Geophysical Research Abstracts
Vol. 14, EGU2012-11443, 2012
EGU General Assembly 2012

Evaluation of the Global Tidal Models versus Satellite Altimetry and Local Tide gauge data, a Case Study in Persian Gulf and Oman Sea

R. Kiamehr (1), H.R. Daddowlat (2), S.M.T. Sadatipour (2), and M. Abrehdary (3)

(1) University of Zanjan, 45371-38791, Zanjan, Iran , (2) Department of Hydrography, North Tehran Branch, Islamic Azad University, Tehran, Iran, (3) Division of Geodesy and Geomatics, Royal Institute of Technology, 10044, Stockholm, Sweden

Due to vast extend of the oceans, satellite altimetry is known as the most suitable tool for monitoring of sea level. During recent years, many global models have been proposed using satellite altimetry for ocean tide estimation. These models are widely used in many different fields such as marine geodesy, geophysics, as well as oceanography. Due to the variety of existing models quantitative evaluation of them, as well as their accuracy is important for practical local applications. This article introduces the most recent global tidal models offered by major oceanographic research centers and evaluates them in the study area. The results revealed that using high resolution Topex-Poseidon data in solution increase the accuracy of these models. Also, certain methods such as Harmonic or the Cross-Over analysis considerably increase accuracy of the models. The main aim of the present study is to achieve the scientific and analytical principals in order to select the best model for mean sea level calculation among the existing models. The global tidal models evaluated in the research are FES2004 model with 1.8 by 1.8, NOA99b and GOT00.2 with 0.5 by 0.5 degree gridding size. These models evaluated versus 4 tide gauges based on the 4 parameters fitting model. Using the idea of correction surface indicated that the 4 parameter model could be useful for eliminating of possible datum shift and systematic errors in global models. Final results disclosed that GOT00.2 is the most suitable global model for the Persian Gulf and the Oman Sea with variance factor of 2.3.