

6th International Workshop on Deep Learning in Computational Physics (DLCP-2022)



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In situ wind speed nowcasting using data-driven approach.

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The weather forecast has a significant impact on a variety of human industries. In particular, knowledge of the short-term wind speed conditions is essential for fishery, energy management, surfing and others. One of the most effective neural network models for time series forecasting is LSTM (Long short-term memory), however, the accuracy of its forecast decreases significantly with increasing forecasting range. At the same time, numerical models based on physical laws make it possible to achieve accurate results even over long-term intervals. In an attempt to combine these 2 types of models, an LSTM-based neural network was developed using wind speed data at the forecast point and atmospheric parameters in a domain of size covering mesoscale wind events. Based on these weather characteristics and numerical model data, the neural network makes a short-term forecast of the wind speed module at the point. In the current state, our model outperforms the persistent forecast. In the future, the results can be improved by adjusting hyperparameters and introducing the ability to use the result of numerical models as a basis for the final forecast.

Agreement to place

Participants agree to post their abstracts and presentations online at the workshop website. All materials will be placed in the form in which they were provided by the authors

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