

Circulation and Thermohaline Structure of the East Asian Marginal Seas Simulated by a Nested Global/Regional Model

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An embedded global/coastal model has been developed to study the circulation and thermohaline structures of the east Asian marginal seas. The recently developed volume transport model (global module) and the Princeton Ocean Model (POM) with 23 sigma levels conforming to a realistic bottom topography (coastal module) are used for the study. The open boundaries for the coastal module are 150 deg E and 15 deg S.

The simulated Kuroshio begins where the North Equatorial Current approaches Philippines and continues northward east of Taiwan. The two currents merge into one current at the north tip of Taiwan. This strong current crosses the ridge that connects Taiwan with the Okinawa Islands and Kyushu and continues along the continental rise east of the East China Sea.

The simulated current systems in the east Asian marginal seas are reasonably well such as the Kuroshio intrusion into the South China Sea (SCS), the SCS Warm Current, the Yellow Sea (YS) warm current, the YS Coastal Cold Current, the Tsushima Current and etc..

The thermal structure and its temporal variabilities were also well simulated. Comparison between our results to earlier studies is also given.