Internal gravity waves in the Strait of Luzon: dispersion studies using Fourier and continuous wavelet analysis

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Analysis of tides and internal waves (IW) from model studies in the South China Sea has been conducted and are described here. We summarize qualitative results from standard Fourier and wavelet analysis which have been shown to be useful delineating qualitative, first order dynamics (for example finding fundamental modes). While less extensively investigated, detailed quantitative characterization of internal wave dynamics can be calculated. In particular, we examine a variety of dispersion analyses which quantify internal wave dynamics. The results from these are presented here including calculated relationships between amplitudes, wavelengths, and propagation speeds. Further, calculations are presented which highlight the energy budget for internal waves in the Strait of Luzon. This study is primarily based on model results from Lamb's 2D non-hydrostatic model (Lamb 1994) simulating internal waves existing the South China Sea.