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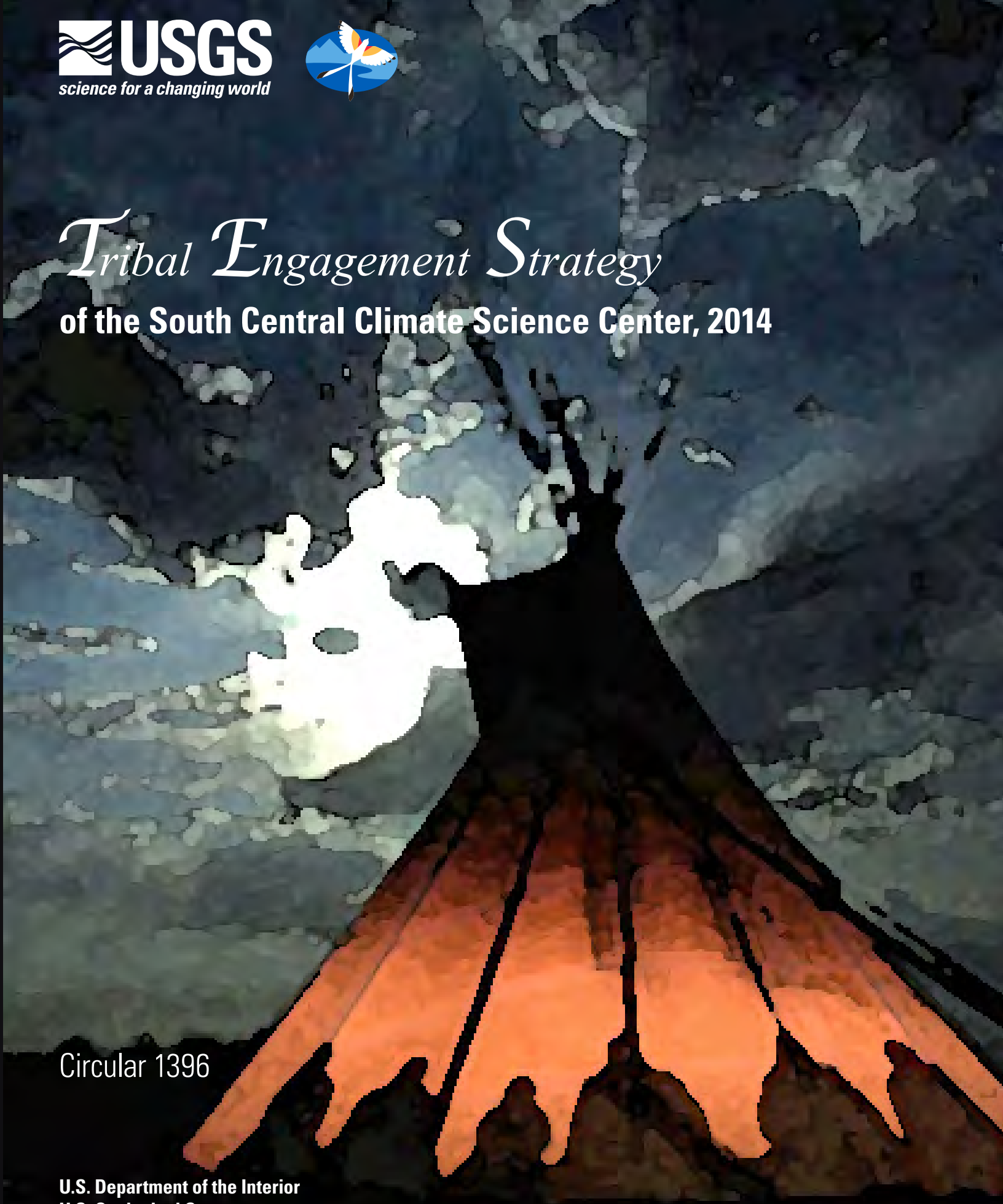
Tribal Engagement Strategy

of the South Central Climate Science Center, 2014



Circular 1396

U.S. Department of the Interior
U.S. Geological Survey

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Tribal Engagement Strategy
of the South Central Climate Science Center, 2014

By William J. Andrews, April Taylor, and Kimberly T. Winton

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Prepared in cooperation with the
South Central Climate Science Center

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U.S. Department of the Interior
U.S. Geological Survey

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SALLY JEWELL, Secretary

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Tribal Engagement Strategy
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Executive Summary

The South Central Climate Science Center was established by the U.S. Department of the Interior in 2012 to increase understanding of climate change and coordinate an effective response to climate-change effects on Native American tribes and natural and cultural resources that the Department manages. The eight regional Climate Science Centers of the U.S. Department of the Interior work closely with natural-resource management agencies, university researchers, and others such as tribes and private landowners on climate-change issues. The relatively large number of Native Americans in the south central United States and their special knowledge of changing ecosystems make working with tribes and tribal members on climate-change issues particularly important in this part of the Nation. This circular describes priorities of the South Central Climate Science Center and provides information about resources available from Climate Science Centers and partner agencies regarding climate change. The circular also describes how this Climate Science Center, tribes and tribal members, and others can collaborate to minimize potential harmful effects of climate change on human society and our surrounding ecosystems.

Introduction

Given the close association between Native American tribes and their surrounding ecosystems, knowledge of the effects of climate change and measures that can be taken to mitigate climate change are of special interest to tribes. Tribal communities typically live for longer periods of time in their local areas than other populations and have gained special insight regarding how climate has changed and what measures can be taken to preserve ecosystem components used for subsistence, medical purposes, and ceremonies (Wildcat, 2013). The South Central Climate Science Center (SC CSC) wishes to share climate-change and climate-change-mitigation information with tribes and to receive feedback from tribal members regarding how ecosystems and economic structures can be maintained as climate changes.

Climate Change

The fourth assessment report of the Intergovernmental Panel on Climate Change (2007) described how emissions of greenhouse gases and aerosols, land-surface properties, and solar radiation have combined to contribute to warming of the global climate system, melting of snow and ice, and increasing sea levels. Even if concentrations of manmade gases and aerosols were to remain constant, additional warming of about 0.2 degrees Celsius (0.4 degrees Fahrenheit) would occur in the coming decades (Intergovernmental Panel on Climate Change, 2007), causing substantial changes in weather patterns.

Many natural systems are being affected by climate change. For example, temperature increases over the past century have caused altered hydrologic cycles, changes in the timing of biological events such as spring leaf emergence, shifts in the geographic ranges of plant and animal species, increased mortality of some species, more severe weather events, and additional erosion, submergence, and salt-water encroachment along coastlines (Intergovernmental Panel on Climate Change, 2007). To mitigate the effects of climate change, measures such as carbon sequestration, increased use of renewable energy, and conservation of energy are being pursued. To adapt to the changes brought about by higher temperatures, societies have (a) begun to develop new agricultural practices, (b) relocated, and (c) redesigned infrastructure. Information about these changes needs to be conveyed, both by funding relevant science and broadly disseminating the results of that science, particularly to groups most likely to be affected by climate change. Indigenous peoples, such as Native Americans, may be especially susceptible to the effects of climate change because of strong cultural links to their surroundings and reliance on local ecosystems to supply native foods (Nakashima and others, 2012; National Climate Assessment Development Advisory Committee, 2013).

[1]Chickasaw and Choctaw Nations.

Climate Science Centers

To coordinate research about climate change, the U.S. Department of the Interior established eight regional Climate Science Centers (CSCs, fig. 1) starting in 2009 (Secretarial Order No. 3289; U.S. Department of the Interior, 2009). That Secretarial Order established an approach for applying scientific tools to increase understanding of climate change and to coordinate an effective response to climate-change effects on tribes, as well as on the natural and cultural resources that the Department manages. Goals of the CSCs are to

- evaluate the vulnerability of natural and cultural resources to climate change,
- predict changes in natural and cultural resources in response to climate change,
- link outputs from climate models with models that predict responses to climate change,
- standardize approaches to monitoring and link existing monitoring work to models of climate change and resource response,
- develop data-management policies and practices to ensure that data generated by the CSCs are shared with tribal and other decision makers for natural and cultural resources, and
- develop a regional science agenda that is based on inputs from resource managers from tribes, Federal and State Agencies, and Landscape Conservation Cooperatives (LCCs, public-private partnerships formed by the Department to provide shared science to ensure the sustainability of the Nation's land, water, wildlife, and cultural resources; fig. 2).

The eight regional CSCs (fig. 1) are based at host universities with substantial expertise and partnerships in climate-change science. CSCs are consortiums, or single universities, consisting of staff, scientists, and information specialists from multiple partner tribes, agencies, and universities. The SC CSC, based in Norman, Oklahoma, fulfills that mission for the States of New Mexico, Oklahoma, and Texas. The boundaries of the regions are purposely "fuzzy" to enhance the national network and encourage partnerships across these boundaries. The SC CSC consortium is composed of researchers affiliated with the University of Oklahoma, Texas Tech University, Oklahoma State University, the Chickasaw Nation, the Choctaw Nation of Oklahoma, Louisiana State University, and the National Oceanic and Atmospheric Administration Geophysical Fluid Dynamics Laboratory.

The strategic science plans and research priorities of the CSCs are guided by stakeholder advisory committees (SACs) that include members from numerous tribes and Federal and State agencies (app. 1). SACs provide counsel for development and periodic updating of the regional 5-year science agenda for CSCs and for planning and implementation documents including short-term science plans and solicitation documents for funding opportunities; the SACs also provide feedback about how effectively CSC products meet stakeholders' needs (Winton and others, 2013). CSCs also are guided by science implementation panels (SIPs) composed of subject-matter experts from tribes, LCCs, and other agencies and groups that provide advice on annual priority science issues and review proposals for funding. SIP members provide guidance and assist in setting priorities for shorter term programs, such as year-to-year technical projects and annual priorities, and help to review and rank proposals submitted to CSCs for funding.

