

Ocean Sci. Discuss., referee comment RC2  
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## **Comment on os-2021-84**

Anonymous Referee #2

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Referee comment on "Forecasting hurricane-forced significant wave heights using a long short-term memory network in the Caribbean Sea" by Brandon J. Bethel et al., Ocean Sci. Discuss., <https://doi.org/10.5194/os-2021-84-RC2>, 2021

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This paper proposes the use of a Long Short-Term Memory architecture to predict hurricane-forced significant wave heights in the Caribbean Sea. The application is interesting, and the use of this model is motivated by the necessity of having fast predictions.

The data is provided by 10 buoys and the number of scenarios (as shown in table 2) is not big which may represent a challenge for the generality of the model. The choice of merging multiple observations in one time series (lines 75-76) is particularly important for preventing overfitting but the separation between training and testing is not motivated. Probably a better description of Figure 1 may be used help with this.

The model proposed is a standard LSTM. This recurrent neural network is well known to be good in training time series. The choice of the hyperparameters is not described or motivated. The only information is about the number of epochs and the batch size but there is not mentioned any reason for these choices and there are not comparisons with others.

The results in Figures 3,4,5 show some discrepancies between the forecasting and the observation. In case the authors are willing to, this may be solved by implementing an adversarially trained LSTM.

The authors provide results of the accuracy. However, it would be interesting to check the efficiency, at least in terms of execution times for both training-testing and for the forecasting.

As the authors state in the introduction (from lines 29), there are other methods for nowcasting which are actually used for these purposes. The paper may provide comparisons in terms of accuracy or/and efficiency with these methods at least in terms of order of magnitude.