A multi-model prediction system for ENSO

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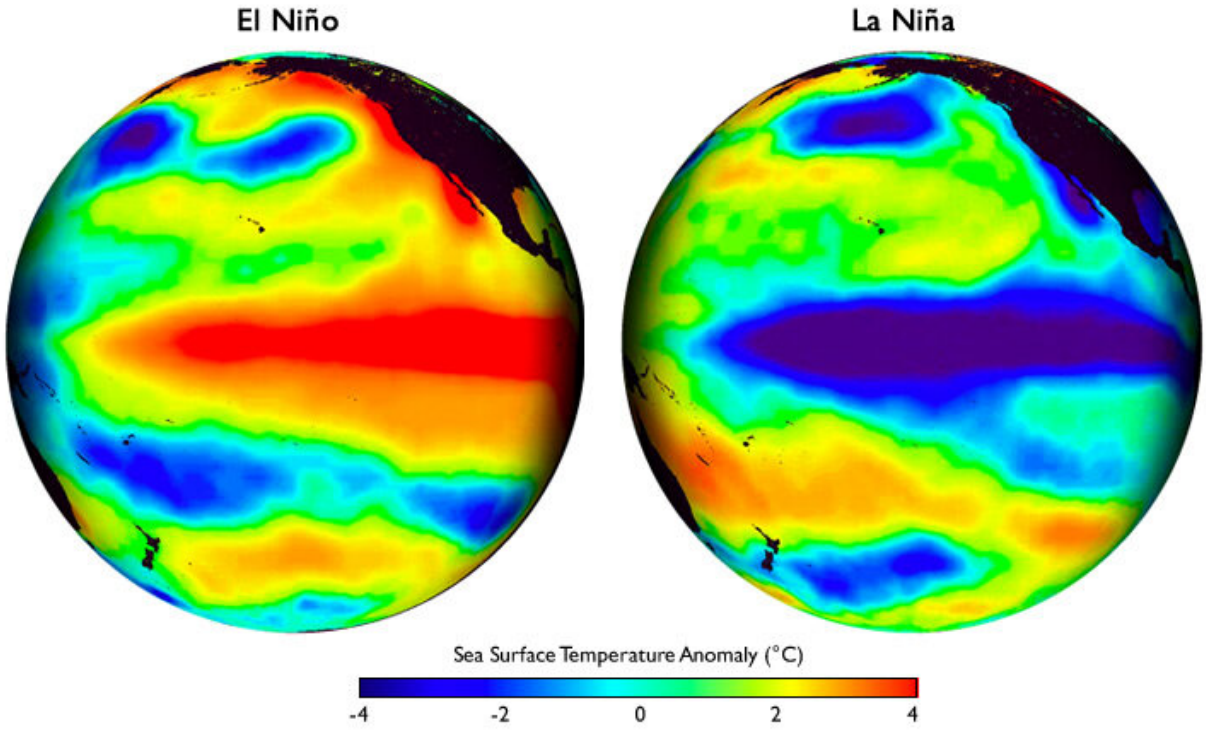

The sea surface anomalies of positive and negative ENSO phase from https://ifurtado.org/el-nino-southern-oscillation. Credit: Science China Press

A multi-model ensemble (MME) prediction system has been recently developed by a team led by Dr. Dake Chen. This prediction system consists of five dynamical coupled models with various complexities, parameterizations, resolutions, initializations, and ensemble strategies, to address various possible uncertainties of ENSO prediction.

One long term (1880-2017) ensemble hindcast demonstrated the superiority of the MME over individual models, evaluated by both deterministic and probabilistic skills, and it suffered less from the spring predictability barrier. Comparison with the North American Multi-Model Ensemble reveals that this MME prediction system can compete with, or even exceed, the counterparts of pioneering prediction models in this world.

Since 2020, the MME system has been issuing the real-time ENSO prediction, which has successfully captured the latest successive triple La Niña events six months ahead including the occurrence of a third-year La Niña event. This MME prediction has been regularly collected by the National Marine Environmental Forecasting Center, used as a consultant advice for national operational prediction.

The research is published in the journal *Science China Earth Sciences*.

More information: Ting Liu et al, A multi-model prediction system for ENSO, *Science China Earth Sciences* (2023). DOI: 10.1007/s11430-022-1094-0

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