Photograph by Kimberly T. Winton, U.S. Geological Survey

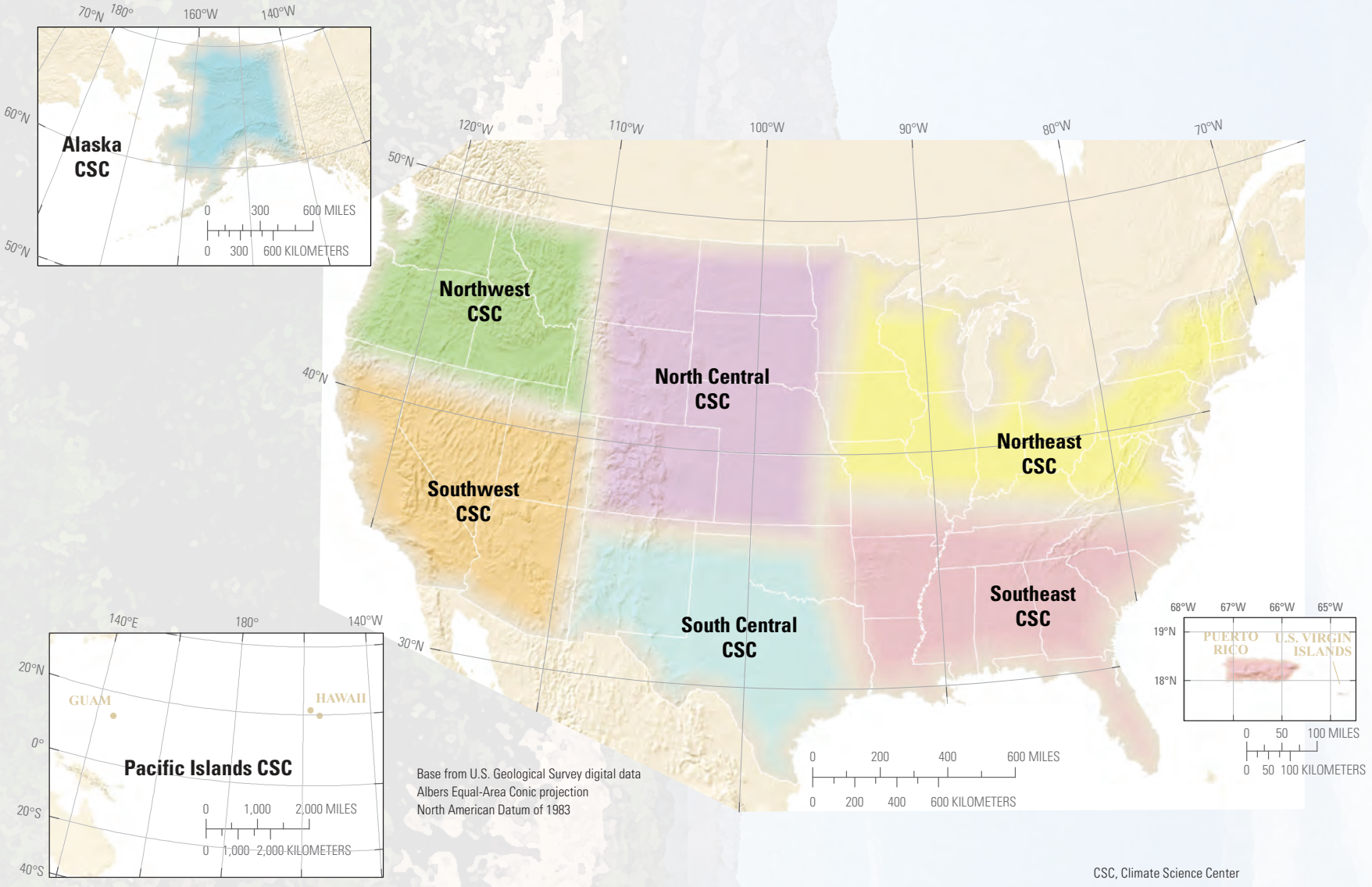

Figure 1. Regional Climate Science Center areas.

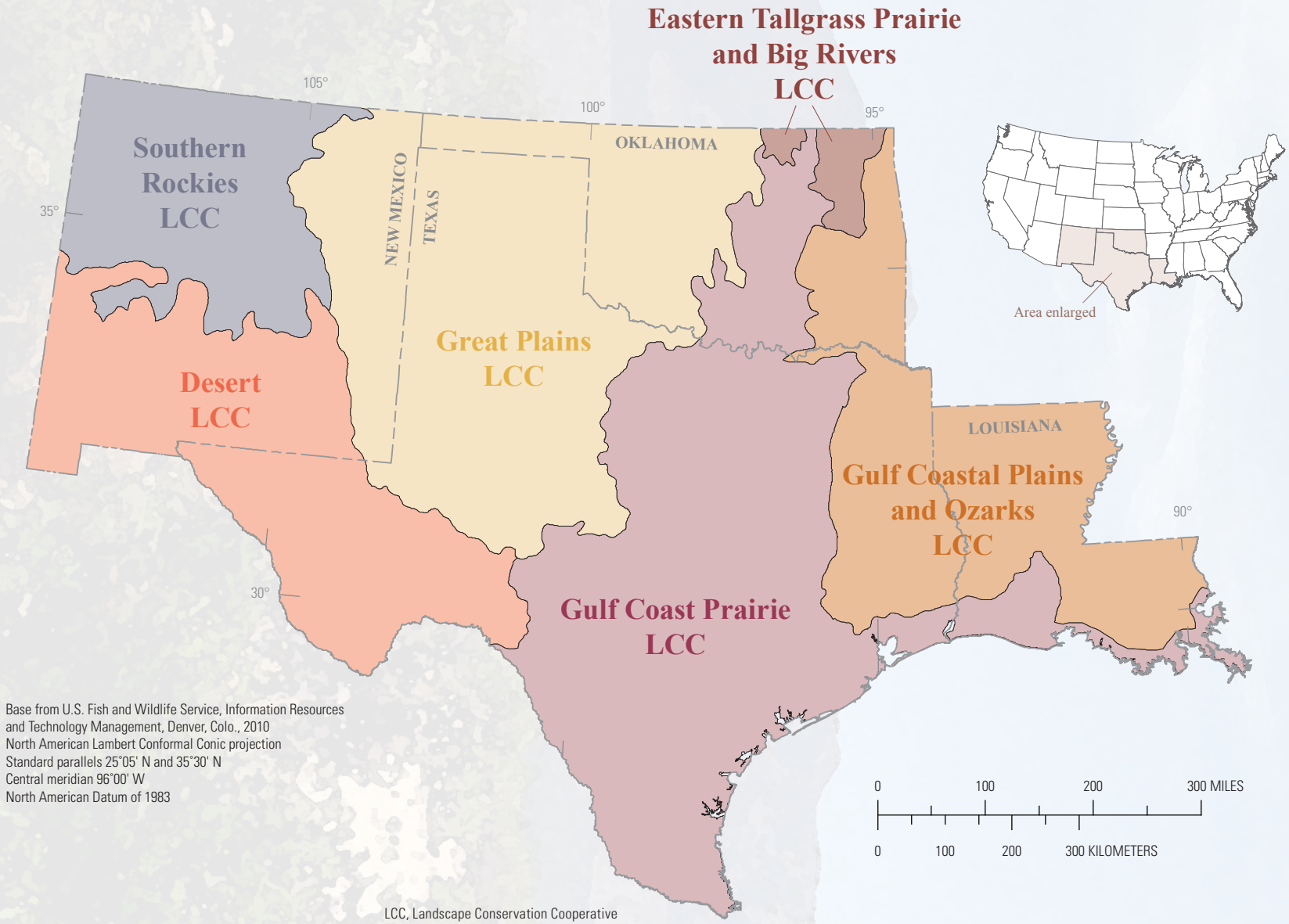

Figure 2. Landscape Conservation Cooperative areas in the south central United States.

Collaboration with Tribes and Other Groups

The U.S. Department of the Interior and its bureaus and offices have trust responsibilities that require ensuring that tribal resources are properly managed, protected, and conserved (U.S. Department of the Interior, 1995). The Department, as trustee for tribes, has a duty to protect tribal health and safety, fulfill all treaty and statutory obligations, and exercise good faith in all dealings with tribes (U.S. Department of the Interior, 1995). As part of U.S. Department of the Interior trust responsibilities, bureaus of the Department must engage in meaningful and open consultation with tribal governments, respecting the sovereign status of tribal governments, when effects on tribal trust resources, rights, health, and safety are identified (U.S. Department of the Interior, 1995).

In accordance with U.S. Department of the Interior tribal trust and responsibilities, CSCs work with tribes, LCCs, and other stakeholders in their respective regions to conduct research that will be useful and mutually beneficial for identifying, mitigating, and adapting to the effects of climate change. CSCs prioritize their delivery of fundamental science, data, and decision-support activities to meet the needs of the tribes, LCCs, and other interested stakeholders and to coordinate communication about these issues between these groups. This CSC-sponsored support includes working with tribes, LCCs, other agencies, and the public to provide climate-change-effect information about natural and cultural resources and to develop adaptive management and other decision-support tools for land and resource managers. The SC CSC provides climate-change information to six LCCs with footprints overlapping that of the SC CSC (fig. 2).

In addition to providing information to tribes, CSCs can directly benefit from collaboration with tribes. Some of the areas in which the SC CSC would greatly benefit from tribal expertise include (a) improving understanding of changes in phenology (relative timing of biological activities such as flowering and animal migration), (b) evaluating climate-related changes in the availability of first foods (The Confederated Tribes of Grand Ronde, 2011) and other plant and animal species of cultural significance, and (c) describing adaptation strategies to climate change. Government-to-government relations with tribes are fundamental to the work of CSCs and LCCs. This is reflected in the way that CSCs and LCCs are structured and in the work and priorities established by those groups to understand and find ways to adapt to climate change. The strong associations of science priorities of the SC CSC and LCCs in the south central United States are shown in table 1. The SC CSC also employs a full-time Sustainability Scientist/Tribal Liaison who facilitates relations with tribes and develops partnerships on climate-science projects. That liaison also works with tribal education programs to develop opportunities for tribal students in the science, technology, engineering, and mathematics (STEM) fields through workshops, training classes, and other forms of outreach.

