Geophysical Research Abstracts
Vol. 18, EGU2016-10972, 2016
EGU General Assembly 2016

Wind-induced currents in the South China Sea

Quang-Hung Luu (1) and Pavel Tkalich (2)

(1) Tropical Marine Science Institute, National University of Singapore, Singapore, Singapore (tmslqh@nus.edu.sg), (2) Tropical Marine Science Institute, National University of Singapore, Singapore, Singapore (tmspt@nus.edu.sg)

The South China Sea (SCS) is one of the Earth's largest marginal seas. Located in the transitional region between the Pacific Ocean and the Indian Ocean as well as in the convergent zone of various multi-scale atmospheric and climatic drivers, the wind-induced circulations in the SCS are highly complicated. In this study, we derive the high-resolution seasonal patterns of wind-induced circulations in the SCS using the Semi-implicit Eulerian–Lagrangian Finite-Element (SELFE) model. The complicated bathymetry is mainly resolved by the dataset of the Shuttle Radar Topography Mission (SMRT) with the resolution as fine as 15-arc second. We further improve the topography by merging it with very-fine bathymetry being digitized from satellite images for features and islands the in the middle of the SCS (the Spratly and the Paracels). The model is forced by climatological wind and atmospheric pressure from National Centers for Environmental Prediction (NCEP). High-resolution patterns of wind-induced circulations in the SCS during Northeast (NE) and Southwest (SW) monsoons are presented, zooming at small features in the middle of the SCS. We further discuss the distortions of wind-induced currents during NE and SW seasons by examining two cases: the presence and the absence of tides.