

Morphostructural analyses of the North-Eastern tip of the Taiwan Central Range (From Ilan to Hualien) and geodynamic implications

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It is of interest to use the new high-resolution topographic Taiwan dataset to precise and clarify the structural geometry of the North-Eastern tip of the Central Range (CeR hereafter). Indeed, the high-resolution oblique photographs acquired by quadcopter drone, the fixed wings UAS which enable us to get a decimetric ground resolution UAS HR DSM, or an airborne flight that provide Lidar topographic dataset with 6m ground resolution. All these new topographic datasets bring many morphostructural information that helps to get the structural geometry of that strictly inaccessible area by foot.

Few scientific studies focussed on the geology and the geomorphology of the NE tip of the Central Range. For instance, Yang C.-Y. et al., 2023 just recently discuss the drainage basins and various knick-points along the longitudinal profiles of rivers on that area.

In contrast, on our side we studied carefully, the interfluves morphology combined with micro-tectonic analyses in the fields observed on the unique road which runs from Ilan to Hualien cities following an impressive system of cliffs that parallel the coastline. It is the unique place where we can analyse the structural and microtectonics point of view.

Moreover, we propose herein a way to distinguish and differentiate the fault planes due to gravitational and those due to tectonic processes. Therefore, we propose herein to integrate those gravitational and tectonic processes into a structural and geodynamic model of progressive Taiwan Central Mountain range evolution.