Inclusion of tribal members in regular discussions of priorities and future projects of these centers and cooperatives is needed to reach decisions on priorities and research funding that incorporate the needs of tribes and other residents of these areas. Tribal governments and members are ideally suited to play important roles in long-term monitoring and reporting of local evidence of climate change because of their long-term links to the land, strong stewardship ethic, and substantial interactions with the environment and natural resources (Nakashima and others, 2012). In addition to having unique knowledge of local ecosystems, tribes have sovereign rights to preserve and utilize natural resources and have extensive experience in management of shared resources (Whyte, 2013b; Wildcat, 2013). Working closely with tribes to monitor climate change can help maintain treaty rights and protect trust resources. Sharing of climate-change knowledge and data among tribes, the SC CSC, and other stakeholders will enable development of new tools that will strengthen mutual understanding of the effects of climate change and better inform resource-management practices and climate-change mitigation and adaptation strategies.

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Table 1. Top 10 science priorities of the South Central Climate Science Center compared to Landscape Conservation Cooperative science priorities in the south central United States.

[Modified from Winton and others, 2013; X, indicated as a science priority; LCC, Landscape Conservation Cooperative]

Organization	Adaptation, mitigation, resiliency, and vulnerability assessments	Climate-change effects on ecosystems/healthy ecosystems	Hydrologic response to climate change/hydrologic models	Climate-change effects on human populations, socioeconomics, urbanization, cultural resources, and agricultural issues	Improved monitoring networks for resources affected by climate change and management actions	Improved management and sharing of climate change and geospatial data	Imperiled and rare communities and invasive species	Coastal response to sea-level rise and changing geomorphology	Biological response to climate change and disturbance, conservation design, and delivery	Land-use and land-cover change
South Central Climate Science Center	X	X	X	X	X	X	X	X	X	X
Desert LCC	X	X	X	X	X	X	X		X	X
Eastern Tallgrass Prairie and Big Rivers LCC		X	X	X	X	X	X		X	X
Great Plains LCC	X	X	X	X	X	X	X		X	X
Gulf Coast Prairie LCC	X	X	X	X	X	X	X	X	X	X
Gulf Coastal Plains and Ozarks LCC	X	X	X	X	X	X	X		X	X
Southern Rockies LCC	X	X	X	X	X	X	X		X	X

Photograph by Carol J. Becker, U.S. Geological Survey

The principal roles of the SC CSC are to gather, synthesize, and disseminate data, tools, and models related to climate change. Climate science can be informed by a variety of data and models collected and conducted over different geographic and time scales. Phenology, the science of periodic biological phenomena such as dates of spring leaf emergence and flowering and insect and animal migrations, is a means of evaluating the effects of climate change on local ecosystems. Global- and regional-scale climate models can be used to predict future climatic changes. The hydrologic effects of climate change can be simulated by using groundwater-flow and particle-tracking models, groundwater/surface-water interaction models, and surface-water models. Models can be used to simulate the effects of climate change on ecosystems, such as in-stream flow models, carbon- and nutrient-cycling models, forest dynamics, and wildlife-population models. Such

models can be used together to evaluate possible ranges of environmental responses to climate change and to develop and test adaptation strategies to climate change. The SC CSC provides funding for researchers affiliated with tribes, universities, and other agencies to conduct research relevant to a wide range of climate-change monitoring, modeling, and adaption strategies in this area, which includes parts of the Desert, Eastern Tallgrass Prairie and Big Rivers, Great Plains, Gulf Coast Prairie, Gulf Coastal Plains and Ozarks, and Southern Rockies LCCs (fig. 2). Tribes also can participate in SC CSC activities by offering staff time in the areas of environmental and cultural resources and participating on the SAC, which advises on the plans and strategies of the SC CSC, and the SIP, which provides guidance and assistance in setting priorities for annual projects and reviewing and ranking proposals for such funding.

To improve understanding of the effects of climate change in the south central United States, in 2012–13 the SC CSC provided funding to conduct studies and activities, many of which affect tribes, including

- delineation of marsh types along the Gulf of Mexico coast;
- evaluation of statistical downscaling applications for climate models;
- investigation of variations in submerged aquatic vegetation to evaluate effects of climate change;
- synthesis of ecohydrology models as management tools for landscape conservation;
- conducting a series of intertribal climate-change and climate-variability workshops;
- investigation of the effects of habitat connectivity on sustainability of wildlife populations;
- investigation of effects of climate change on streamflows in the Red River Basin;
- expanding a framework for comparison of downscaled climate projections;
- predicting vulnerability of a forest to climate change;
- modeling effects of climate change on crucial wildlife habitat;
- evaluating climatic controls of water availability;
- measuring ecosystem stresses caused by climate change in part of the Arkansas River and Red River watersheds;
- evaluating ecological effects of climate change on coastal wetland ecosystems;
- conducting a workshop for graduate students, postdoctoral students, and early career researchers; and
- conducting high-resolution dynamic downscaling of regional climate projections.

In future years, the SC CSC will continue to provide funding for investigations of these and other aspects of climate-science monitoring, modeling, and adaptation.

The SC CSC also works with tribes to seek other sources of funding for tribes to investigate the effects of climate change and develop mitigation and adaptation strategies for climate change. In addition, the SC CSC leverages and seeks funds for activities related to classes and education opportunities related to climate change. Additional information about SC CSC collaborative activities with tribes is listed in appendix 2.

Purpose and Scope

This circular describes issues of common interest between the 68 Native American tribes in the south central United States (app. 3), the programs and initiatives of the SC CSC, and means of sharing climate-science interests and concerns with tribes in the south central United States. Through two-way communication of interests, knowledge, and concern about climate change and related issues, the needs of tribes in the south central United States will be better served, and interpretation of the effects of climate change in this region will be strengthened.

This circular highlights the mission of the SC CSC, including descriptions of

- engagement of tribal leaders in climate-change issues,
- sponsored partnerships and projects,
- relations between CSCs and LCCs,
- educational activities and report products related to climate science,
- the potential roles of tribes and other stakeholders in measuring climate change and developing mitigation and adaptation strategies,
- climate-science capacity building of tribes in this region,
- climate-science resources for tribes to use in grant proposals, and
- potential funding sources for tribal environmental departments to investigate the effects of climate on natural resources in their jurisdictional areas.

Climate Change and Tribes

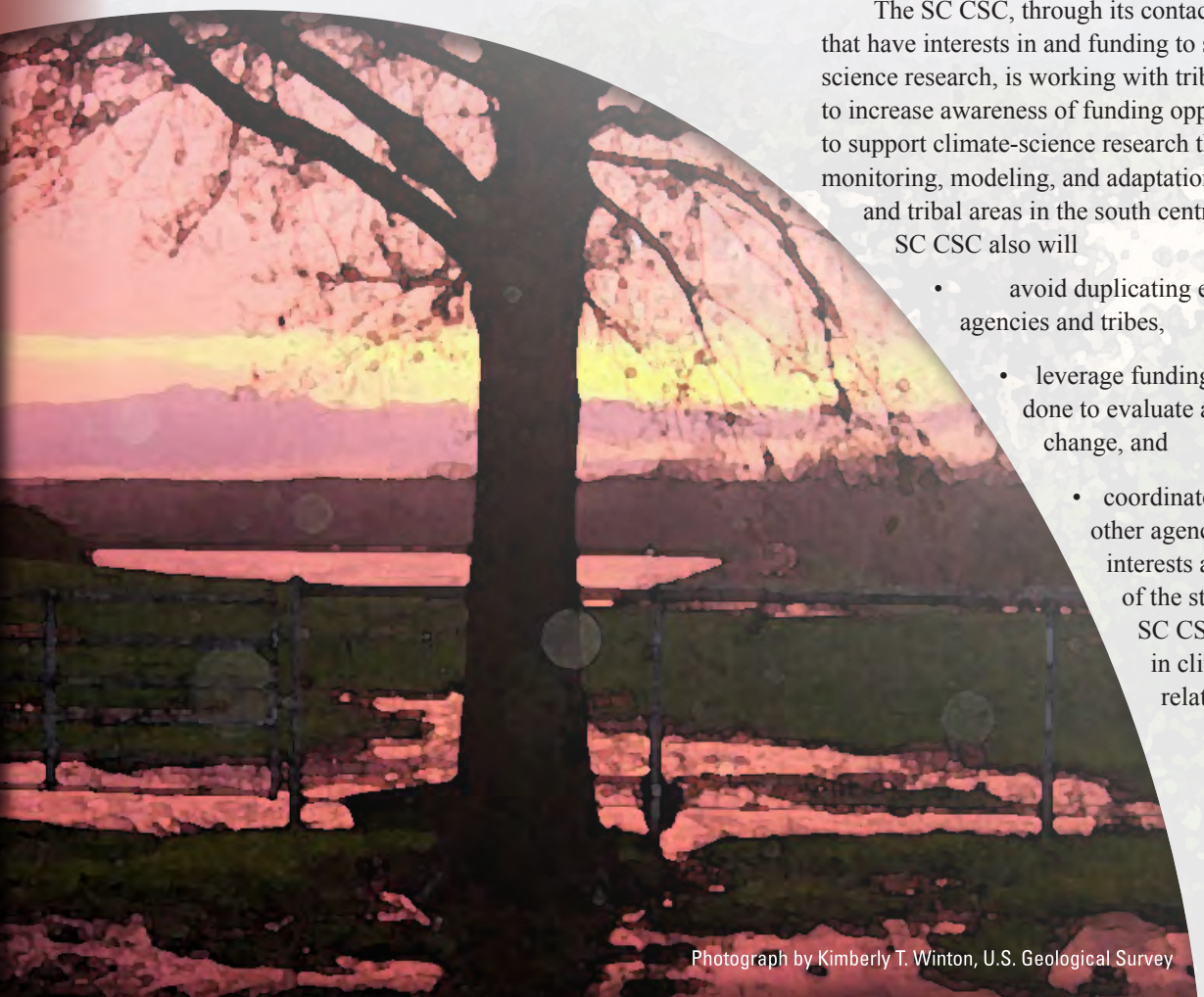
The climate of Earth is changing, in part because of human activities (Intergovernmental Panel on Climate Change, 2007). Such changes are affecting people and ecosystems around the world. With their strong links to the land and its ecosystems through indigenous knowledge, stewardship, and subsistence practices, Native American tribes are likely to be particularly affected by these changes (Wildcat, 2013). Native Americans may be especially affected by drought, water-resource reductions, sea-level rise, preservation of natural and cultural resources, changing locations and populations of culturally significant plants and first foods, and other effects of climate change on subsistence activities (Nakashima and others, 2012; National Climate Assessment Development Advisory Committee, 2013; Whyte, 2013a). Many tribes are seeking to adapt to the effects of climate change (Wildcat, 2013) but in some cases are being forced to change long-held customs and migrate from tribal lands. Many of those changes are related to water, such as increased droughts drying up springs, streams, and wells, and rising sea levels causing coastal flooding (Wildcat, 2013).

