

The Structure and Evolution of the Bangong-Nujiang Suture (Gaize, Central Tibet)

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Systematic mapping of the Gaize area across the Bangong-Nujiang suture and the Lhasa and Qiangtang blocks was conducted, during which ophiolite overthrust sheets in both the northern Lhasa and southern Qiantang blocks were documented, and Late Jurassic rocks with magmatic-arc affinity and rocks with oceanic-plateau affinity were discovered in the northern Lhasa and southern Qiantang margins, and in the suture zone itself, respectively. This indicates that (Early Permian) mantle plume upwelling could have played a key role in the initiation of the Bangong-Nujiang mid-Tethys. Geochronological dating shows that these ophiolite sheets could have been transported bilaterally, both northward and southward, nearly simultaneously in the Late Jurassic (151-153 Ma). The obduction could have been driven by external forces, perhaps by shallow oceanic subduction of the Yarlung-Zangpo neo-Tethys. There is no definite evidence for Mid-Cretaceous shortening in central Tibet. In contrast, extensive distribution of Lower-Middle Cretaceous marine strata in central Tibet (including the Qiangtang terrain), along with the folded Mid-Cretaceous normal fault bounding the Qiangtang terrain and the Bagong suture zone, indicates there could be an extensive Mid-Cretaceous (back-arc) rifting event in central Tibet.

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