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Utilizing Hydroclimatic Data to Improve Drought Monitoring and Seasonal Forecasting

Friday, March 5th: 3:30 – 4:15 P.M.

<https://osu.zoom.us/j/95939925902?pwd=eXBhVkJPky9ReEU4MGpnanpJRDNpUT09>

Hydroclimatology is a field which encompasses both the terrestrial and atmospheric components of the hydrologic cycle. This presentation will explore how the understanding of land-atmosphere interactions can be used to improve seasonal forecasts and better monitor hydroclimatic events. Hydroclimatic data is essential for quantifying land-atmosphere interactions and the use of soil moisture data has increased during the 21st century because of its recognition as an integral component in the global climate system. As the availability of soil moisture data has increased, previous research has demonstrated that soil moisture improves seasonal forecasts at lead times ranging from one month to one season. This presentation will highlight research integrating in situ, model derived, and proxy estimates of soil moisture in subseasonal-to-seasonal temperature forecast models across the US. Predictions using atmospheric persistence provide baselines of forecast skill to compare against models which also include soil moisture. Results quantify the added value of soil moisture and identify timescales and locations where soil moisture significantly improve forecast skill. The findings from this research suggest that there are some locations where the use of antecedent soil moisture data helps to improve baseline forecast skill. Therefore, detailed information identifying circumstances where soil moisture improves predictions are presented as forecasts of opportunity. Future research can continue to quantify the value of soil moisture and apply this knowledge to improving drought monitoring and seasonal forecasting in a changing climate.



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