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Professor Gary Lackmann

Editor in Chief

*Weather and Forecasting*

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Dear Professor Lackmann:

I would like to submit my original research article entitled “Verifying Operational Forecasts of Land-Sea Breeze and Boundary Layer Mixing Processes” to *Weather and Forecasting*. This article presents a novel methodology for verifying the diurnally varying component of human-edited wind forecasts. Diurnally focused verification methods are necessary for winds, as American and Australian forecasters routinely edit model wind fields in an attempt to better resolve diurnal processes like the land-sea breeze and boundary layer mixing, and to my knowledge no such focused verification method currently exists in the literature.

In addition to presenting the methodology, I also apply it to operational forecast data across Australia. The methodology allows structural biases in diurnal wind processes to be identified, such as biases in the direction sea breezes approach coastlines. However, the results also indicate that editing the wind fields only results in lower absolute error in the diurnal component of the wind forecast when data is averaged over coarse spatial scales of at least 50 000 km2, and even then, the edited forecast rarely outperforms both the model guidance products commonly used by Australian forecasters simultaneously.

I believe these results have operational significance for both Australian and American forecasting centers, as they suggest careful thought must be given to the intended effect of these types of edits, and that more comprehensive verification efforts for these edits are necessary. I believe *Weather and Forecasting* is the ideal journal in which to publish these results, due to the journal’s emphasis on operational meteorology and verification, and its wide readership among professional meteorologists.

Thank you for your consideration.

Kind regards,

Ewan Short,

PhD Candidate, School of Earth Sciences

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