

# **Implementation of Regression Method in Tidal Principal Components**

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## **Abstract**

Considering the importance and role of tidal phenomena in the maritime, offshore structures and Hydrography; Creating and editing charts of the amplitude and phase of Persian Gulf tidal, can contribute to studies of the sea to make appropriate decisions. The purpose of this study is mapping locally the tidal amplitude and phase of the Persian Gulf and Oman Sea.

Mean Sea Level (MSL) in different countries typically is determined by using spectral analysis of tide gauges observations. By using coastal tide gauges information available at Iranian Surveying Organization - scattered throughout the study area- the exact levels will be determined. By the means of sea level height observations, time series has been collected in Persian Gulf. The harmonic components of sea are fixed for each region and they are virtually unchangeable over time.

Tidal phenomena can be studied by using mathematical and astronomical model. In this study, using a written code in Matlab Software can calculate all known components of the tidal potential of the Persian Gulf. In order to have a good comparison, data has been given to DHI-Mike 21 Software and are compared with the results of the Matlab code and the results are drawn range.

## **Introduction**

Persian Gulf is a major region of the world oceans that has highest maritime traffic. Hundreds of ships pass through the Hormuz Strait every day with different goals and they choose the Persian Gulf waters to pass through. Guidance of the seafaring vessels, security and legal issues arising from traffic floating is needed to study as independent review in this context and development of traffic systems in this area. Considering the importance and role of tidal