



Neotectonic Patterns of Taiwan Based on Recent Multi-Source Data

Chia-Yu Lu (1), Yuchang Chan (2), Lung-Cheng Kuo (2), Jian-Cheng Lee (2), and Kuo-Jian Chang (3)

(1) Department of Geosciences, National Taiwan University, Taiwan (luchiay@gmail.com), (2) Institute of Earth Sciences, Academia Sinica, Taipei, Taiwan, (3) Department of Civil Engineering, National Taipei University of Technology, Taiwan

We employ multi-source approach to study the neotectonic patterns of Taiwan by means of a Geographical Information System (GIS) which enables us to better compare various data sources and their possible implications. The neotectonics of plate convergence around Taiwan can be well demonstrated by the metamorphic foliation map, the GPS horizontal velocity field, the GPS vertical velocity field, the shear strain rate, the rotation rate and the dilatation rate maps. Various types of information are effectively taken into account in this study, such as 3D topography and bathymetry, geological maps, recent results of geodesy and geophysics, and field geologic observations. Based on the compiled information we proposed the major structures of Taiwan can be divided into four domains with dominant deformation patterns: the northern Taiwan extensional zone, the Foothills and Hsuehshan compressional zone, the Backbone Range extensional zone, and the Coastal Range compressional zone. The active thrusts are concentrated within the compressional zones while the active normal faults are concentrated within the extensional zone, particularly the Backbone Range, the metamorphic core of Taiwan. Furthermore, the strike-slip faults are distributed penetratively through the Taiwan Island indicating adjustment of stress through such fault mechanism is common in all different types of deformational regime.