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Free and Forced Rossby Waves in the Western South China Sea Inferred from Jason-1 Satellite Altimetry Data

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Data from a subsurface mooring deployed in the western South China Sea shows clear intra-seasonal oscillations (ISO) at the period of 40~70 days. Analysis of remotelysensed sea surface height (SSH) anomalies in the same area indicates that these ISO signals propagate both eastward and westward. Time-longitude diagrams of ISO signals in SSH anomalies and wind-stress curl indicate that the eastward propagating SSH anomalies is forced by wind-stress curl. This is also confirmed by lag correlation between SSH anomalies and the wind-stress curl index (wind stress curl averaged over 109.5°E -115°E and 12°N -13.5°N). Lag correlation of SSH anomaly suggests that the westward propagating signals are free Rossby waves.

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