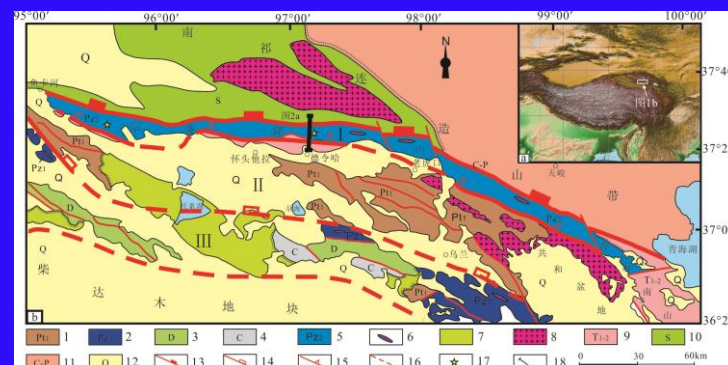


40Ar/ 39Ar laser dating of Zongwulong ductile shear zone in northeastern Tibetan Plateau : Constrains on the closure time of the northmost Paleo-Tethys ocean

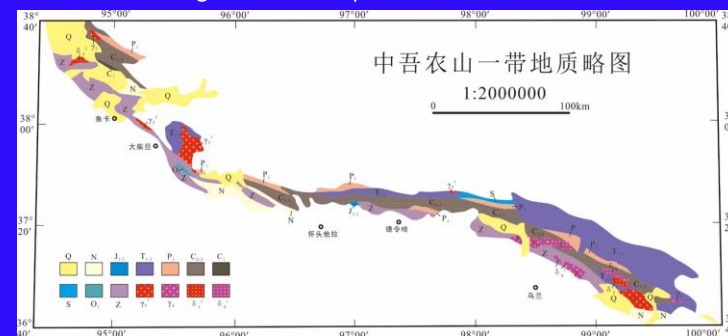
Wanli Gao and Zongxiu Wang

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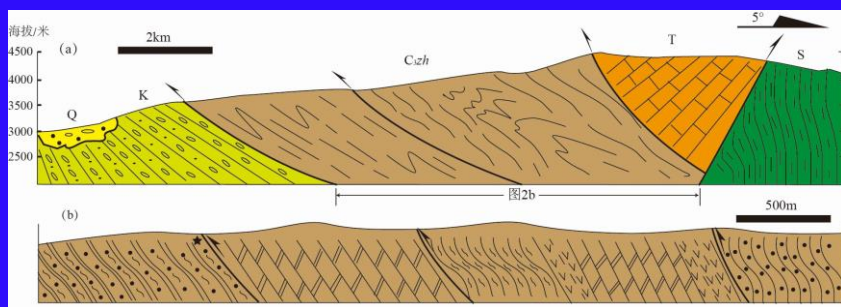
The Zongwulong tectonic belt (ZTB) is located between the northern Qaidam tectonic belt and the south Qilian orogenic belt in northeastern Tibet, and mainly contains Late Paleozoic and Early- Middle Triassic strata and intrusive rocks. Previous studies have shown that the ZTB was possibly a branch of the northernmost Paleo-Tethys Ocean in the Late Paleozoic-Early Mesozoic. When the Zognwulong ocean basin closed was still in debate. This study integrated field structure, microscopic structure and 40Ar/39Ar laser probe analysis for ZTB shear zone to constrain the closure time of ZWL ocean.



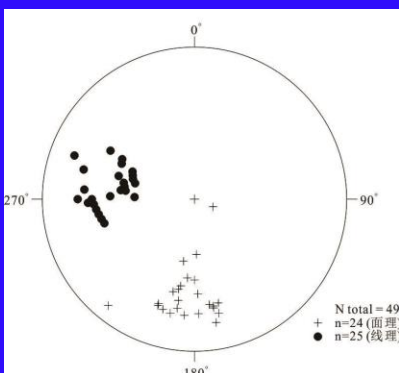
Geological sketch map of Northern Qaidam basin



