



# SOUTH CENTRAL CLIMATE SCIENCE CENTER



## 2014 Annual Tribal Engagement Report

March 1, 2014—February 28, 2015

This year's highlights:

- Published our Tribal Engagement Strategy
- Hired a tribal liaison for NM tribes
- Conducted 7 tribal youth programs
- Hosted and conducted 9 trainings for tribal staff
- Funded 3 projects with tribal collaboration

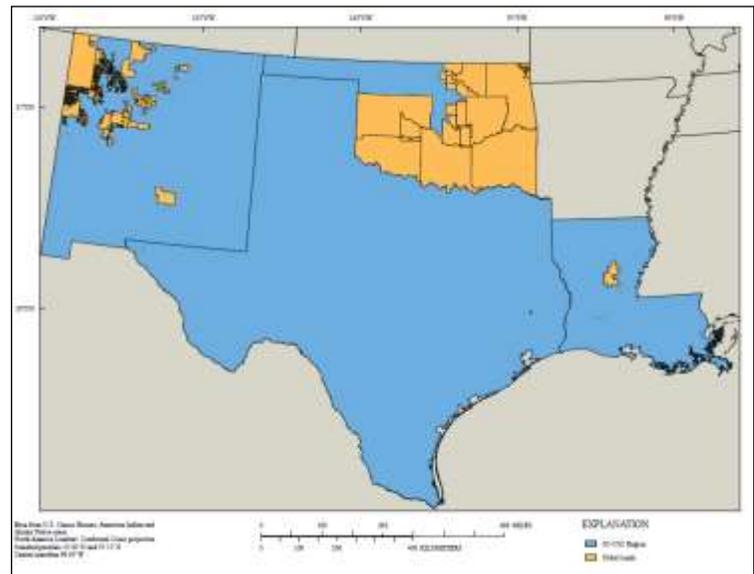
## Overview

This Annual Tribal Engagement Report summarizes the South Central Climate Science Center's (SCCSC) tribal engagement activities and the development of the Tribal Engagement Strategy (USGS Circular 1396) in 2014. This circular describes priorities of the SCCSC and provides information about resources available from Climate Science Centers and partner agencies regarding climate change. The circular also describes how the SCCSC, tribes and tribal organizations, and researchers can collaborate to minimize potential harmful effects of climate variability and change on human society and the environment.

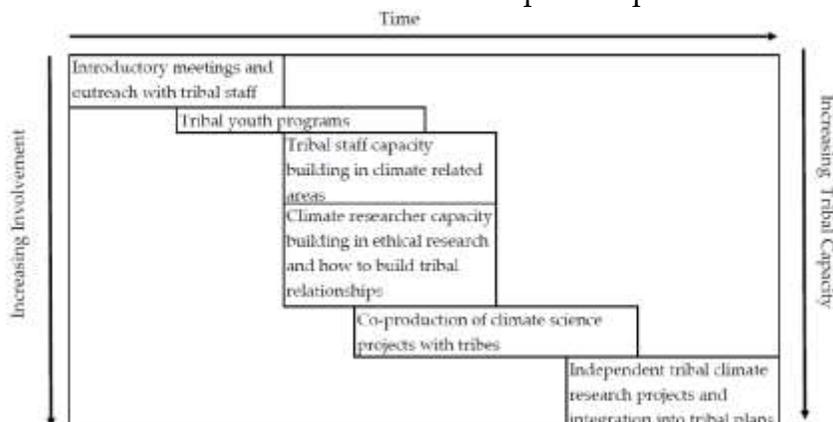
## Tribal Engagement Strategy of the South Central Climate Science Center, 2014

Sixty eight tribes are located in the South Central Climate Science Center (SCCSC) region (i.e. OK, NM, TX, and LA). The SCCSC made it a priority to include the tribes as partners from its inception and both the Chickasaw Nation and the Choctaw Nation of Oklahoma are consortium members. Under this arrangement, the SCCSC employs a full-time Chickasaw Nation Sustainability Scientist officed at the SCCSC. This scientist also serves as a tribal liaison to facilitate relations with the tribes, develop partnerships for climate science projects, build tribal stakeholder capacity, and tribal youth programs.

