Dear Editor,

We hereby submit the manuscript entitled “Rapid response data-driven predictions for storm surge around New Zealand” from Javier Tausia, Sebastien Delaux, Paula Camus, Ana Rueda, Fernando Mendez, Karin Bryan, Jorge Perez, Carine Costa, Antonio Cofino and Remy Zingfogel to be considered for publication in Ocean Modelling.

In conjunction with tides, storm surge is one major driver of coastal flooding associated with storm events. Because local inundation is strongly modulated by the local shape of the coastline and the bathymetric slope, accurate storm surge predictions using traditional numerical models require the use of very fine grids and is hence resource intensive. Therefore, the performance of a live prediction system based on such methods will likely be subject to a trade-off between prediction accuracy, prediction speed and cost. In this study, we explore the use of 3 data driven methods as an alternative to numerical methods to reconstruct the 6 hourly, 12 hourly and daily storm surge maximum levels along different locations in the coast of New Zealand. We first explore different atmospheric predictors with these 3 statistical models, to find the best possible predictor, and then, we reconstruct the storm surge daily maxima with the different statistical models along the entire coast, based on this predictor. The code developed and used as part of this study is public and available in a GitHub repository to facilitate easy replication of the study.

We envisage that the methodology proposed in this work will help in the search for the optimal atmospheric predictor to reconstruct the storm surge maximum levels in different areas of interest, not just in New Zealand, and also allow for rapid storm surge predictions using different data-driven models. We expect the paper to be suitable to the readership of “Ocean Modelling” as it will raise public and scientific awareness of the importance of exhaustive predictor research and rapid predictions using statistical models.

Thank you very much for taking this paper into consideration,

**Javier Tausia**

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