# Weather and Climate Prediction from Weeks to Decades: Where do we stand?

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Significant advances have been made over the past decades in predicting weather and climate. However, recent studies suggest that significant leeway remains for further extending forecast horizons at a range of timescales. Each timescale exhibits phenomena that can be utilized as predictors, as well as applications and stakeholders interested in using the forecasts. Progress has been achieved by utilizing the fact that regions of higher persistence or predictability may be able to influence regions of high variability. A range of predictor regions have been identified that allow for an improved prediction of others. Among them are the coupling between the tropics and the mid-latitudes, the stratosphere and the troposphere, the Arctic and the mid-latitudes, and the ocean and the atmosphere. In search of improving weather prediction from a few days or weeks to climate prediction of decades to centuries, new methods combining dynamical, statistical, and data science approaches are introduced into climate science, with the promise of advancement in predictability skill. This contribution gives an overview of current findings, and takes a peek ahead.

Key words: teleconnections, predictability