

青藏高原南羌塘基性岩墙群U-Pb和Sm-Nd同位素定年及构造意义

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摘要: 羌塘地区是青藏高原古特提斯研究的关键地区, 羌塘南部地区基性岩墙群的侵位时代与构造背景对确定古特提斯阶段联合古陆解体的具体时间和青藏高原构造演化有重要意义。选择单颗粒锆石U-Pb法和全岩Sm-Nd等时线法对基性岩墙进行定年研究, 获得了(312±4) Ma单颗粒锆石U—Pb谐合线年龄和(299±13) Ma和(314±5) Ma两个Sm-Nd全岩等时年龄。结合区域地质资料研究认为, 基性岩墙群为羌塘地块裂离作用的产物, 所获得的同位素年龄代表了基性岩墙群的侵位时间, 为羌塘地块裂解提供了构造事件年龄, 为重塑龙木错—双湖古特提斯洋盆的形成演化过程提供了重要信息。

关键词: 基性岩墙群; 同位素年代学; 构造意义; 西藏; 羌塘南部地区

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U-Pb and Sm-Nd dating of mafic dike swarms in southern Qiangtang,
Qinghai-Tibet Plateau and its tectonic significance

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Abstract: The Qiangtang area is a key area to studying the Palaeo-Tethys, and the emplacement timing and tectonic setting of mafic dike swarms in southern Qiangtang have great significance in determining the breakup age of Pangaea and tectonic evolution of the Qinghai-Tibet Plateau. Mafic dikes were dated by using the single-grain zircon U-Pb and whole-rock Sm-Nd methods and the zircon U-Pb concordia age of 312±4 Ma and Sm-Nd isochron ages of 299±13 and 314±5 Ma were obtained. On that basis, combined with the regional geological data, the authors think that the mafic dikes are the product of the breakup of the Qiangtang block and that the isotopic ages represent their emplacement age. This constrains the age of breakup of the Qiangtang block and provides important information for the reconstruction of the formation and evolution of the Lungmu Co-Shuanghu Lake Palaeo-Tethys ocean basin.

Key words: mafic dike swarm; isotope chronology; tectonic significance; Tibet; southern Qiangtang