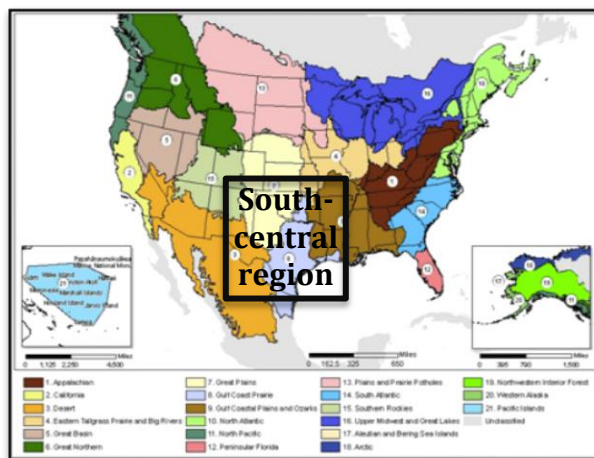


## South-Central Climate Science Consortium Executive Summary

Water, energy, agriculture, native peoples, and rapidly growing metropolitan areas intersect with a highly variable and changing climate to frame many of the risks, challenges, and opportunities for natural and cultural resources in the south-central United States. National parks, scenic waterways, tribal and trust lands, and other protected areas are prevalent across the region. Spatial and temporal changes in the south-central climate are linked to changes in biodiversity; key wildlife feeding, breeding, and nesting habitats; water quantity and quality; wetlands quality and extent; stream sedimentation and flow; range and density of heritage and invasive species; cultural and natural landscapes; pathogen outbreaks; and health of ecosystem services. Changes in the region also result from other stressors; hence responses to climate change must be examined in combination with land cover/use change, habitat fragmentation, increasing population, pollution, invasive species, increasing demand for natural resources, and other stressors.

The South-Central Climate Science Consortium was deliberately constructed to address these climate and ecosystem needs across the south-central U.S. The Consortium is a partnership among four universities — University of Oklahoma, Texas Tech University, Louisiana State University, Oklahoma State University; two sovereign tribal nations — Chickasaw Nation and Choctaw Nation of Oklahoma; and one federal laboratory — the National Oceanic and Atmospheric Administration’s Geophysical Fluid Dynamics Lab.

The Consortium will act as host for a new, regional Climate Science Center of the U.S. Department of Interior and will collaborate with the region’s Landscape Conservation Cooperatives (colored regions in the figure to the right). The Consortium has world-class capabilities and experience to integrate climate change with the goals of biological planning, conservation design, conservation delivery, monitoring, and research. It also has substantial geographic extent, embraces the responsibilities of natural resource trustees, and demonstrates strong national and international collaborations. With this foundation, the Consortium also will collectively seek a wide range of funding opportunities for basic and applied research, education, and service to address climate-related needs of the region.



As host of Interior’s South-Central Climate Science Center, the Consortium will receive almost \$4 million over 5 years to administer the Center out of Norman, OK, and to conduct research and education. Federal scientists from the Department of Interior, primarily the U.S. Geological Survey, will be housed in Norman to lead the Center’s research plan in partnership with the Consortium. Additional research funding will be available to Consortium members from Interior after the Center is fully established and the science plan is developed (likely in early 2013).

### ***About the south-central region***

The south-central U.S. encompasses 20 ecoregions, resulting from a significant gradient in annual average precipitation, from 150 cm in coastal areas to 15 cm in the deserts. The region's LCCs are stewards of fish, wildlife, land, water, and other natural resources across coastal plains, large rivers, hardwood forests, tall- and short-grass prairies, and deserts. Likewise, there is a cultural richness in the region: Oklahoma is headquarters to 39 Federally recognized Native American tribes, many of which were relocated from homelands throughout the south-central U.S.; Texas' Hispanic population stems from before the 1836 revolution; and the Mediterranean-African roots of Louisiana's Creole and Cajun cultures are unique to the South. Each ecosystem and culture has distinctive management threats and responses.

### ***About the research themes of the Consortium***

Key research areas that the Consortium will engage with its partners at the Department of the Interior include the following:

- Developing high-resolution climate projections and derivative products that can be used to understand potential effects of future changes in precipitation, temperature, and other environmental conditions on fish, wildlife, ecosystems, and natural and cultural resources;
- Determining how changes in climate may alter land cover, biogeochemistry, energy feedbacks to the climate system, and the water cycle;
- Determining how key biotic characteristics of terrestrial and aquatic ecosystems across the south-central U.S. will vary in their responses to predicted climate change and associated anthropogenic influences at landscape to watershed scales;
- Determining key thresholds for ecosystem composition, structure, and functioning at which changes in climate will alter patterns of biodiversity, spread of invasive species, health and survivability of wildlife, and the sustainability of agroecosystems;
- Assessing direct and indirect consequences of climate change on the economic stability of tribal cultures, cultural resource management, educational programs, and natural resource management agreements that support larger management policies with municipalities, states, and federal government; and
- Developing evidence-based information for the public and policy makers, including education and engagement materials, programs, and forums that provide stakeholder groups with both decision-making tools as well as increased awareness, understanding, and appreciation of climate-induced effects and mitigation solutions.

Climate variability and change will not be considered in isolation, but in combination with other stressors such as land use change, habitat fragmentation, increasing population, pollution, invasive species, and increasing demand for natural resources.

### ***About the Consortium leadership***

Dr. Berrien Moore III, Vice President of Weather and Climate Programs at the University of Oklahoma, will serve as the Director of the Consortium and was the Principal Investigator of the winning proposal to host Interior's South-Central Climate Science Center. A representative of each of the seven Consortium members will serve on an executive committee that will ensure completion of goals and projects, interact with the governance structure of Interior's regional Climate Science Center, and provide overall research direction and administrative leadership to the Consortium. The executive committee will meet at least quarterly, with a face-to-face meeting at least once per year.