

Roadmap - Seasonal Scale Forecasts (Vasu Misra)

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Objective: The overarching objective of this group is to robustly (methodically and unambiguously) diagnose seasonal predictability and forecast skill for all 4 seasons (winter, spring, summer, and fall) of stream flow in seven watersheds in Florida and 23 other watersheds spread around the southeast US. The seven watersheds in Florida are Peace River at Arcadia, Ochlockonee River near Havana, Choctawhatchee River at Caryville, Escambia River near Century, St. John's River near Deland, Tampa Bay watershed, and the Lake Okeechobee watershed in the South Florida water management district.

Technical approaches: The FSU group will be pursuing the study on the following watersheds: Florida are Peace river at Arcadia, Ochlockonee river near Havana, Choctawhatchee river at Caryville, Escambia river near Century, St. John's river near Deland. The water institute in Florida will pursue the study on Tampa Bay watershed and SFWMD will pursue the study on the Lake Okeechobee watershed. We will be using the NMME set of seasonal hindcasts (<http://iridl.ldeo.columbia.edu/SOURCES/.Models/.NMME/>), which are from seven different global coupled ocean-atmosphere models. In addition FSU is also running seasonal hindcasts from 1982-2010 for winter and summer at 50km resolution using the Florida Climate Institute Global Spectral Model (FCI-GSM), which will also be used in this study.

Relevance to utilities: Peace River, St. Johns River, SFWMD, and Tampa Bay would be most likely the first of the few water authorities in the country that will have a sound scientific analysis to convince themselves of the benefits and limitations of using seasonal climate forecasts for their operational needs.

Any bottlenecks: The availability of NMME data that is relevant for the proposed hydrological study is not available yet. The request will be formally made to NMME.

Next steps: The volume of data from NMME and the FCI-GSM will be huge (~ several Terabytes) that will be mined for detecting forecast skill as function of lead time, season, size of watershed and geographical location of the watersheds. We will approach this problem by taking one model, one season, one ensemble member at a time to wrap around this voluminous task. At the time of the possible next meeting in fall of the PWSU-CIWG we may have covered at least one model and one season completely. However as we repeat this procedure over several models and over other seasons the analysis will accelerate with the experience.