Geological sketch map of Zongwulong tectonic belt

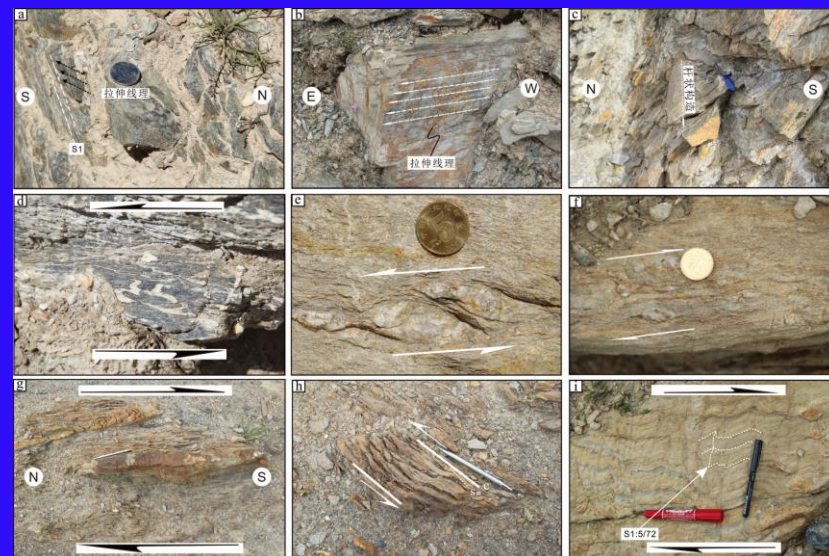


Structural section of Zongwulong tectonic belt



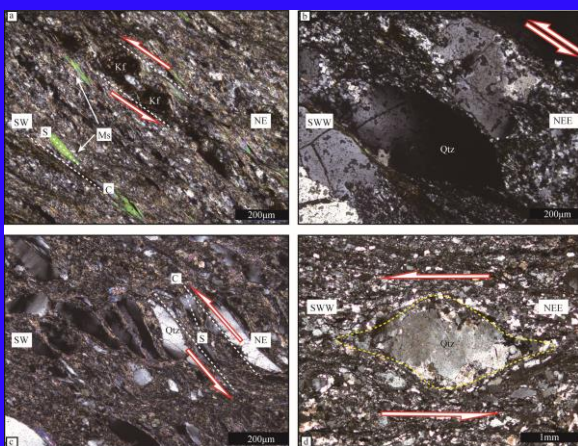
Stereograms of foliation and Lineation in Zongwulong shear zone

The shear zone strikes ~NEE-SWW and dips at a high angle, with a NWW-SEE trending and WE stretching lineation, indicating the shear zone as a thrust-slip shear ductile shear.

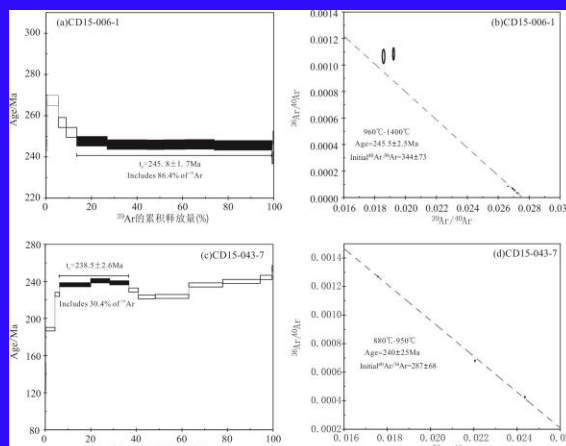


Deformation photo of Zongwulong tectonic belt in the field

The asymmetric folds, rotating porphyroclast, structural lens and crenulation cleavage can be seen in the field



Ductile deformation photo under the microscope



40Ar/39Ar data for biotites and muscovites for mylonitic gneisses from the ZTB

The highly deformed mylonite schist yielded 40Ar/39Ar ages 245Ma and 238Ma for muscovite and biotite, respectively, indicating that the shear deformation occurred during the Early- Mid Triassic.

Mica fish, S-C fabrics, σ type quartz porphy roblasts and quartz wire drawing structure can also be observed under the microscope.

The authors hold that the age of ductile shear deformation represents the time of Triassic orogeny in the ZTB. The orogenic activity was probably related to the oblique collision between the South Qilian block and the Oulongbuluke block after the closure of the ocean basin.