



Implications from deepwater depositional elements in the fold-and-thrust belt of the remnant ocean basin offshore SW Taiwan

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The northeastern South China Sea Basin is being closed due to the oblique collision between the Luzon Volcano Arc and the Chinese Continental Margin. The orogen of Taiwan Island situated in the tropical/subtropical zone with a high uplifting rate provides voluminous sediments to the nearby basins. As a remnant ocean basin, the closing basin in offshore southwestern Taiwan has accommodated a large amount of synorogenic sediments. Through multi-channel seismic profiles, several depositional elements in the deepwater fold-and-thrust belt of the lower Gaoping slope have been identified. These sedimentary layers were deposited before deformation and later incorporated into the orogenic wedge. The N-S trend leveed channels developed along the strike of the orogenic wedge and occupied the most area of the lower Gaoping Slope. This channel-levee complex presents the ancient fan which should relate to the Penghu submarine canyon, named "Penghu Turbidite System". In contrast, at the mouth of the middle section of the Gaoping Submarine Canyon, the buried channels trend SW-NE are characterized by massive high amplitude reflection packets (HARPs) which may represent the coarse grain infills. This facies turns to channelized lobes outward that interfinger with the Penghu Turbidite System. Two different characteristics of submarine fans reflect the different natures of Penghu and Gaoping submarine canyons. Since the tectonic convergence approaching, these two canyons rejuvenated and started to erode the aforementioned deposits. The channels become erosional in the fold-and-thrust belt that most of the sediments bypass through the fold-and-thrust belt or spill into the piggyback accommodations. The newly discovered sedimentary records in this study imply how these two sediment dispersal systems work before and after structuring, which is a puzzle for better understanding the sedimentary history of the remnant ocean basin offshore southwestern Taiwan.