Tribal members are particularly numerous in the Oklahoma and New Mexico parts of the area of interest to the SC CSC, with 68 federally recognized tribes having lands in the south central United States (figs. 3 and 4, app. 3). In the 2010 U.S. census, Oklahoma and New Mexico ranked second (11.0 percent) and fourth (6.6 percent), respectively, for residents with primarily Native American ethnicity (Norris and others, 2012). Most of the tribes in Oklahoma were forcibly relocated to their current jurisdictional areas in the early to mid-1800s (Kidwell, 2010), whereas most of the tribes (pueblos) in New Mexico have resided near their current locations for thousands of years (Cordell, 1994). Long-term residents of local areas, including tribal members, are likely to have considerable knowledge about the landscape and ecosystems of their lands that are vital for sustainably preserving ecosystems. Through treaties and historical precedence, tribes have sovereignty over their lands and rights and responsibilities regarding the protection of natural resources. The SC CSC wants to develop relations with tribal leaders, environmental staff, culture keepers, and members as a means of better understanding all effects of climate change in this region and developing adaptation strategies based on tribes' experience with and knowledge of their areas.

Leveraging Climate-Change Funds for Tribes and Studies Related to Tribal Lands

The SC CSC, through its contacts with other agencies that have interests in and funding to support climate-science research, is working with tribes and agencies to increase awareness of funding opportunities (app. 4) to support climate-science research that will provide monitoring, modeling, and adaptation strategies for tribes and tribal areas in the south central United States. The SC CSC also will

- avoid duplicating efforts between agencies and tribes,
- leverage funding to get the most work done to evaluate and adapt to climate change, and
- coordinate between tribes and other agencies to complement interests and make the best use of the strengths of tribes, the SC CSC, and other agencies in climate-science and related fields.



Photograph by Kimberly T. Winton, U.S. Geological Survey

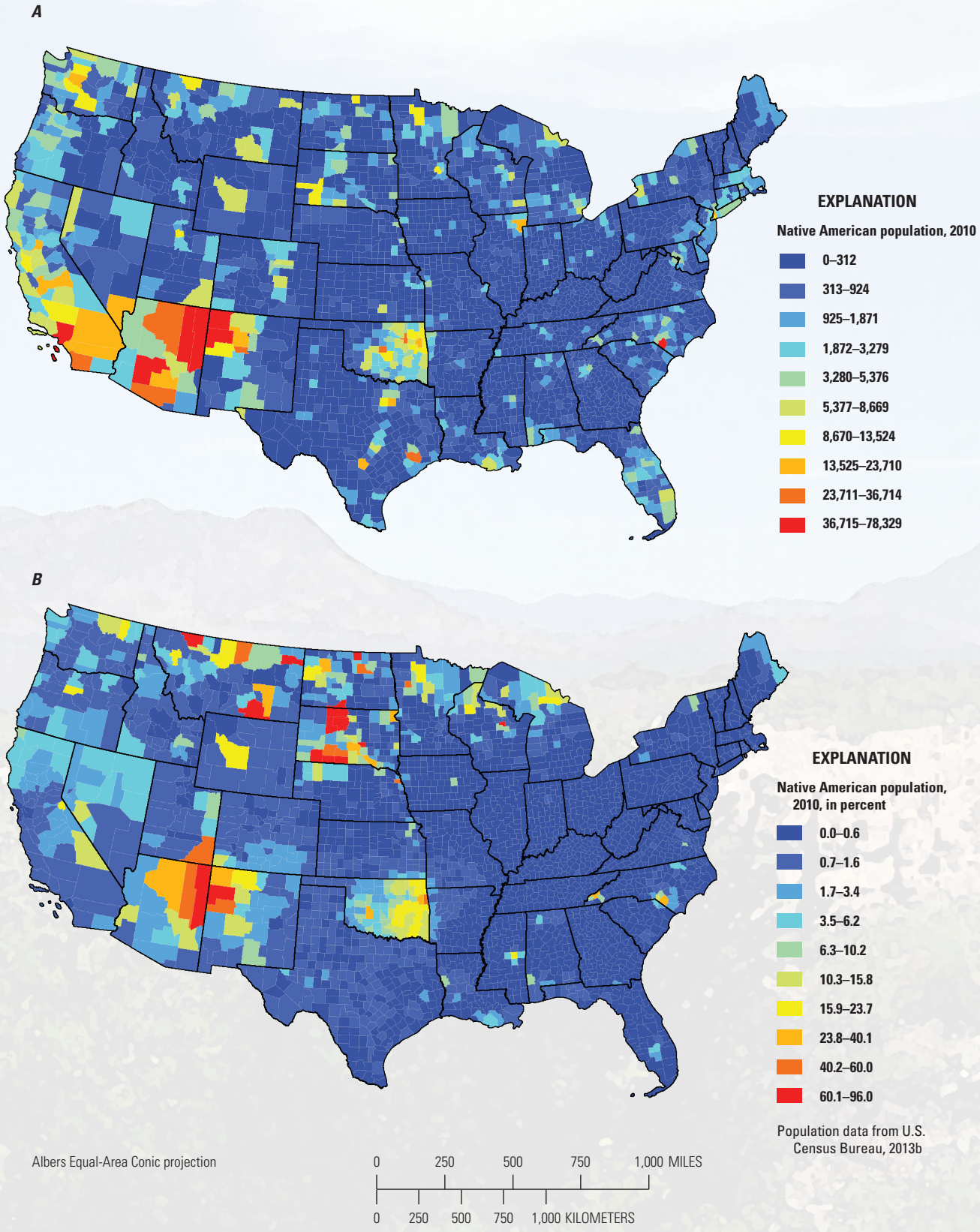


Figure 3. Native American population density in the continental United States by county in 2010. *A*, By population. *B*, By population percent.

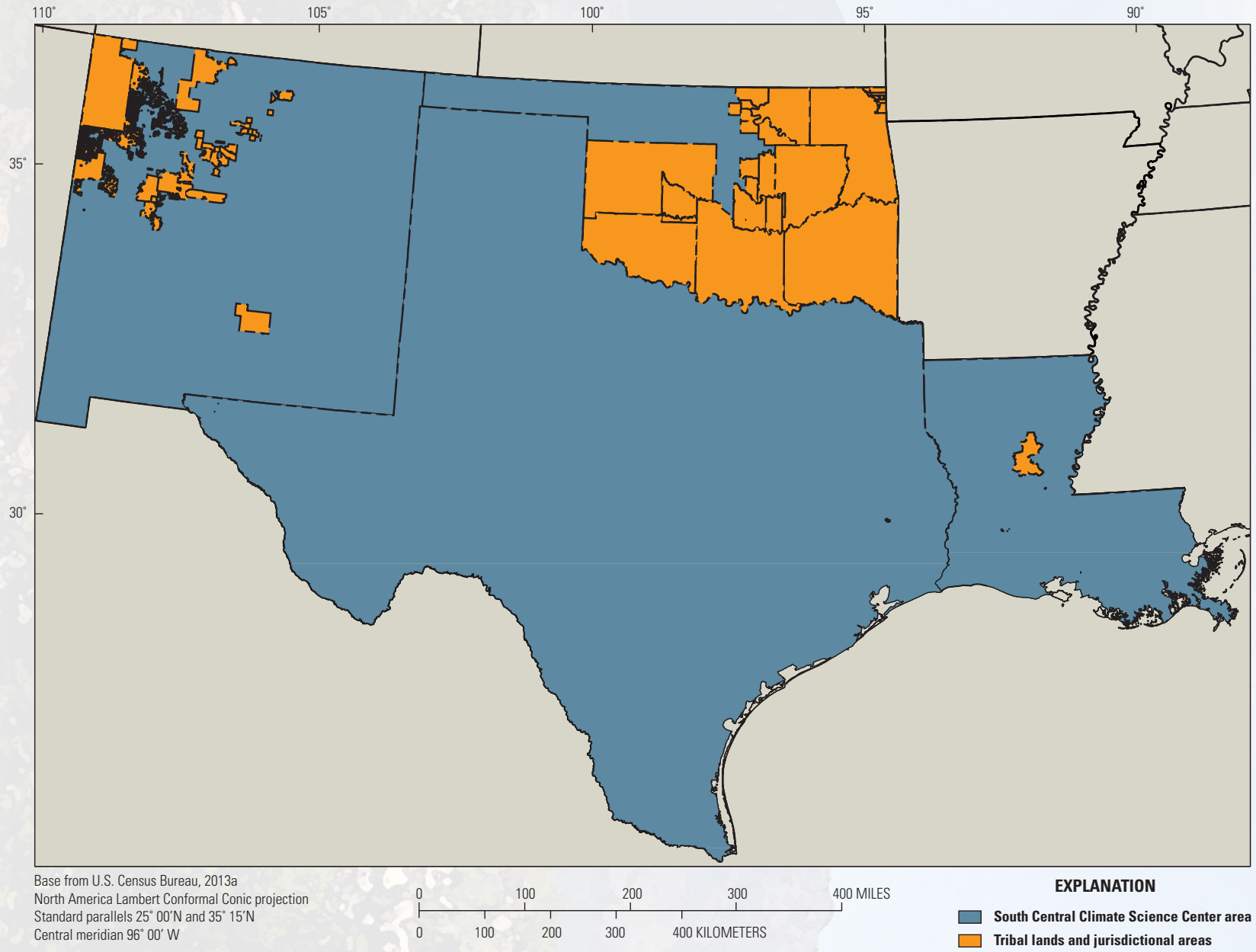


Figure 4. Tribal lands and jurisdictional areas in the primary States of interest of the South Central Climate Science Center in the south central United States.

