring areas as well as the relationship between the Tibetan Plateau and global changes. According to the data of  $^{230}\text{Th}/\text{U}$  ages, the average sedimentation rate is about 68 cm/ka. However, the sedimentation rates of different intervals differ greatly, varying from 0.8 to 128.8 cm/ka. This variation reflects the implication of the environmental change of the lake from an ephemeral undulating lake and lakeshore to a salt lake, which is consistent with the result of the study of the Tibetan Plateau. In this paper, we discuss the adaptability of the dating model and the U sealing of samples and its application. Further work on the U and Th isotope chemical behaviors in various hydrologic regimes and the effects of multiple Th sources in sediments on dating is necessary to develop the U series technique for dating Quaternary lacustrine deposits and paleoclimate of arid and semiarid continental environments.

Keywords: [lacustrine deposits](#) [isochron of total sample dissolution](#)  [\$^{230}\text{Th}/\text{U}\$  dating](#) [Zabuye](#)