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The role of the SE China passive margin for the formation of Taiwan orogen

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Taiwan orogen records a singular geological context where different stages of convergence are preserved. From south to north, the Taiwan region records the transition from oceanic and continental subduction of the SE China passive margin to its collision with the Luzon Magmatic Arc.

This study aims to define the thermal, compositional, and structural inheritance of the Chinese SE passive margin onto the processes of continental subduction and early collision. We combined geological and geophysical data (e.g., crustal thickness, seismicity, gravimetry, and magnetic anomaly maps) to propose a structural rift domain map of the SE China margin and its inversion. Open access seismic data is currently being interpreted to identify key tectonostratigraphic sequences, showing the crustal architecture and the tectonic-sedimentary evolution of the region. By building these offshore-onshore transects, we aim to capture the along-strike variations of the trench morphology. Initial results suggest a northward thickening of the accretionary prism in relation to the change from oceanic to continental subduction.

This work is part of an ongoing Ph.D. thesis in which the analysis of the results will not only focus on establishing new first-order tectonic models for the early collision but also on better constraining the control of former rifted margin on the locus of the deformation in this tectonically active zone.