## The Morpho-sedimentary Characterisitcs of the Northern End of Manila Trench and Its Relation to Longitudinal Sediment Transport in the Taiwan-Luzon Region

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The Manila Trench occurs along the subduction zone west of the Luzon island arc where the Eurasian Plate slips eastward underneath the Philippine Sea plate along the east rim of the South China Sea in the Taiwan-Luzon region. The main trench axis between 14°N -18°N trends in a N-S direction along 119°E with two curved segments bending towards the Taiwan Island in the north and the Mindoro Island in the south, respectively. The southern end of Manila Trench can be well determined around 13.3°N, 120°E where the collision takes place near the west Mindoro block. But, the northern end of the Manila Trench is not well defined in terms of bathymetry and tectonic features. Existing controversial arguments of the links between the northward extension and connection of the northern Manila Trench into southern Taiwan remain debated. This paper proposes that the northern Manila Trench can be continued northward and connected to the Penghu Submarine Canyon located offshore SW Taiwan. Much terrestrial sediment from the Taiwan orogen can be transported longitudinally via the Penghu Canyon to the northern end of the Manila Trench, filling the Manila Trench and masking the trench morphology and terminating the northward continuation of the trench. We present morphological descriptions both in platform and cross-sectional views in the region between southern Taiwan and the Luzon Island to show variations of morphological patterns in the transition from canyon to trench and to determine the location of the northern end of Manila Trench. Then, we integrate interpretations of the longitudinal transport model with seismic data in order to characterize the sediment dispersal routes down-slope the complex Kaoping Slope offshore SW Taiwan and the temporary sediment accumulation at the Penghu Canyon, the main longitudinal transport pathway delivering sediments to the northern Manila Trench. Finally, we compare the results from the study areas with other systems e.g., the New Britain Trench in western Solomon Sea, Papua New Guinea that share similar longitudinal transport system with a canyon-trench transition.

Key words: Manila Trench, trench ending, longitudinal sediment dispersal, canyon, Taiwan