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A Numerical Study of the Tidal Currents in the Persian Gulf and Oman Sea

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Abstract : This study focuses on the tidal oscillation and its speed to create a general pattern in seas. The purpose of the analysis is to find out the amplitude and phase for several important tidal components. Therefore, Regional Ocean Models (ROMS) was rendered to consider the correlation and accuracy of this pattern. Finding tidal harmonic components allows us to predict tide at this region. Better prediction of these tides, making standard platform, making suitable wave breakers, helping coastal building, navigation, fisheries, port management and tsunami research. Result shows a fair accuracy in the SSH. It reveals tidal currents are highest in Hormuz Strait and the narrow and shallow region between Kish Island. To investigate flow patterns of the region, the results of limited size model of FVCOM were utilized. Many features of the present day view of ocean circulation have some precedent in tidal and long- wave studies. Tidal waves are categorized to be among the long waves. So that tidal currents studies have indeed effects in subsequent studies of sea and ocean circulations.

Keywords : barotropic tide, FVCOM, numerical model, OTPS, ROMS
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