



## **Annual sea surface height variation and dynamic topography on the Caspian Sea from Jason-1 altimetry data**

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The recent unseasonably overflow of the Caspian Sea and onrushing to the coastal region is the predominant motivation of this study on the sea surface height anomaly in order to find the climatic and environmental changes impact on the last decade.

For this propose the data gathered by Jet Propulsion Library (JPL) from Jason-1 (2002 to present) and Topex/Poseidon (1995-2002) have been utilized. In addition to the altimetry data, the sea level observation data by Caspian Water Research Institute (CWRI) in Iran has been also used to compare the results.

Due to non-stationary habit of sea surface dynamic topography (SSDT) time series in this region, SSDT can be divided into the periodical part and fluctuation around the mean. This fluctuation shows the trend of sea level changes clearly. Since the fluctuations inherit the very low frequency constituents of sea level, the satellite orbit errors came into concentration and the optimal interpolation method has been employed to reduce the orbit errors. The results confirm that the SSDT derived from altimetry data can be used as a forecast module to detect the monthly trends precisely, in order to determine the source of environmental changes before long.