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The tidal and wind induced hydrodynamics of the North Adriatic Sea: a sensitivity study with a very high resolution hydrodynamic model.

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A very high resolution, general coordinate, boundary fitted non linear numerical model is implemented in the central and eastern Mediterranean basin in order to simulate the tidal and wind-induced hydrodynamics of the North Adriatic Sea. A sensitivity study elucidates the dependence of the simulated tidal features on the adopted grid resolution and position of the model boundaries. Different small-scale and mesoscale atmospheric features like, e.g., sharp fronts and vortices discretized with different accuracy are assumed as a part of the forcing in order to evaluate the sensitivity of the model response to different atmospheric scenarios. The obtained fields are utilized to investigate the possible scenarios affecting the hydrodynamics of the lagoon of Venice.