

General introduction

The Table 1 is the supplementary data for the paper submitted to Journal of Geophysical Research–Solid Earth:

Title: Detachment faulting in the Xigaze ophiolite: New constraints on its formation and implications for other ophiolites in the YZSZ, southern Tibet.

Authors: Y. Li, R.B. Li, P.T. Robinson, S.B. Yang, J. Zhang, J.S. Yang

Institute: Center for Advanced Research on Mantle (CARMA), Institute of Geology Chinese Academy of Geological Sciences, Beijing 100037, China

Contact Information: liyuancags@foxmail.com

Purpose of the test campaign

The Xigaze ophiolite in the middle segment of the Yarlung Zangbo Suture Zone (YZSZ) of South Tibet has been thought to form at slow-spreading ridge. However, the active age of the detachment has not been previously discussed. Here, we present new structural and geochronological evidence to confirm the age of a major detachment fault.

Test equipment

Zircon separation was carried out using conventional heavy liquid and magnetic techniques. Zircon grains and zircon standards were then hand-picked under a binocular microscope and representative grains and zircon standards were mounted in an epoxy resin disk, and then polished to about half their thickness. Zircons were photographed under transmitted and reflected light and their cathodoluminescence (CL) images to reveal their internal structures.

Zircon U–Pb analyses were carried out using laser ablation multi-collector inductively coupled plasma mass spectrometry (LA-MC-ICP-MS, NEPTUNE) at Tianjin Institute of Geology and Mineral Resources, Tianjin, China. The zircon was ablated with a NUP193-FX ArF Excimer laser using a spot diameter of 35 μm , with constant 13–14 J/cm² energy density and a frequency of 8–10 Hz. The detailed analytical procedures were after Geng et al. (2011) and Hou et al. (2009). Zircon 91500 (1062.4 ± 0.6 Ma) and GJ-1 (608.5 ± 0.37 Ma) as external standard were used to correct isotopic fractionation. Data handling was performed off-line by ICPMSDataCal (Liu et al., 2009, 2010) and ISOPLOT (Ludwig, 1999) software. The weighted mean ages are quoted at 95% confidence level.

Description of the data in this data set

Zircon crystals and fragments separated from the samples have subhedral to euhedral, stubby morphologies and are ~50 to 200 microns long. Zircons from the dolerite sills (YL16R.27.1) emplaced within the upper part of the detachment fault yielded a U-Pb age of 127 ± 0.8 Ma. Zircons from the undeformed gabbro dyke in the peridotite yielded a U-Pb age of 132 ± 1.8 Ma. Relics of the gabbro protoliths (YL16R.23.3) are preserved in the cores of the rodingites, providing a zircon U-Pb age of 131 ± 2.6 Ma