



Temporal and spatial structural characteristics in the Taiwan Slate Belt

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In Taiwan, oblique plate convergence, including both subduction and collision, has been causing sequential migration of tectonic processes and structural developments progressively from north to south. Associated deformational structures were identified by us to be subduction-related and collision-related respectively. The subduction-related foliations are distinguished by being bedding parallel or sub-parallel and in association with early recumbent folds and other underplated structures, such as decollement faults and basal shear zones. The collision-related foliations are identified as being axial planar foliations or crenulation foliations in association with up-right folds and other transpressional or transtensional structures such as pop-up and flower structures. The Backbone Range Slate Belt (BRSB) of Taiwan, a 20-km-wide 300-km-long mountain range in the middle of the island, contains both subduction-related and collision-related structures. Structures in BRSB change progressively from being subduction-dominated in southern Taiwan to subduction / collision-dominated in central Taiwan to collision-dominated in northern Taiwan. The subduction-dominated structures might have been partially obliterated in the north by collision-related structures, as revealed by transposed fabrics. Outside BRSB, deformation structures are largely collision dominated. As a consequence, at the present time no significant subduction is occurring in the Taiwan Mountain Belt. By contrast, oblique convergence and indentations between the Philippine Sea plate and the Eurasian continental margin, have resulted in extrusion and rotation tectonics, counterclockwise rotation in the south and clockwise rotation in the north, on both ends of the Taiwan orogenic belt, instead of subduction. Records of rotational tectonics are revealed by pressure shadows,

vein generations and fault slip histories in the Taiwan slate belt.