

## Impact of Climate Change on Sea Level Rise along the Coastline of Mumbai City, India

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**Abstract :** Sea-level rise being one of the most important impacts of anthropogenic induced climate change resulting from global warming and melting of icebergs at Arctic and Antarctic, the investigations done by various researchers both on Indian Coast and elsewhere during the last decade has been reviewed in this paper. The paper aims to ascertain the propensity of consistency of different suggested methods to predict the near-accurate future sea level rise along the coast of Mumbai. Case studies at East Coast, Southern Tip and West and South West coast of India have been reviewed. Coastal Vulnerability Index of several important international places has been compared, which matched with Intergovernmental Panel on Climate Change forecasts. The application of Geographic Information System mapping, use of remote sensing technology, both Multi Spectral Scanner and Thematic Mapping data from Landsat classified through Iterative Self-Organizing Data Analysis Technique for arriving at high, moderate and low Coastal Vulnerability Index at various important coastal cities have been observed. Instead of data driven, hindcast based forecast for Significant Wave Height, additional impact of sea level rise has been suggested. Efficacy and limitations of numerical methods vis-à-vis Artificial Neural Network has been assessed, importance of Root Mean Square error on numerical results is mentioned. Comparing between various computerized methods on forecast results obtained from MIKE 21 has been opined to be more reliable than Delft 3D model.

**Keywords :** climate change, Coastal Vulnerability Index, global warming, sea level rise

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