



Internal tides in the Solomon Sea

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In the south west Pacific, the Solomon Sea lies on the pathway of the Low Latitudes Western Boundary Currents (LLWBCs) that connect the subtropics to the equator. The Solomon Sea have a particular interest in a climatic context, since they are a critical pathway for ENSO and its low frequency modulation. The western Pacific is a place of energetic internal tides generated over its complex bottom topographic features. In the Indonesian Archipelago, they are particularly active in defining the properties of the waters that move from the Pacific to the Indian Ocean. The salinity maximum at the thermocline level, which is characteristic of the South Pacific Tropical Waters (SPTW) flowing within the LLWBCs and feeding the Equatorial UnderCurrent, is largely eroded within the Solomon Sea. Different mechanisms could explain such salt erosion including current/bathymetry interactions, internal tides, and eddy activity. The motivation of this study is to investigate the potential role of internal tides for such water mass transformation. Results from a $1/36^\circ$ resolution regional model including explicit tides are presented. As a first step, the generation and propagation of internal tides in the Solomon Sea are determined, and the conversion rate from barotropic to baroclinic energy is estimated.