

Taiwan's geological structures: characteristics and category

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Taiwan is located at the junction of the Eurasian and the Philippine Sea plates. The formation of Taiwan Island is due to the oblique collision/accretion of the Luzon arc with the eastern margin of South China commencing about 6-4 Ma ago. Tectonically, Taiwan can be divided into two parts by the Longitudinal Valley. East of the Valley, the Coastal Range belongs to the Philippine Sea plate, whereas west of the Valley, belong to the South China part of the Eurasia plate. The latter includes I: Eastern flank of the Central Range subunit (i.e., the Tananao metamorphic complex); II: Western flank of the Central Range subunit (i.e., the Tertiary slate and argillite); III: Western foothill unit; and IV: Coastal plain unit.

Due to the on-going intensive crustal deformation, the mountain building and collapsing processes are very much alive and can be well illustrated by the rugged topography, rapid uplift and denudation, young tectonic landforms, active faulting, and numerous earthquakes. Catastrophic landslides frequently occur in the mountain area, especially in active tectonic regions, impacting on lives and the ecosystem. Attributable factors include relatively steeper topography, weaker rock mass, frequent earthquakes, heavy precipitations, and climate change.

The problem is compounded by human interference with nature through inappropriate land development, creating artificial disasters. Ways to mitigate natural hazards, eliminate artificial disasters, and promote geological conservation have become major concerns of the world now. One of the approaches is to directly regulate land use by laws or at least to announce the location of geologically sensitive zones to the public.

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