



Normal faulting and structural analyses in eastern edge of Central Range in eastern Taiwan: an exhumed subducted high-pressure mélangé and fore-arc turbidite?

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Based on field structural investigations and combing available geophysical, geochemical and geochronological information, this study intends to delineate the deformation structures and their implications for tectonic evolution in the schist/slate belt in eastern margin of the Central Range in eastern Taiwan, representing the continental, while exhumed rapidly after subducted and collided with the leading edge of the NW-moving Philippine Sea plate and the Luzon arc subsequently. Field observations indicate that the slate belt (Xin-gao Fm.) in eastern edge of the Central Range shows a general shallow E-dipping main cleavage, in contrast to a W-dipping schistosity in the older and more deformed metamorphic schist belt (Tananao complex). In-between, the Yuli belt, a intensively sheared quartz-mica schist with several large ultramafic bodies, which recently was interpreted as a rapid exhuming subducted (U)HP terrane, represents the contact between the above two units. Brittle normal faults at outcrop scale were abundantly observed in the Xin-gao slate Fm. that shows an E-W (NE-SW to SE-NW) extension, which seems to be consistent with the Present-day extension strain derived from GPS measurement as well as focal mechanisms of several shallow earthquakes in the eastern Central Range. As a result, we tend to interpret this E-W extension, which is either perpendicular or obliquely sub-perpendicular to the mountain belt, is provoked by rapid exhumation of the Yuli belt and the Xin-gao Fm since 15-16 Ma. Tentatively, we propose a geological/tectonic evolution model for reconstructing the development of deformation fabrics in space (i.e. the different rock units, Tananao complex, Yuli belt, and Xin-gao Fm) and time (i.e. from burial stage, to subduction, to exhumation).