Assisting Development of Projects and Adaptation Strategies

The SC CSC is committed to working with tribes to find collaboration opportunities and funding sources for tribes to conduct studies and adaptation activities related to climate science, ecosystem change, and sustainable adaptation. This effort will combine Western scientific methods with indigenous knowledge and practices to maximize the effectiveness of measuring effects of climate change and develop holistic strategies to mitigate those effects. The SC CSC will seek input from the tribes on how best to involve them in these activities.

Inclusion of Indigenous Knowledge Where Appropriate and Acceptable

Tribal members and other long-term residents of particular areas have developed extensive knowledge bases that include deep understanding of local environments and adaptive processes passed down through generations (Whyte, 2013a). That knowledge, referred to as "indigenous knowledge" in this circular and referred to as "traditional ecological knowledge" in other publications, such as Whyte, (2013b), may be (a) orally passed through generations, (b) dynamic and adaptive, (c) holistic in having cultural and spiritual components, and (d) related to survival and subsistence in a sustainable manner. Indigenous knowledge encompasses the relation of living beings with each other and the surrounding environment (Whyte, 2013a). Indigenous knowledge is based on (a) observations of interrelations among humans, plant and animal species, and their surrounding environment, (b) management practices that ensure sustainable use of resources, (c) responsibilities to minimize ecosystem exploitation, and (d) cultural value systems (Nakashima and others, 2012; Whyte, 2013a, b). Indigenous knowledge can be an important source of information relevant to climate-change studies, such as changes in flora and fauna over time, changes in other environmental conditions, history of manmade structures, and hydrologic changes in time and place (Whyte, 2013b). Indigenous knowledge has been used in natural-resources management as a means of establishing baseline environmental data against which changes can be compared over time and for sustainable management of ecosystems (Whyte, 2013b). Indigenous knowledge also can be used to optimize measurement, simulation, and management of ecosystems stressed or threatened by climate and land-use changes. The SC CSC is committed to respectfully incorporating principles of indigenous knowledge to evaluate the effects of and adaptation strategies to climate change.

The following sequence of discussions and decisions may be useful for incorporating indigenous knowledge to holistically describe and adapt to climate change in local areas:

- discuss vulnerability assessments and how they can be used in adaptation planning,
- determine what ecosystem components (species, locations, and water resources) are particularly important to local groups,
- determine if those important components are vulnerable to climate change,
- evaluate how climate change may affect those components (which may be species or cultural practices),
- evaluate what could be done to either mitigate or adapt to climate change, and
- discuss pros and cons of potential solutions.

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There are multiple tribal-engagement efforts related to climate change nationally. In addition to the CSCs, other Federal agencies are engaged with tribes to address climate-change issues. The U.S. Environmental Protection Agency's (EPA) Tribal Science Council (TSC, http://www.epa.gov/osp/tribes/tribes.htm) has identified the following national tribal science priorities: (a) climate change and (b) integration of indigenous knowledge in environmental science, policy, and decision making. In partnership with the EPA, the SC CSC participates in a Tribal Environmental Leaders Summit. In addition, national tribal organizations such as the National Congress of American Indians (NCAI), the National Tribal Environmental Council (NTEC), and the Indigenous Peoples Climate Change Working Group (*http://www.haskell.edu/climate/*; formerly American Indian and Alaska Native Climate Change Working Group) hold periodic meetings, and the SC CSC can partner with those organizations on tribal issues related to climate change.

Future Education and Outreach Classes

An important component of SC CSC activities is to conduct classes regarding climate change and means by which climate change effects can be mitigated or adaptation strategies may be developed. SC CSC staff and partners have conducted and plan to conduct more outreach and classes with tribal environmental staffs and tribal educators and students to develop capacity in climate-science and adaptation strategies.

Photograph by Kimberly T. Winton, U.S. Geological Survey

Tribal Environmental Staffs

A major goal of the SC CSC, based on interest expressed by tribal staffs at several workshops (Riley, 2011; app. 5), is to build tribal capacity by enhancing climate-science awareness and knowledge of tools and models that can be used by tribal environmental staffs. Those goals are being met by conducting interactive climate-science classes and workshops and making educational outreach presentations and publications. In 2012 and 2013, the SC CSC conducted five intertribal climate-change and variability workshops to build expertise in understanding social and communication dimensions of climate change (Riley, 2011; app. 5). Additional classes are planned for the future regarding formulation of plans for disaster recovery, drought management, emergency operations, and related topics.

As part of its outreach work, the SC CSC will organize and participate in meetings, conferences, and workshops with south central tribal resource managers and scientists to jointly identify high-priority science needs and transfer science results, tools, and models. These meetings may be held jointly with interested LCCs, tribal conferences, and other groups to maximize efficient communication with tribal members.

Tribal Educators and Students

The SC CSC recognizes that engaging Native American students in climate-change issues is important for developing future generations of citizens, scientists, and resource managers informed on the general aspects of climate-change science. Such educational efforts can start at the primary school level and progress through postdoctoral students. The SC CSC has been conducting seminars for tribal primary school through college students and faculty to increase knowledge and skills in climate science and STEM skills. The SC CSC has funded internships for college students to provide practical experience in the climate-change field. In upcoming years, the SC CSC will continue to provide educational seminars to exchange knowledge regarding climate-change effects and adaptation strategies and about how tribes have historically been affected by climate change. Examples of such outreach activities include participating in youth camps, student conferences, internships, providing resources to

educators, developing curricula, and conducting a request for proposals (RFP) for tribal colleges (of which there are seven in the SC CSC area) to work toward science accreditation (app. 5). The SC CSC also plans to host educator workshops to determine needs and interest of tribal educators in the climate sciences.

A goal of the SC CSC, through our consortium members, is to enhance diversity at universities and provide STEM opportunities for tribal members. This goal can be met by working with Native American student groups and tribal college faculties to facilitate development of collaboration between consortium universities, align research needs of these universities, and identify appropriate Native American students and environmental professionals for climate-science work. Support of students through graduate fellowship programs also would be a means of engaging Native American students in advanced climate-change research activities.

The SC CSC is assisting with development of proposals for universities and tribes and with identification of potential collaborators and cooperating agencies. To further educational engagement with tribal members, tribal technical organizations such as the American Indian Science and Engineering Society (*http://www.aises.org*) and the Society for Advancement of Hispanics/Chicanos and Native Americans in Science (*https://sacnas.org*) will be invited to meet with the SC CSC and its consortium partners to develop opportunities for climate-science student internships and postdoctoral appointments.

Structured Decision Making

In working with tribes and other agencies on climate-science decision making, the SC CSC will conduct Structured Decision Making (SDM) sessions to evaluate climate-change issues and options. SDM (Gregory and others, 2012) is an organized approach for identifying and evaluating creative options and decision-making choices in complex situations (fig. 5). SDM gives insight to decision makers about how their objectives may be met by possible alternative courses of action. SDM concepts include making decisions that are based on clear and fundamental objectives, addressing uncertainty, addressing legal mandates and public preferences in decision making, and integrating science and policy. SDM is useful for reaching win-win solutions amongst disparate groups, helps to clarify tradeoffs between alternative actions, and provides a means of sharing options about alternative actions. SDM is useful for decisions that require integration of technical analysis with value-based decision making. The SDM process can assist tribes in balancing diverse

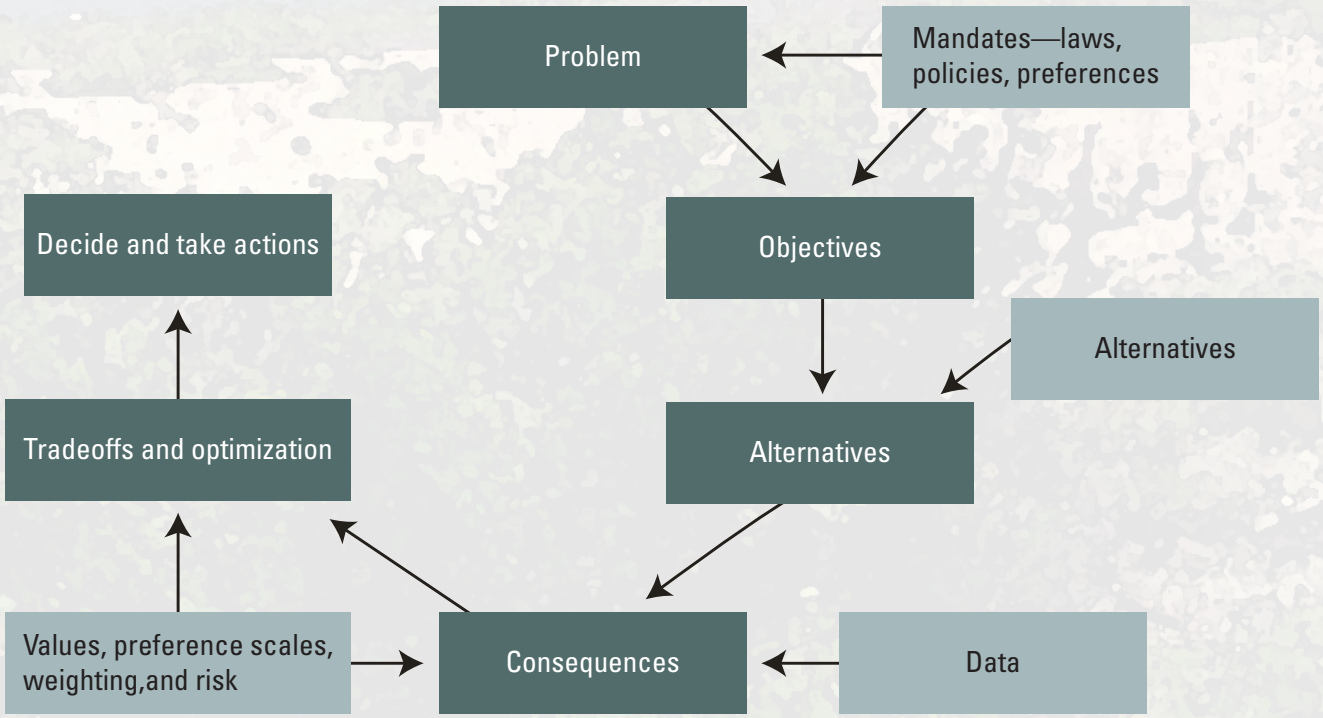

Figure 5. The Structured Decision Making process.

aspects such as culture, spiritual beliefs, evaluation of natural resources, adaptation to climate change, and competition with others who may seek to use natural resources. The SC CSC and selected tribal staff members (leaders, environmental and planning staffs) will attend an SDM "train the trainers" class to facilitate use of this technique for climate-science issues.

