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Real-time refinement of ECMWF subseasonal forecast confidence

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The World Climate Service (please see link at bottom of this page) is a commercial web-based portal designed to enable meteorologists and weather-sensitive enterprises to improve their long-range forecasting process. It provides independent sources of long-range forecast information, including statistical and analog forecast tools, to improve scenario analysis and the communication of future weather risk.

In summer 2019, the World Climate Service released a new statistical temperature forecast product based on success in a subseasonal forecast contest. The statistical scheme, called Sub-R, performed well in winter 2019-2020, and here we present a verification comparison between Sub-R and the ECMWF subseasonal forecasts for specific geographies. While the ECMWF was superior in Europe and Asia, Sub-R outperformed ECMWF over the USA domain. Moreover, in all three domains, the ECMWF performance was substantially better when the Sub-R forecasts agreed than when Sub-R predicted a different outcome.

We conclude that statistical forecast guidance such as Sub-R provides a valuable complement to dynamical model forecasts at subseasonal lead times. The results also suggest that statistical schemes have the potential to identify windows of enhanced predictability when the dynamical models will achieve higher skill than normal. Independent statistical guidance therefore permits real-time refinement of forecast confidence, whether in terms of subjective interpretation by a forecaster, or in terms of new quantitative multi-predictor forecasts. An obvious next step is to perform conditional calibration of the dynamical model forecasts to create probability information that reflects variations in skill and confidence based on statistical inputs.

Primary author: DUTTON, Jan (Prescient Weather Ltd)

Presenter: DUTTON, Jan (Prescient Weather Ltd)

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