In 2014, the SCCSC published its Tribal Engagement Strategy to outline its approach for developing tribal relationships. As shown in the figure below, the conceptual plan begins with initial introductory meetings and outreach to demonstrate commitment and interest in working with tribal staff. The plan includes tribal youth programs as an important step in developing relationships and building capacity in the next generation of tribal staff. Then the plan includes building tribal capacity in climate related areas while also building climate



researcher capacity in ethical research and how to build these tribal relationships. Once the relationships are developed between the tribal staff and the climate science researchers, the SCCSC will facilitate the co-production of climate science research projects. As the tribes begin to develop their internal capacity and find novel ways to integrate their interests, the plan ultimately leads to tribes developing their own independent climate research projects and integrating climate science into their various vulnerability assessments and adaptation plans.



## Hired South Central CSC Assistant Sustainability Scientist



The SCCSC welcomed Kim Merryman (left) through the Chickasaw Nation as our new Assistant Sustainability Scientist.

Kim received her Associates of Applied Science at Eastern Oklahoma State College for Forestry and her Bachelor of Science at Stephen F. Austin State University. She spent 9 years with the US Forest Service as a Forester and Interdisciplinary team member in the Ozark National Forest and the Holly Springs National Forest.

In 2002, Kim began working for her tribe, the Choctaw Nation of Oklahoma, as a GIS Specialist. In this role, she identified, mapped, and performed environmental assessments on trust lands for all of the Choctaw Nation. She then initiated an Ozone Monitoring Project as the Air Quality Specialist for her tribe. In addition, Kim has experience with the Eastern Shawnee Tribe of Oklahoma in water quality monitoring. In this capacity, she worked with the SCCSC to plan a Climate Change Workshop for the Northeast Oklahoma tribes.

In her new role, Kim assists April Taylor, our Sustainability Scientist, to continue the SCCSC's work with tribes in our region, with a particular focus on tribes in New Mexico.

## Hosted NSF– Research Experiences for Undergraduates Intern

The SCCSC hosted Grant Williams (right), a Cherokee student from Oklahoma State University participating in a NSF– Research Experiences for Undergraduates program. Grant is working on his bachelor's degree in Physics and a minor in mathematics. He is interested in research in the medical field.

During his summer at the SCCSC, Grant worked on modeling wind turbine wake interactions in order to optimize the production of wind energy on tribal lands. He successfully wrote his first journal article and developed a conference presentation on his project.



Since completing the program, Grant has excelled by winning a poster competition at the Society for Advancement of Hispanics/Chicanos and Native Americans in Science (SACNAS) conference in Los Angeles, CA in October 2014. Grant also placed in the an oral presentation competition at the American Meteorological Society (AMS) conference in Phoenix, AZ in January 2015.

## Tribal Youth Programs

An essential part of the SCCSC's Tribal Engagement Strategy is conducting tribal youth programs which are an important step in developing relationships, promoting native scientists in the climate related fields, and building capacity in the next generation of tribal staff.

In 2014, the SCCSC began strategy meetings to outline our priorities and approach for developing youth programs. The SCCSC conducted seven tribal youth programs, conducted one program for Indian teachers, attended one science teacher conference for Indian science teacher networking, hosted one Cherokee intern (page 3), and attended three student conferences to mentor tribal youth.

Number of Youth Programs:	Number of Tribal Youth Attendees:	Number of Tribes:	Tribal Contact Hours: *	Number of Partners: **
7	234	10	501	10

\* Contact hours = Number of Tribal Attendees x Hours of Training

\*\* See list of partners on page 8



### Chickasaw Nation Native Explorers Program

In April, the SCCSC hosted the Chickasaw Nation Native Explorers Program (left) for a day of activities including a tour of the National Weather Center and exploring GIS and satellite imagery activities. The Native Explorers Program includes native students from 6-18 yrs. old from schools all across the Chickasaw Nation.

