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Role of continental shelf on nonlinear interaction of storm-surge, tides and wind-waves: An idealized study representing west coast of India

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1 **Role of Continental Shelf on Nonlinear Interaction of Storm-Surge, Tides and Wind-Waves:**
2 **an Idealized Study Representing West Coast of India**

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15 **ABSTRACT**

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17 The study reports role and dependence of continental shelf geometry on the non-linear
18 interaction of storm surges, tides, and wind-waves. As a case study, the shelf geometry
19 representing the west coast of India is considered and numerical simulations are executed
20 using the standard representation of a tropical cyclone. The idealized experiments assume the
21 west coast of India as a straight coastline with varying continental shelf width ranging from 35
22 km in the south to 330 km in the north. For the experiments, ADCIRC model in standalone
23 mode and coupled ADCIRC+SWAN are used by considering 13 idealized cyclone tracks
24 covering the study domain. It is noticed that an amplification of peak storm surge of ~ 12cm

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