

Paper Number: 2434

## **Western Yarlung Zangbo Ophiolites in South Tibet Formed in Forearc Setting: Evidence from Structure, Geochronology and Geochemistry**



Liu, F.<sup>1\*</sup>, Yang, J.S.<sup>1</sup>, Dilek, Y.<sup>1,2</sup>, Lian, D.Y.<sup>3</sup>, Xie, Y.X.<sup>2</sup>, Zhao, H.<sup>4</sup>, Zhang, L.<sup>4</sup>, Zhang, L.<sup>4</sup> & Huang J.<sup>4</sup>

<sup>1</sup>CARMA, Institute of Geology, Chinese Academy of Geological Sciences, Beijing, 100037, China,

\*Email of Corresponding author: [lfhy112@126.com](mailto:lfhy112@126.com); [liufei@cags.ac.cn](mailto:liufei@cags.ac.cn)

<sup>2</sup>Department of Geology and Environmental Earth Science, Miami University, Oxford, OH 45056, USA

<sup>3</sup>Faculty of Earth Sciences, China University of Geosciences, Wuhan, 430071, China

<sup>4</sup>Department of Geology and Mineral Resources, China University of Geosciences, Beijing 100083, China

---

—

The ophiolites that crop out discontinuously along the ~2000 km Yarlung Zangbo Suture Zone (YZSZ) between Nanga Parbat and Namche Barwa syntaxes in southern Tibet represent the remnants of the Neotethyan oceanic lithosphere. The interpretations of the diverse ophiolitic sequences, tectonic settings and structural relationship between the Daba-Xiugugabu (Southern belt) and Dajiweng - Saga (Northern belt) ophiolitic sub-belts in the western YZSZ are still poorly constrained. We discuss in this talk the crustal architecture of the southern and northern sub-belts and their ophiolites based on several N-S structural profiles across them, as well as on the lithology, geochronology and geochemistry of the associated mafic dikes and upper mantle peridotites. In-situ analysis of zircon grains from mafic dikes in the southern and northern sub-belts have yielded crystallization ages of 125~130 Ma. Dike intrusions in both belts show N-MORB REE patterns and negative Nb, Ta and Ti anomalies reminiscent of SSZ ophiolites. Harzburgitic host rocks of mafic dikes in both belts have geochemical compositions of forearc and abyssal peridotites. Based on these data and structural observations, we interpret the Southern and Northern sub-belts as having formed at a forearc SSZ setting in a single Neotethyan seaway. The Northern and Southern ophiolitic sub-belts are hence part of a single, S-directed nappe sheet derived from a Neotethyan seaway located north of the Zhada-Zhongba terrane.

