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Forecasting the Sea Level Change in Strait of Hormuz

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Abstract : Recent investigations have demonstrated the global sea level rise due to climate change impacts. In this study climate changes study the effects of increasing water level in the strait of Hormuz. The probable changes of sea level rise should be investigated to employ the adaption strategies. The climatic output data of a GCM (General Circulation Model) named CGCM3 under climate change scenario of A1b and A2 were used. Among different variables simulated by this model, those of maximum correlation with sea level changes in the study region and least redundancy among themselves were selected for sea level rise prediction by using stepwise regression. One models of Discrete Wavelet artificial Neural Network (DWNN) was developed to explore the relationship between climatic variables and sea level changes. In these models, wavelet was used to disaggregate the time series of input and output data into different components and then ANN was used to relate the disaggregated components of predictors and predictands to each other. The results showed in the Shahid Rajae Station for scenario A1B sea level rise is among 64 to 75 cm and for the A2 Scenario sea level rise is among 90 to 105 cm. Furthermore the result showed a significant increase of sea level at the study region under climate change impacts, which should be incorporated in coastal areas management.

Keywords : climate change scenarios, sea-level rise, strait of Hormuz, forecasting
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