

عنوان مقاله:

Assessment of noise in time series analysis for Buoy tide observations

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خلاصه مقاله:

To extract valid results from time series analysis of tides observations, noise reduction is vital. This study aimed to use a precise statistical model to investigate noise types. Noise component amplitude of the proposed model was studied by Least Square Estimation (LS-VCE) through different statistical models: (۱) white noise and auto-regressive noise, (۲) white noise and Flicker noise, (۳) white noise and random walk noise, (۴) white noise and Flicker noise and random walk, and (۵) auto-regressive noise and Flicker noise. Based on the values obtained for the Likelihood Function, it was concluded that the noise model that can be considered for observations of the Buoy time series includes two white and Flicker noises. In addition, tide forecasting for all stations was done by extracting important frequency calculated in two cases: (۱) the first case in which matrix of observation weight matrix was considered as the unit matrix or the noise model was just a white noise (۲) the case in which matrix of observation weight matrix was considered as a combination of white and Flicker noises. The results show that use of precise observation weight matrix resulted in ۱۱ millimeter difference compared to the case in which observation with unit weight matrix was used.

کلمات کلیدی:

Buoy station's time series, Least Square Estimation, Least Square -Harmonic Estimation, tides observation's noise analysis, Maximum Likelihood Estimation

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