Structural data from lower Dolpo (western Nepal)

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Structural investigation in Lower Dolpo (Western Nepal) led to recognize the main tectonic setting of the area. A NE-SW structural transect confirms the presence of the three main tectonic units building up the chain that from bottom to top are represented by the Lesser Himalaya (LH), the Higher Himalayan Crystalline (HHC) and the Tibetan Zone (TZ). Different metamorphic and structural evolution have been recognized along the study transect in the TZ and in the HHC. The TZ is characterized by two main deformation phases both developed under a low-grade metamorphic facies of metamorphism. An increase of both metamorphism and deformation has been detected moving across the TZ approaching towards the lower HHC.

The HHC has been deformed under amphibolite facies metamorphism and the main fabric is represented by an S2 mylonitic schistosity. It is worth noting the occurrence of a ductile shear zone in the middle part of the HHC (Tojem shear zone) with a top to the south sense of shear. It divides the HHC in two units. The main differences between the two units are the presence of sillimanite developed after the main Barrovian metamorphism and the main fabric is represented by an S2 mylonitic schistosity.

The contact zone is characterized by asymmetric folds and kinematic indicators with a top-to-the NE vergence, connected to a down-to-the NE tectonic transport. On the basis of these features we regard the boundary between HHC and TZ as a high strain extensional zone, linked to the STDS.

References


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