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Peer Review

Review of: "Spatiotemporal Forecasting in Climate Data Using EOFs and Machine Learning Models: A Case Study in Chile"

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This article presents a hybrid methodology for spatiotemporal climate forecasting in Chile, combining Empirical Orthogonal Functions (EOFs), wavelet analysis, and machine learning (ML) models. The approach reduces a high-dimensional multivariate forecasting problem into a manageable univariate time series forecasting task, leveraging the strengths of each method to improve computational efficiency and forecast accuracy. With some minor revisions to improve clarity and transparency, the manuscript is fit for publication and likely to attract interest across climate science, geoinformatics, and environmental data science domains.

Broadly speaking, while the approach is effective, it involves multiple technical components. A full pipeline schematic or code repository would support reproducibility. Some mathematical notations (especially those involving EOFs and SVD) are presented densely and could benefit from clearer visuals and simplification. The study is geographically constrained to Chile. Although appropriate for this case, a discussion on how the methodology might generalize to other countries would be valuable. The model's limitations for long-term climate prediction (e.g., beyond a 1-year horizon) are acknowledged, but further exploration of alternative models for such horizons would strengthen the work. The paper would benefit from more detail on how outliers or missing values were handled, especially given the granularity of the data.

More specifically, I would appreciate the following changes:

- Figure 4 needs to be improved for better visualization.
- Also, I believe that it is better to use the same format for all tables.
- Add magnitudes to the y-label in figure 6.

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- Please revise the reference section. There are some references without the DOI (i.e., references 19, 20).
- Finally, please revise the possible typos and grammatical errors throughout the text.

Declarations

Potential competing interests: No potential competing interests to declare.