### Choctaw Nation of Oklahoma -Jones Academy STEM Camp

In July, the SCCSC conducted an activity at the Choctaw Nation of Oklahoma's Jones Academy STEM camp (right). The high school students were educated about climate change with three activities: green house in a bottle, ocean acidification, and satellite imagery hands on demonstration. There were ten girls and four boys from six tribes including Creek, Lakota, Cherokee, Cheyenne-Arapaho, Tohono O'odham, and Choctaw.



### Preconference Activity for Indian Education Summit



In September, the SCCSC hosted Indian teachers for a preconference activity for the Indian Education Summit titled Weather and Climate Scientists in Action Tour (left). The day included a tour of the National Weather Center, demonstrations of climate experiments to use in their classrooms, and an interview with a climate scientist activity. There were 15 tribal attendees from four tribes.

## Tribal Capacity Building Trainings

Building partnerships between tribes and consortium researchers is an essential component of the SCCSC's Tribal Engagement Strategy. The SCCSC facilitates building tribal capacity in climate related areas while also building consortium researcher capacity in ethical research and how to build these tribal relationships. In 2014, the SCCSC partnered on nine trainings for tribal staff (right) and hosted one webinar and one Working in Indian Country training for researchers.

Number of Trainings:	Total Number of Attendees:	Number of Tribal Attendees:	Number of Tribes:	Tribal Contact Hours : *	Number of Partners: **
9	194	157	37	1762	17

\* Contact hours = Number of Tribal Attendees x Hours of Training

\*\* See list of partners on page 8

### List of Tribal Trainings:

1. Climate Training for Native Americans (four locations)
2. Environmental Problem Solving with GIS (two locations)
3. Vulnerability Assessment
4. Climate Adaptation Planning
5. Climate Science Grant Writing Series for Tribes

### Climate Training for Native American Tribes (PI- Rachel Riley, OU)

National Oceanic and Atmospheric Administration Regional Integrated Sciences and Assessments Southern Climate Impacts Planning Program (SCIIPP) conducted a needs assessment at their Oklahoma Inter-Tribal Meeting on Climate Variability and Change. This assessment revealed the need for climate education for tribal environmental staff to make more scientifically-informed decisions. The SCCSC partnered with SCIIPP and Chickasaw Nation to host four two-day trainings for tribal environmental staff in OK and TX (Wyandotte, OK on Aug 13-14, 2014; Ft. Cobb, OK on Aug 27-28, 2014; Durant, OK on Sept 10-11, 2014; and Stroud, OK on Sept 18-19, 2014). The training introduced the basics of climate and weather, weather hazards and hazard climatology, past climate reconstruction and climate proxies, current climate variability and change, climate tools and data, and a basic introduction to vulnerability assessments. There were 35 tribal attendees from 18 different tribes.



### Climate Science Grant Writing Training Series for Tribes

Feedback from tribal participants at our 2013 Annual SCCSC Research Workshop requested guidance on climate science grant writing training. The SCCSC partnered with University of Oklahoma's Center for Research Program Development and Enrichment, Inter-Tribal Environmental Council, and Environmental Protection Agency (EPA)-Region 6 to host our first Climate Science Grant Writing training for tribal environmental staff and tribal grant

writers on December 5, 2014 in Dallas, TX. There were 43 tribal attendees from 24 different tribes and a total of 200 contact hours.

*"This workshop helped me to think about ways to apply for other means of funding besides EPA and also some ideas to add climate change in GAP."*

### Environmental Problem Solving with GIS

In 2014, the SCCSC partnered with U.S. Geological Survey (USGS) OK Water Science Center, Bureau of Indian Affairs- Southern Plains Region, Tribal GIS, Choctaw Nation of Oklahoma, Bureau of Reclamation, and University of Oklahoma's Center for Spatial Analysis to seek funding through the USGS-Office of Tribal Relations (OTR)- TESNAR program to host 2 two-day Environmental Problem Solving with GIS trainings for tribal staff (Norman, OK on August 20-21, 2014 and Albuquerque, NM at Southwestern Indian Polytechnic Institute on November 3-4, 2014). There were 48 tribal attendees from 26 different tribes and a total of 544 contact hours.