Guidance on Climate-Change Grants and Resources Available from the U.S. Geological Survey and Other Agencies

The SC CSC has been providing resources and training relevant to climate-change issues to tribes in the south central United States (apps. 5 and 6). Examples of such resources include providing information about potential grants for climate-change studies from the U.S. Geological Survey and other agencies and adaptation strategies by tribes, links on the SC CSC Web site, data, fact sheets and other documents, and training classes (apps. 4 and 6–8). As listed in appendixes 4 and 7, the SC CSC is a source of information about climate change and grants from numerous agencies. Through the SC CSC Web page, email announcements, workshops, and training classes, the SC CSC has been an information resource to tribes regarding important documents and journal papers related to climate change and sources of funding and information about ongoing projects related to climate change in the south central United States and will encourage collaboration with tribes in studies funded by the SC CSC.

Summary

The South Central Climate Science Center was established to increase understanding of climate change and to coordinate an effective response to climate-change effects on tribes and natural and cultural resources. Climate Science Centers provide coordination and funding to evaluate the vulnerability of natural and cultural resources to climate change, predict changes in natural and cultural resources in response to climate change, and develop models that predict responses to climate change. Staff and consortium partners of Climate Science Centers work closely with natural-resource management agencies, university researchers, and others such as tribes and private landowners on climate-change issues. The relatively large number of Native Americans in the south central United States and their special knowledge of changing ecosystems and adaptation to changes make working with tribes and tribal members on climate-change issues particularly important in this part of the Nation. This circular describes priorities of the South Central Climate Science Center, provides information about resources available from Climate Science Centers and partner agencies to characterize and mitigate effects of climate change, and describes how this Climate Science Center, tribes and tribal members, and others may collaborate to minimize potential harmful effects of climate change on human society and our surrounding ecosystems.

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Photograph by Kimberly T. Winton, U.S. Geological Survey

Appendixes

Photograph by Troy, Sia; used with permission

Appendix 1. Members of the South Central Climate Science Center (SC CSC) Stakeholder Advisory Committee.

[LCC, Landscape Conservation Cooperative; Okla., Oklahoma; N. Mex., New Mexico; La., Louisiana; Tex., Texas; Ariz., Arizona; Ind., Indiana; Tenn., Tennessee; Colo., Colorado; Mo., Missouri]

Name	Organization	Location
	Tribal representatives	
Patrick Gwin	Cherokee Nation	Tahlequah, Okla.
Rupert F. Nowlin	Cheyenne and Arapaho Tribes	El Reno, Okla.
	Federal representatives	
Benjamin Tuggle	U.S. Fish and Wildlife Service, Region 2	Albuquerque, N. Mex.
Bill Bartush	Gulf Coast Prairie LCC Coordinator	Lafayette, La.
Michael Sterling	U.S. Army Corps of Engineers, Southwestern Division	Dallas, Tex.
Dana Roth	U.S. Fish and Wildlife Service, Region 2	Albuquerque, N. Mex.
David Brown	National Oceanic and Atmospheric Administration	Fort Worth, Tex.
Genevieve Johnson	Desert LCC Coordinator	Glendale, Ariz.
Glen Salmon	Eastern Tallgrass Prairie and Big Rivers LCC	Bloomington, Ind.
Greg Wathen	Gulf Coastal Plains and Ozarks LCC	Nashville, Tenn.
Tammy Whittington and Pam Benjamin	National Park Service	Lakewood, Colo.
Kevin Johnson	Southern Rockies LCC	Denver, Colo.
Levi Brekke	U.S. Bureau of Reclamation, Great Plains Region	Denver, Colo.
Jean Steiner	Agricultural Research Service, Grazinglands Research Laboratory	El Reno, Okla.
Allison Shipp	U.S. Geological Survey, Southwest Region	Columbia, Mo.
	State representatives	
Ryan Ward	New Mexico Department of Agriculture	Las Cruces, N. Mex.
J.D. Strong	Oklahoma Water Resources Board	Oklahoma City, Okla.
Cindy Loeffler	Texas Parks and Wildlife	Austin, Tex.
George Geissler	Oklahoma Department of Agriculture, Food, and Forestry	Oklahoma City, Okla.

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Appendix 2. Examples of South Central Climate Science Center (SC CSC) collaborative activities with tribes, 2012–14.

I. **Education**

A. Tribal Environmental Staffs

Goal: Build tribal capacity by enhancing climate-science awareness and knowledge of tools that can be used by tribal environmental staffs

1. Build relationships with tribal environmental staffs
    a Participate in tribal science meetings
    b Host open houses at the SC CSC for tribal staff
    c Visit tribal environmental departments
2. Organize workshops to train tribal staff
    a Training about Structured Decision Making
    b Training about applying for Federal grants
    c Training about communicating climate-science information
3. Jointly identify the high-priority science needs of tribes
4. Promote and coordinate interactions between SC CSC partner organizations and tribes
    a Provide information to tribes about funding opportunities offered by partner organizations
    b Serve as a conduit for climate information from partner organizations to tribes
    c Promote inclusion of tribes in climate-science research projects conducted by partner organizations

B. Students

Goal: Serve as a conduit to enhance diversity at universities and provide science, technology, engineering, and mathematics (STEM) opportunities for tribes through SC CSC consortium members

1. Participate in youth camps and tribal youth outreach events
2. Participate in tribal student conferences
3. Conduct seminars for tribal primary school through college students
4. Fund internships for college students
5. Hold meetings with tribal technical organizations and consortium members to develop internships and postdoctoral appointments for climate-science students

C. Educators

Goal: Assist tribal educators in providing climate-science information to their students

1. Provide climate-science information and resources to educators
2. Partner with tribal educators in the development of curriculum
3. Conduct a request for proposals for tribal colleges
4. Conduct educator workshops

D. Tribal Leaders

Goal: Dialogue with leaders to understand their tribes' needs regarding climate science

1. Give presentations and staff booths at tribal leader meetings to make them aware of the SC CSC
2. Hold annual tribal leader forums to update them and their staffs about SC CSC activities, get input about tribal needs related to climate change, and share information about funding opportunities

E. Tribal Members

Goal: Assist tribal educators, environmental staffs, and leaders in their efforts to provide climate-science information to their members

1. Develop curriculum and provide training for its use for tribal environmental staffs and leaders
2. Participate in tribal environmental outreach programs

2. Project Development

Goal: Work with tribes to find collaboration opportunities and funding sources for tribes to conduct studies and adaptation activities related to climate science, ecosystem change, and sustainable adaptation

A. Provide guidance on climate-change grants and resources available from the U.S. Geological Survey (USGS) and other agencies

1. Develop and promote social media outlets for tribal environmental staffs to use to communicate information about grants and other opportunities
2. Develop relationships with environmental staffs to understand their needs

B. Leverage climate-change funds for tribes and studies related to tribal lands

1. Promote the inclusion of tribes as potential partners in SC CSC-funded projects as both collaborators and researchers
2. Maximize, leverage, and coordinate climate-science funding for monitoring, modeling, and adaptation for tribes and tribal lands

C. Indigenous Knowledge

1. Promote the integration of western scientific methods with indigenous knowledge and practices in SC CSC-funded projects to maximize the effectiveness of measuring the effects of climate change and develop holistic adaptation strategies to mitigate those effects

