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Drown carbonate platform and crustal characters in the northern offshore area of the Taiping Island, southern South China Sea.

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A 217-km long multichannel seismic reflection profile, together with magnetic and gravity data have been acquired in a marine geophysical survey of the Taiping Island, north of the Chengho Reefs in northern Dangerous Grounds, South China Sea. A volcanic province is identified at the west end of the seismic profile. Eastward, the seismic profile is characterized by several sets of strong reflectors with their amplitudes dropping off westward. In addition, these reflectors are not vertically aggradational, but show reciprocal stacking patterns of progradation and retrogradation. These reciprocal stacking patterns implicate the relative sea-level fluctuations, and may mark the cessation of the South China Sea seafloor spreading. In the middle of the seismic section, several packages of reflections bounded by disconformible surfaces may stand for tilted carbonate platforms sitting above the rotated blocks. The application of gravity modeling help to delineate the crustal thickness and characteristics of the Chengho Reefs. Magnetic modeling help us determine the magnetic sources underlie the Taiping island, a carbonate platform.