## Grants Funded

An essential part of implementing the Tribal Engagement Strategy is funding the various youth programs and trainings. The SCCSC staff work to develop partnerships with many organizations (see page 8) and to develop grant proposals. The SCCSC staff also facilitate the important matchmaking of tribal staff and organizations with the climate researchers for the youth programs, trainings, and grant proposals.

In January 2014, the USGS issued a request for proposals for FY14 science funding, resulting in nine funded projects for the SCCSC region. (This CSC funding requires a USGS or a consortium member staff be a Co-PI.) There were three with Chickasaw Nation as a tribal partner that were selected for funding by USGS through the annual supplemental research funding call for FY 14:

1. Regional Graduate Student, Post-Doc, and Early Career Researcher Workshop  
Renee McPherson (OU), PI—1 year, \$50,959
2. Tribal Climate Change and Extreme Event Response Studies to Identify Vulnerability Assessments  
Dawn Jourdan (OU), PI— 1 year, \$20,000
3. Impacts of Climate Change on Flows in the Red River Basin— Amendment  
Wayne Kellogg (Chickasaw Nation), PI— 1 year, \$74,519

In August 2014, the USGS issued a request for proposals for FY 15 science funding. The SCCSC Consortium submitted multiple proposals with tribal partners. Final funding decisions for this supplemental research funding call have not been announced as of June 2015.

Utilizing the collaborative infrastructure created by the SCCSC Consortium, additional proposals were developed and submitted to other agencies, including the National Oceanic and Atmospheric Administration and Bureau of Indian Affairs. There were nine tribal partners in these five grants that were selected for funding:

1. Adapting socio-ecological systems to increased climate vulnerability  
Renee McPherson (OU) and Duncan Wilson (OSU), Science Leads—5 years, \$20,000,000 from National Science Foundation and \$4,000,000 from OK State Regents for Higher Ed.
2. Climate Training for Native American Tribes  
Rachel Riley (OU), PI —2 years, \$99,599 from National Oceanic and Atmospheric Administration
3. Environmental Assessment and Problem Solving with GIS  
Kim Winton (USGS), PI—1 year, \$4,000 from USGS— Technical training in Support of Native American Relations (TESNAR); \$4,000 from Bureau of Indian Affairs, and \$17,000 from Bureau of Reclamation
4. 2013 Tribal Climate Change Adaptation Learning Project  
Brian McClain (CNO), PI— 1 year, \$146,992 from Bureau of Indian Affairs
5. Tribal Climate Change Planning Initiative  
Crystal Keys (BIA), PI — 1 year, \$125,000 from Bureau of Indian Affairs

## Tribal Collaboration on SCCSC Projects

As part of the SCCSC's Tribal Engagement Strategy, the SCCSC facilitates collaboration between tribal staff and researchers on climate science projects and in seeking funding for the projects. This includes the USGS solicitation and as well as external funding opportunities. In 2014, the SCCSC funded three projects with tribal collaboration.

### Impacts of Climate Change on Flows in the Red River Basin (PI-Wayne Kellogg, CN)



The Red River Basin is located in five states from New Mexico to the Mississippi River. The basin lies within the boundaries of three Landscape Conservation Cooperatives. It also is located in ten tribal jurisdictions including the Chickasaw Nation and the Choctaw Nation of Oklahoma (left).

Evaluating the impact of climate change on the flows of the Red River and its tributaries is essential for water management and water supply planning. This study involves the use of downscaled global climate models, a distributed rainfall-runoff model (VIC), as well as a channel routing water management tool (RiverWare). Integrating this suite of models will improve water management decisions. These tools will reduce the impacts of floods and droughts, and inform decision-makers regarding the need for additional impoundments or inter-basin transfer.