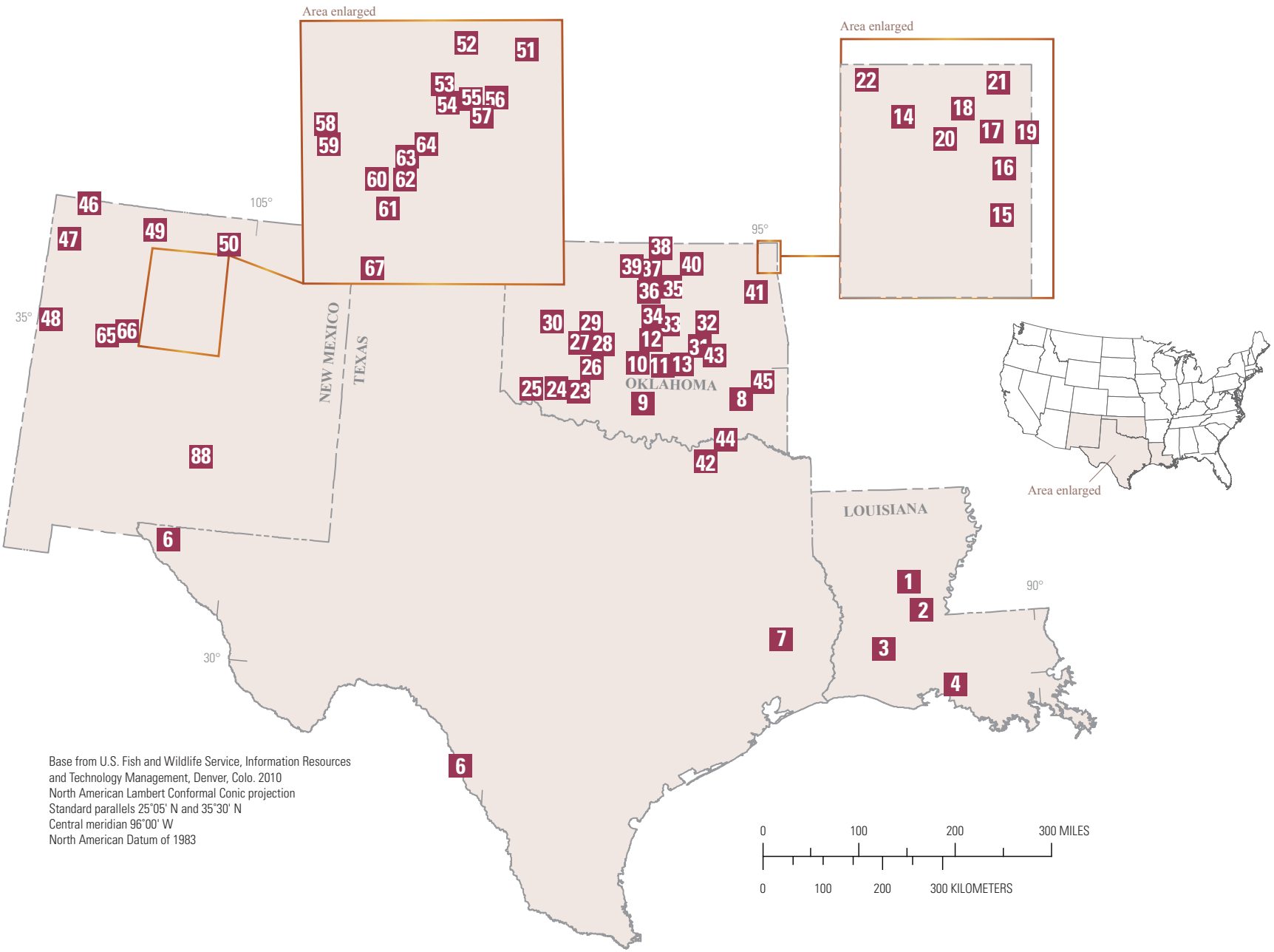
2. Seek tribal knowledge for

   a improving understanding of changes in phenology (timing of biological activities such as flowering and animal migration)

   b evaluating climate-related changes in the availability of first foods and other plant and animal species of cultural significance

   c describing adaptation strategies to climate change

Appendix 3. Locations of federally recognized Native American tribes and nations in the principal States of the area of interest of the South Central Climate Science Center (SC CSC).



EXPLANATION

List of tribes:

Louisiana:

1. Jena Band of Choctaw Indians
2. Tunica-Biloxi Indians
3. Coushata Tribe
4. Chitimacha Tribe

Texas:

5. Ysleta Del Sur Pueblo
6. Kickapoo Traditional Tribe
7. Alabama-Coushata Tribe

Oklahoma:

8. Choctaw Nation of Oklahoma
9. Chickasaw Nation
10. Citizen Potawatomi Nation
11. Absentee-Shawnee Tribe of Indians of Oklahoma
12. Kickapoo Tribe of Oklahoma
13. The Seminole Nation of Oklahoma
14. Shawnee Tribe
15. Seneca-Cayuga Tribe of Oklahoma
16. Wyandote Nation
17. Eastern Shawnee Tribe
18. Peoria Tribe of Indians of Oklahoma
19. Modoc Tribe of Oklahoma
20. Ottawa Tribe of Oklahoma
21. Quapaw Tribe
22. Miami Tribe of Oklahoma
23. Apache Tribe of Oklahoma
24. Comanche Nation
25. Kiowa Indian Tribe of Oklahoma
26. Fort Sill Apache Tribe
27. Caddo Nation of Oklahoma
28. Delaware Nation
29. Wichita and Affiliated Tribes
30. Cheyenne-Arapaho Tribes of Oklahoma
31. Thlopthlocco Tribal Town
32. The Muscogee (Creek) Nation
33. Sac & Fox Nation of Oklahoma
34. Iowa Tribe of Oklahoma
35. Pawnee Nation of Oklahoma
36. Otoe-Missouria Nation
37. Ponca Tribe of Indians of Oklahoma
38. Kaw Nation
39. Tonkawa Tribe of Indians of Oklahoma
40. The Osage Nation
41. Cherokee Nation
42. Alabama-Quassarte Tribal Town
43. Delaware Tribe of Indians
44. Kilagee Tribal Town
45. United Keetoowah Band of Cherokee Indians

New Mexico:

46. Ute Mountain Tribe
47. Navajo Nation
48. Zuni Tribe
49. Jicarilla Apache Tribe
50. Pueblo of Taos
51. Pueblo of Picuris
52. Pueblo of San Juan
53. Pueblo of Santa Clara
54. Pueblo of San Ildefonso
55. Pueblo of Pojoaque
56. Pueblo of Nambe
57. Pueblo of Tesuque
58. Pueblo of Jemez
59. Pueblo of Zia
60. Pueblo of Santa Ana
61. Pueblo of Sandia
62. Pueblo of San Felipe
63. Pueblo of Santo Domingo
64. Pueblo of Cochiti
65. Pueblo of Acoma
66. Pueblo of Laguna
67. Pueblo of Isleta
68. Mescalero Apache Tribe

Photograph by Kimberly T. Winton, U.S. Geological Survey

Appendix 4. Selected Federal grant sources for study of or adaptation to climate change.

[DOI, Department of the Interior; USGS, U.S. Geological Survey; USFWS, U.S. Fish and Wildlife Service; USBR, Bureau of Reclamation; BIA, Bureau of Indian Affairs; USFS, U.S. Forest Service; NRCS, Natural Resources Conservation Service; HUD, Department of Housing and Urban Development; EPA, U.S. Environmental Protection Agency; DOE, Department of Energy; NASA, National Aeronautics and Space Administration]

Department or agency	Brief description of program	Web site
DOI, USGS	Climate Science Centers and the USGS National Climate Change and Wildlife Science Center—fund research related to climate change and adaptation strategies	www.doi.gov/csc/index.cfm https://nccwsc.usgs.gov/
USFWS, USBR	Landscape Conservation Cooperatives—fund research to investigate ecosystem trends across the United States	http://www.doi.gov/lcc/index.cfm http://gulfcoastprairielcc.org/ http://www.greatplainslcc.org/ http://www.usbr.gov/dlcc/ http://southernrockieslcc.org/ http://gcpolcc.org http://www.tallgrassprairielcc.org/
USFWS	Tribal Wildlife Grant Program—provides support for habitat conservation, fish and wildlife research, natural history studies, population monitoring	http://wsfrprograms.fws.gov/subpages/grantprograms/TWG/TWG.htm http://www.fws.gov/nativeamerican/grants.html
USBR	WaterSMART—improving water conservation and sustainability	http://www.usbr.gov/WaterSmart/grants.html
BIA	Climate Change Grant Program	http://www.bia.gov/WhoWeAre/RegionalOffices/Pacific/NaturalResources/index.htm
USFS	National Forest Foundation's Matching Awards Program—provides matching funds for monitoring projects benefiting National Forests and Grasslands	http://www.nationalforests.org/conserve/grantprograms/ontheground/map
NRCS	Conservation Innovation Grant—financial assistance, environmental improvement	http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/financial/cig/
HUD	Sustainable Communities Regional Grant Program	http://portal.hud.gov/hudportal/HUD?src=/program_offices/administration/grants/nofa10/scrpg
EPA	Climate and Integrated Assessment Modeling studies, Science for Sustainable and Healthy Tribes	http://www.epa.gov/air/grants_funding.html http://www.epa.gov/ncer/rfa/2013/2013_star_tribal.html
DOE	Tribal Renewable Energy and Energy Efficiency Deployment Assistance	http://www1.eere.energy.gov/wip/tribal.html
NASA	Global Climate Change Education	http://cleanet.org/cln/ccep/nasa_global_cli.html http://www.nasa.gov/offices/education/about/

Appendix 5. List of South Central Climate Science Center (SC CSC) meetings, classes, and workshops conducted 2011–13.

[Okla., Oklahoma; NRCS, Natural Resources Conservation Service; N. Mex., New Mexico; Tex., Texas; LCC, Landscape Conservation Cooperative; EPA, U.S. Environmental Protection Agency; La., Louisiana; GPS, Global Positioning System; N.Y., New York]

Class/meeting name	Date	Location	Purpose
Oklahoma Inter-Tribal Meeting on Climate Variability and Change	12/12/2011	Norman, Okla.	Enhance and foster dialogue between tribes and climate scientists, describe climate science and change, develop recommendations for 2013 National Climate Assessment document.
NRCS National American Indian/Alaska Native Special Emphasis Program	07/31/2012	Norman, Okla.	Inform tribal representatives about this NRCS program and upcoming programs of the SC CSC.
Indigenous Peoples Climate Change Working Group (formerly American Indian Alaska Native Climate Change Working Group)	08/13/2012	Norman, Okla.	SC CSC staff and tribal representative met with Dan Wildcat to learn more about climate-science issues and strategies of northwestern tribes.
Oklahoma Tribal Conservation Advisory Council	08/23/2012	Shawnee, Okla.	Outreach to describe and discuss the mission and programs of the SC CSC.
Tribal Environmental Coalition of Oklahoma	09/18/2012	Stroud, Okla.	Outreach to describe and discuss the mission and programs of the SC CSC.
University of Oklahoma American Indian Science and Engineering Society Chapter	09/25/2012	Norman, Okla.	Met to discuss the SC CSC mission and programs and potential student internships.
Roll-Out Meeting	10/24/2012	Las Cruces, N. Mex.	Meeting to describe the SC CSC mission and program to tribes in New Mexico.
SC CSC Science Workshop	11/29/2012	Fort Worth, Tex.	Meeting to describe the SC CSC mission and program to tribes in Texas.
SC CSC and LCC Tribal Involvement Meeting	11/30/2012	Fort Worth, Tex.	Meeting to describe missions and programs of the SC CSC, Gulf Coast Prairie, Gulf Coastal Plains, and Ozarks LCCs.
EPA, Region VI, 16th Annual Tribal Environmental Summit	12/12–14/2012	Dallas, Tex.	Made presentation and had booth related to SC CSC mission and programs.
Gulf Coast Prairie LCC Steering Committee Meeting	01/08–10/2013	Lafayette, La.	Advised LCC regarding program directions and priorities.
Tribal Environmental Coalition of Oklahoma	01/15/2013	Stroud, Okla.	Outreach to describe and discuss the mission and programs of the SC CSC.
Norman Public Schools Native American Science Club	01/22/2013	Norman, Okla.	Outreach to describe and discuss the mission and programs of the SC CSC.
University of Oklahoma American Indian Science and Engineering Society Chapter	01/29/2013	Norman, Okla.	Outreach to describe and discuss the mission and programs of the SC CSC.
Riverside Indian School	02/11/2013	Anadarko, Okla.	Outreach to describe and discuss the mission and programs of the SC CSC.
Chickasaw Nation Environmental Health and Safety Expo 2013	02/19/2013	Norman, Okla.	Taught a class about climate change and had an exhibit booth to share the SC CSC mission and programs.
American Indian Math and Science Society	03/14/2013	Norman, Okla.	Outreach to describe and discuss the mission and programs of the SC CSC.
American Indian Alaskan Native Climate Change Working Group	03/28–29/2013	Norman, Okla.	Outreach to describe and discuss the mission and programs of the SC CSC.
EPA Reg. VI Regional Tribal Operations Committee	04/03/2013	Tulsa, Okla.	Outreach to describe and discuss the mission and programs of the SC CSC.

