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## On the Generation and Evolution of Internal Solitary Waves in the Andaman Sea

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Internal Solitary Waves (ISW) are ubiquitous in the Andaman Sea as revealed by Synthetic Aperture Radar (SAR) images, but their generation mechanism and corresponding influence factors remain unknown. Based on a non-hydrostatic two-dimensional model, the generation of ISW across the channel between the Batti Malv Island and the Car Nicobar Island is investigated. Influences of the topography characteristics, seasonal stratification and tidal forcing are analyzed with a series of sensitivity runs. The simulated results indicate that no apparent ISW appear near the ridge because of small tidal excursion and low Froude number. Instead, they are evolved from the disintegrated internal tides which gradually steepen due to nonlinearity during propagation. East-west asymmetry of ISWs is revealed, which can be attributed to different topographic features on the two sides of the ridge. Two sills on the east side of the ridge further complicate the generation of eastward-propagating internal tides, resulting in the enhancement of ISWs in the Andaman Sea. Seasonally varying stratification has minor effect on the generation and evolution of ISWs. In addition, generation of ISW is mainly contributed by semidiurnal tidal forcing, while diurnal forcing only generates linear internal tides.