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## Phase velocity of internal solitary waves in the Dongsha region of the northern South China Sea

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Phase velocity is a fundamental parameter to characterize internal solitary waves (ISW) dynamics. Seismic oceanography method to derive the phase velocity of internal solitary waves has been reported recently. In addition, seismic oceanography data can be used to image the internal solitary waves and extract ISW's vertical structure. In this paper, we study the relation between ISW phase velocities with wave amplitude and corresponding water depths based on lots of seismic oceanography data in the Dongsha region of the northern South China Sea.

A seismic survey cruise was carried out on Dongsha Plateau in the summer of 2009. We used Seismic Unix to reprocess the seismic dataset. Our process method can image the water column below 50m. We identify 8 single depression solitons, 4 ISW packets on the shelf and upper continental slope. We extracted phase velocities, corresponding water depths and maximum wave amplitudes of these ISWs. The result shows that phase velocities are positively correlated both with wave amplitude and water depths. We obtain one relation formula between ISW phase velocities with wave amplitude and corresponding water depths by linear regression fitting. Then we have a detailed discussion on ISWs features in the Dongsha region.

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