### Hosted a Vulnerability Assessment Training (PI-Dawn Jourdan, OU)

The SCCSC hosted a one day training in Norman, OK on Aug 11, 2014 conducted by the Texas A&M University's Hazard Reduction Recovery Center which are the experts in our region on vulnerability assessments (right). The training audience was for tribal representatives, university researchers, and Landscape Conservation Cooperatives participants. The training investigated specific needs associated with conducting a vulnerability assessment that is culturally appropriate and mindful of the past to chart a course for the future. The training aimed to help prepare tribal professionals to assess community conditions such as: pre-impact conditions, hazards exposure, physical vulnerability, social vulnerability, asset mapping, and technical needs. There were 26 attendees with 13 tribal attendees from seven different tribes and a total of 65 contact hours.



### Regional Graduate Student, Post-Doc, and Early Career Researcher Workshop (PI- Renee McPherson, OU)

The SCCSC hosted a week long training in Norman, OK on June 16-20, 2014 for graduate students, post docs, and early career researchers. The Chickasaw Nation hosted the group for one day including a bus tour, a visit to the Chickasaw National Recreational Area, Chickasaw Nation Meeting and Conference Retreat Center, and the Chickasaw Cultural Center (left). The purpose of these activities was to teach the group about things to consider when partnering with tribes and about making research applicable to a variety of potential end users such as tribes.

## Partners

In 2014, the SCCSC partnered with 24 organizations of which 13 were tribes, tribal colleges, or tribal organizations for the youth programs, trainings, and grant proposals. Many diverse organizations have shown an interest in working with us and with tribes in our region. The list of the partners included:

1. Chickasaw Nation
2. Choctaw Nation of Oklahoma
3. Wichita and Affiliated Tribes
4. Absentee Shawnee Tribe of Indians of Oklahoma
5. Tribal GIS organization (non-profit)
6. Institute of Tribal Environmental Professionals
7. Inter-Tribal Environmental Council
8. Eastern Shawnee Tribe
9. Sac & Fox Nation of Oklahoma
10. Southwestern Indian Polytechnic Institute
11. College of Muscogee Nation
12. Pueblo of Pojoaque
13. American Indian Institute
14. National Oceanic and Atmospheric Administration
15. Bureau of Indian Affairs
16. Bureau of Reclamation
17. Environmental Protection Agency
18. Federal Emergency Management Agency
19. National Conservation Training Center
20. University of Oklahoma
21. Oklahoma State University
22. Texas A&M University
23. University of Central Oklahoma
24. Larry Koewn, LLC

## Activities Planned for 2015

- Tribal student conference at College of Muscogee Nation
- National Conservation Training Center– Vulnerability Assessment trainings (Durant, OK on June 29– July 2nd; Pueblo of Pojoaque on Oct 26-29th)
- Climate Science Grant Writing training series (St. Louis, MO at National Adaptation Forum and Norman, OK on July 23rd)
- Climate impact on flows in Red River basin case study outreach
- 5 tribal vulnerability assessments
- Climate Trainings for LA and NM tribes
- Working in Indian Country for researchers



*Visit our website at <http://southcentralclimate.org/>*

### Contacts

**Kimberly Winton, Ph.D.**

Director  
U.S. Geological Survey  
kwinton@usgs.gov

**Mike Langston, Ph.D.**

Assistant Director  
U.S. Geological Survey  
mlangston@usgs.gov

**Berrien Moore III, Ph.D.**

Vice President  
Weather & Climate Programs  
The University of Oklahoma  
berrien@ou.edu

**Renee A. McPherson, Ph.D.**

University Co-Director  
The University of Oklahoma  
renee@ou.edu

**Aparna Bamzai, M.E.M.**

University Assistant Director  
The University of Oklahoma  
Aparna@ou.edu

**Terri Sarsycki**

Senior Executive Assistant  
The University of Oklahoma  
tsarsycki@ou.edu

**April Taylor, M.E. E. R. M., GISP**

Sustainability Scientist  
The Chickasaw Nation  
April.Taylor@chickasaw.net

201 Stephenson Parkway  
Suite 2100  
Norman, OK 73019  
Phone: 405-325-1272  
Fax: 405-325-1122