On the vertical structure of internal solitary waves in the northeastern South China Sea

Yi Gong[1], Haibin Song[1], *, Zhongxiang Zhao[2], Yongxian Guan[3], Yunyan Kuang[1]
1 State Key laboratory of Marine Geology, School of Ocean and Earth Science, Tongji University, Shanghai 200092, China
2 Applied Physics Laboratory, University of Washington, Seattle, WA, USA
3 Guangzhou Marine Geological Survey, China Geological Survey, Guangzhou 510760, China

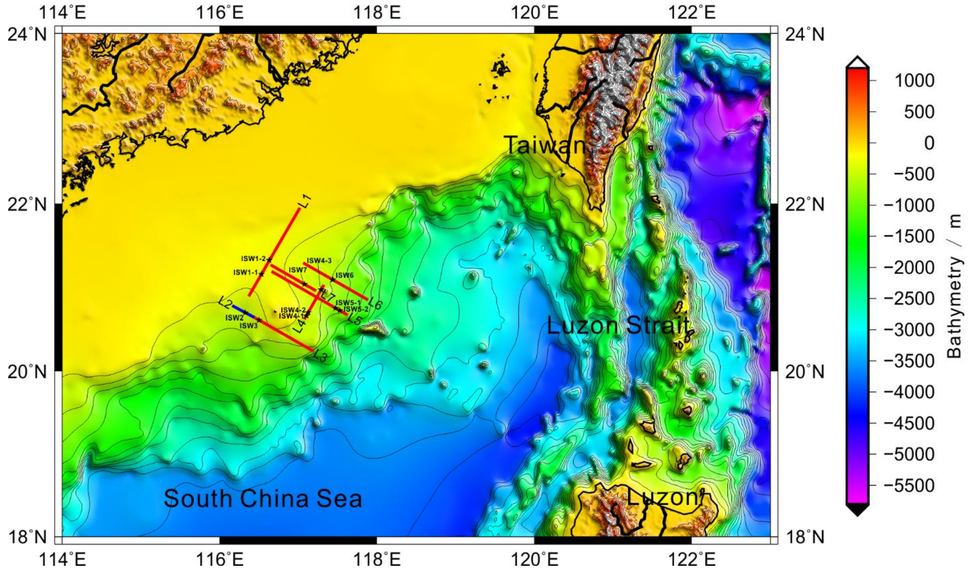

Figure 1. The location of seismic survey lines.

11 internal solitary waves were observed near the Dongsha Atoll. We calculate the vertical structures of these internal solitary waves, and compared them with two theories.

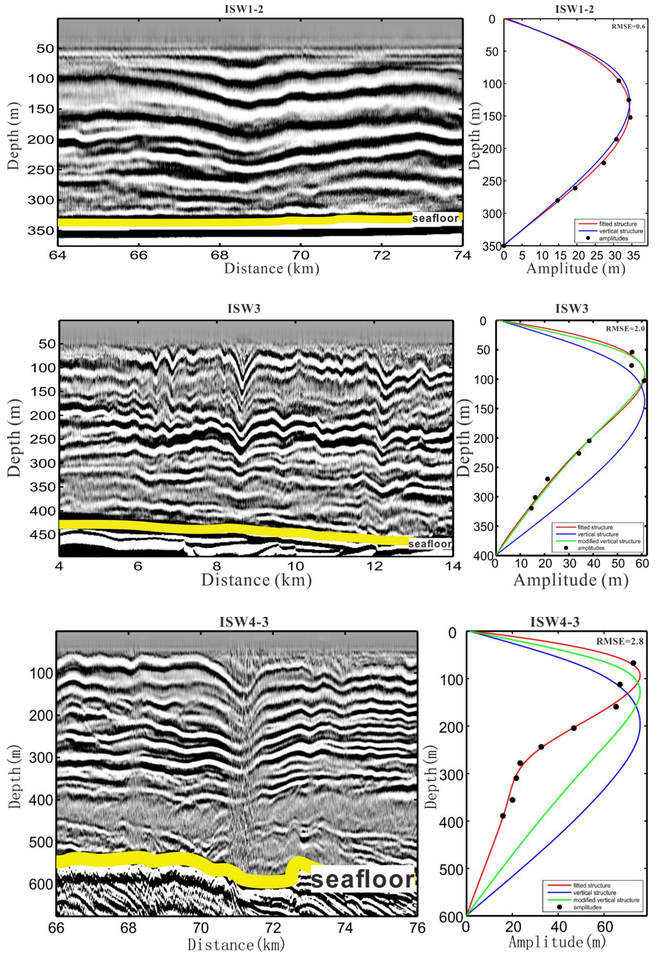

Figure 2. The vertical structure of internal solitary waves.

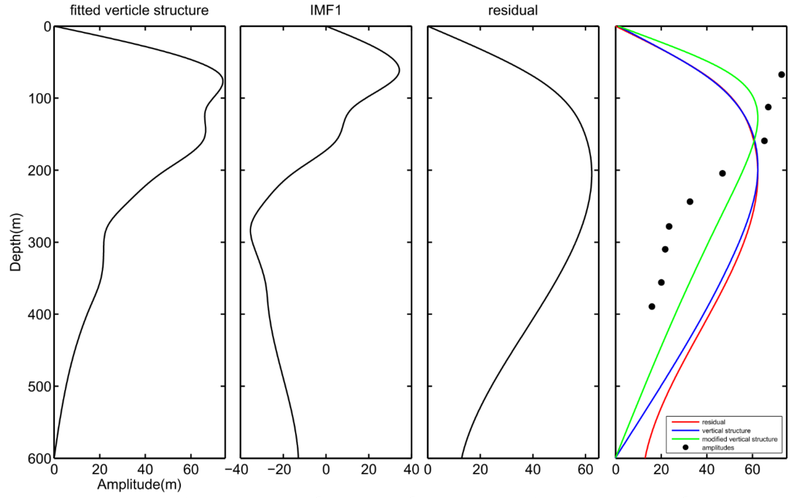

Figure 3. The result of EMD for vertical structure of ISW4-3.

The results show that the vertical structure is mainly determined by nonlinearity of ISW. And topography and background flow affect the vertical structure as well.