

# Southeast U.S.

## Test Bed Leaders

- Lifeng Luo (Princeton University)
- Eric F. Wood (Princeton University)

## Test Bed Description

The Southeast US was selected as the first region where realtime seasonal hydrologic forecasts are produced by the Princeton research group. It is also the region where the Southeast RFC is responsible for making short-term streamflow predictions. Within the region, there is the possibility to select several MOPEX basins for testing purposes. Because of ENSO and other possible teleconnections, the Southeast US seems to have certain predictability at seasonal timescale. As it is not a snow-dominant region, focus will naturally be on generating skillful and reliable meteorological forcing during the forecast period.

## Key Scientific Questions

Experiments at the Southeast US test bed will try to address the following HEPEX science questions

- How do we generate skillful and reliable meteorological forcing during the forecast period for seasonal hydrologic forecasting?
- How do we generate the hydrologic ensembles that reflect the total uncertainties?
- How can climate information, such as climate model forecast, teleconnection, be used reliably in seasonal hydrologic forecast?
- How do we validate hydrologic ensembles for extreme events?

## Key Objectives of the Research Project

- To test and compare different downscaling schemes in providing necessary atmospheric forcing to hydrological models for seasonal forecast
- To develop methods for ingesting information from multiple sources to produce ensembles that reflects the natural uncertainties
- To evaluate seasonal forecast and its usefulness for extreme events

## Data Resources

The following dataset are available fore the Southeast US test bed

- Land surface characteristics: including soil texture, topography, vegetation characteristics. These data are available for at 1/8-degree resolution. These data can be used to derive parameters used by individual model.
- A 50-year daily 1/8-deg meteorological dataset is available. It contains daily precipitation and daily maximum and minimum temperature.
- Long-term daily streamflow data are available from USGS for most of the streamflow gages.
- Multiple climate model seasonal hindcasts (6-9 month) are available starting from 1958. These include NCEP CFS hindcast and ECMWF DEMETER hindcast.