<English Version>

Predictability model of the sea ice extent from machine learning[1]

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Summary: The tree-based machine learning technique including random forest and extreme gradient boosting has been applied to various fields due to superior predictive performance. However, it has a disadvantage of not being able to capture trends in time series data. To overcome this drawback, we propose a hybrid strategy based on the combination of tree-based machine learning and statistical techniques. In addition, a seasonal variation is considered as a feature using a Fourier transform. The superiority of the proposed strategy is demonstrated by a practical application using data for Arctic sea ice extent which is an important indicator showing the effect of global warming.

Keywords: Fourier transform, hybrid strategy, machine learning, time series data

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