



Determination of the non-conservative forces on the Mean Sea Level by using satellite altimetry data Case study: determination of the effect of non-conservative forces on the Persian Gulf and Oman Sea based on Topex/Poseidon satellite altimetry data for the duration 1992-2001

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The effect of wind-speed, air pressure, sea water depth, and the shape of the coast, as major deriving phenomena for deviation of the Mean Sea Level (MSL) from an static equilibrium figure of the earth's gravity field has been closely studied and modeled based on: (i) ARIMA technique and (ii) response analysis. As the source of data, observation made by Topex/Poseidon satellite within the period 1992 till 2001 have been used. As the test area geographical region of Persian Gulf and Oman Sea was selected and the two techniques were applied to model the residual heights being resulted from aforementioned non-conservative forces/effects. The results of the numerical computations at the test area indicate that the ARIMA technique is more effective at the near shore area and the response analysis technique is more effectively working at the off-shore areas. The detail of the applied theory and numerical results will be presented.