Tectonic significance of the accretionary complexes in the Yarlung Zangbo River of south Tibet, China

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Based on 1:5 000 regional geological survey, a set of accreationary complexes was determined from the late Triassic Langjiexue group by the methods of structural lithologic mapping and structural analysis. This set of accretionary complexes was the combination of sedimentary turbidities in deep to semi-deep sea at the active continental margin. These rocks were obviously experienced two phase of penetrative structural deformations. The first phase penetrating deformation was mainly manifested as quartz-dominated veins resulted from materials differentiation by tectonic action, and the field macroscopic signs were obvious. After detail analysis, it can be found that the differentiated quartz veins are gently North-dipping. The observed occurrence suggests that the first phase penetrating foliation had been formed by the subduction of the Neo Tethys Ocean from south to north during the formation of the Yarlung Zangbo suture zone.

The second phase penetrative structural deformation generally occurred as south-dipping macro foliation, which replaced the first-phase foliation. In detail, the first phase quartz veins were occurred as longitudinal bending through the replacement of the second phase deformation. Based on the detailed structural analysis, it is found that the second phase penetrating structural deformation was composed of imbricate thrust faults and associated folds which were characterized by a series of thrust belts and folds. In the field, the replacement of first phase foliation was remarkable by second phase folds. The second phase penetrating deformation foliation and associated folds-thrust belts was determined being closely related with the collision during the formation of Yarlung Zangbo suture zone. Besides of these, some geochemical evidences will be shown to confirm the determination.