Class/meeting name	Date	Location	Purpose
American Indian Math & Science Society Summer Youth Camps	04/19/2013, 05/22/2013	Norman, Okla.	Outreach to describe and discuss the mission and programs of the SC CSC.
Norman Public Schools Native American Science Club GPS Scavenger Hunts	04/27/2013, 05/01/2013, 05/04/2013	Norman, Okla.	Provided class materials and taught class.
Bureau of Indian Affairs	05/02/2013	Norman, Okla.	Outreach to describe and discuss the mission and programs of the SC CSC.
Choctaw Nation of Oklahoma Environmental Staff	05/03/2013	Durant, Okla.	Described the SC CSC mission and programs and the Ecosystem Services Project.
Five Civilized Tribes Inter-Tribal Council, Environmental Protection Committee	05/07/2013	Catoosa, Okla.	Outreach to describe and discuss the mission and programs of the SC CSC.
American Indian Math and Science Society Summer Institute on Climate Change and Sustainability	05/31/2013	Norman, Okla.	Provided class materials describing the SC CSC mission and programs and about climate change and adaptation to climate change.
Eight Northern Indian Pueblos Council, Inc., Tribal Youth Environmental Summer Camp	06/01/2013	Norman, Okla.	Provided class materials describing climate change and adaptation to climate change.
Inter-Tribal Workshop on Climate Variability and Change	06/04/2013	Stillwater, Okla.	SC CSC-sponsored workshop about climate change.
American Indian Math & Science Society Climate Change and Sustainability Summer Institute	06/10–14/2013	Norman, Okla.	Presented information about climate change and adaptation to climate change.
Inter-Tribal Workshop on Climate Variability and Change	06/11/2013	Fort Cobb, Okla.	SC CSC-sponsored workshop about climate change.
EPA National Tribal Science Council Meeting	06/18–20/2013	Syracuse, N.Y.	Gave presentation about the SC CSC mission and programs.
Eight Northern Indian Pueblos Council, Inc., Tribal Summer Camp	06/24/2013	Santa Fe, N. Mex.	Gave presentation about climate change and adaptation to climate change.
Inter-Tribal Workshop on Climate Variability and Change	06/25/2013	Albuquerque, N. Mex.	SC CSC-sponsored workshop about climate change.
Inter-Tribal Workshop on Climate Variability and Change	07/09/2013	Wyandotte, Okla.	SC CSC-sponsored workshop about climate change.
Inter-Tribal Workshop on Climate Variability and Change	07/17/2013	Sulphur, Okla.	SC CSC-sponsored workshop about climate change.
Chickasaw Nation Water Sustainability Proposal Team field trip	08/02/2013	Ada and Sulphur, Okla.	Field trip to examine water-resource and climate-related issues in south central Oklahoma.
Choctaw Nation Labor Day Festival	08/30–09/01/2013	Tuskahoma, Okla.	Booth with education information at public festival.
USGS Tribal Water Resources Class	08/13–14/2013	Shawnee, Okla.	Attended class about water planning, drought, and climate change and gave presentations about the mission and programs of the SC CSC, drought, climate change, and mitigation and adaptation to climate change.

Photograph by Kimberly T. Winton, U.S. Geological Survey

Appendix 6. South Central Climate Science Center (SC CSC) activities, priorities, and progress toward goals.

Activities, priorities, and progress	Brief description of program
Provide funding for climate-change research in the south central area	The SC CSC provided funding in fiscal year 2012 for five climate-change research projects in the south central area. The SC CSC anticipates providing funding for five new climate-change research projects in each fiscal year.
Conduct workshops to build SC CSC expertise in understanding social and communication dimensions of climate change and conduct inter-tribal workshops about climate variability and change	The SC CSC conducted a workshop in both 2012 and 2013 to develop better understanding of the multidimensional nature of the effects of climate change in the south central area.
Act as a clearinghouse for climate-change information in the south central area on the basis of the U.S. Geological Survey ScienceBase Web site and other resources	The SC CSC is building resources, including this document, to provide links to climate-change information.
Leverage climate-change funds for tribes and studies related to tribal jurisdictional areas	Climate science research capacity of tribal governmental staff members is a high priority for the SC CSC. The SC CSC will conduct additional meetings and training classes to build interest in and knowledge of potential climate-change research topics.
Assist in development of projects, adaptation strategies, and utilization of indigenous knowledge	The SC CSC plans to conduct additional meetings and training classes with tribal leaders and environmental staff members to discuss how indigenous knowledge can be tested and documented as mitigation and adaptation strategies for changing climate.

Photograph by Kimberly T. Winton, U.S. Geological Survey

Appendix 7. Selected Federal programs related to adaptation to climate change.

[DOI, Department of the Interior; USGS, U.S. Geological Survey; NPN, National Phenology Network; USFWS, U.S. Fish and Wildlife Service; NPS, National Park Service; EPA, U.S. Environmental Protection Agency; NASA, National Aeronautics and Space Administration; NOAA, National Oceanic and Atmospheric Administration; USFS, U.S. Forest Service; DOT, U.S. Department of Transportation; NIEHS, National Institute for Environmental Health Sciences; NIDIS, National Interagency Drought Information System]

Department, agency, or program	Brief description of program	Web site
DOI, USGS	Climate Science Centers fund and coordinate research related to climate change and adaptation strategies	www.doi.gov/csc/index.cfm
NPN	Multiagency and citizen effort to catalog the effects of climate change on ecosystems	https://www.usanpn.org/
USFWS	Developed strategic plan for adapting and mitigating the effects of accelerating climate change	http://www.fws.gov/home/climatechange/pdf/CCStrategicPlan.pdf
USGS	Climate and Land-Use Change and Development Program—supports fundamental multidisciplinary research needed to address complex issues associated with climate and land use change	http://www.usgs.gov/climate_landuse/clu_rd/
NPS	Developed climate-change response strategy document	http://www.nature.nps.gov/climatechange/docs/NPS_CCRS.pdf
EPA	Policies and programs including Draft Climate Change Adaptation Plan, Policy on Climate Change Adaptation, Climate Ready Water Utilities, National Water Program Climate Change Strategy, Office of Research and Development Global Change Impacts and Adaptation, Tribal Science Council	http://epa.gov/climatechange/pdfs/EPA-climate-change-adaptation-plan-final-for-public-comment-2-7-13.pdf, http://epa.gov/climatechange/Downloads/impacts-adaptation/adaptation-statement.pdf http://water.epa.gov/infrastructure/watersecurity/climate/ http://water.epa.gov/scitech/climatechange/2012-National-Water-Program-Strategy.cfm http://www.epa.gov/ncea/global/ http://www.epa.gov/osp/tribes/tribes.htm
NASA	Provides data and imagery related to climate change	http://climate.nasa.gov/
NOAA	Provides current and projected climate information	http://www.climate.gov/#climateWatch
Interagency Climate Change Adaptation Task Force	A task force of more than 20 Federal agencies developing reports related to climate-change adaptation strategies	http://www.whitehouse.gov/administration/eop/ceq/initiatives/adaptation
U.S. Global Change Research Program	Coordinates and integrates Federal research on changes in the global environment and societal implications of those changes	http://www.globalchange.gov/
USFS	Provides information and tools related to climate change, forestry, and adaptation	http://www.fs.fed.us/ccrc/
DOT	Has clearinghouse related to effects of transportation on climate change and of climate change on transportation	http://climate.dot.gov/
NIEHS	Provides information about potential health effects of climate change	http://www.niehs.nih.gov/research/programs/geh/climatechange/
NIDIS	A multiagency group managing the U.S. Drought Portal, which prepares information related to drought prediction and adaptation	http://www.drought.gov/drought/

Photograph by Kimberly T. Winton, U.S. Geological Survey

Appendix 8. Landscape Conservation Cooperative contacts in the south central United States.

Landscape Conservation Cooperative	Web site	Landscape Conservation Cooperative Coordinator (in 2014)	Coordinator email address
Desert	http://www.usbr.gov/dlcc/	Genevieve Johnson	gjohnson@usbr.gov
Eastern Tallgrass Prairie and Big Rivers	http://www.tallgrassprairielcc.org/	Glen Salmon	Glen_Salmon@fws.gov
Great Plains	http://www.greatplainslcc.org/	Nicole Athearn	Nicole_athearn@fws.gov
Gulf Coastal Plains and Ozarks	http://gcpolcc.org/	Greg Wathen	Greg.wathen@tn.gov
Gulf Coast Prairie	http://gulfcoastprairielcc.org/	Bill Bartush	Bill_bartush@fws.gov
Southern Rockies	http://southernrockieslcc.org/	Kevin Johnson	Kevin_m_johnson@fws.gov

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