FSU Meteorological Seminar Series, Autumn 2022

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Pushing the boundary of seasonal prediction with the lever of varying annual cycles

Predicting climate anomalies months in advance is of tremendous socioeconomic value. Facing both theoretical and practical constraints, this realm of "seasonal prediction" progressed slowly in recent decades. Here we devise an innovative scheme that pushes the boundary of seasonal prediction by recognizing and isolating distinct spatiotemporal footprints left by modes of climate variability that cause varying annual cycles in response to the solar forcing. The predictive power harnessed from these spatiotemporal footprints results in a prediction skill surpassing existing models for seasonal forecasts of eastern China rainfall, which is one of the most challenging seasonal prediction problems. By considering varying annual cycles explicitly, the new scheme is able to predict multi-provincial flood and/or drought occurrences seamlessly over an entire year. This novel scheme is generically applicable for improving seasonal forecasts over other monsoon regions and for critical climate variables such as surface temperature and Arctic sea-ice extent.

Time: Thursday, Nov. 10, 2022, @ 3:00 PM
Location: 1044 EOA
Host: Dr. Zhaohua Wu