



TEXAS TECH UNIVERSITY

Climate Science Center™

September 2014



SC-CSC Summer Intern Program

The South-Central Climate Science Center hosted the Undergraduate Summer Internship for Underrepresented Minorities this summer.

This summer the South-Central Climate Science Center hosted the first-ever one-week summer internship program. The program included twelve undergraduate interns of all classifications and from many areas of study, including many engineering and environmental disciplines.

A typical day for the interns of this program included a lecture in the morning, lunch, and an excursion or field trip to a field site, research facilities, or other lecture presentations in the afternoon.

The students began their program with one week in Oklahoma, followed by one week in Louisiana, and finally a week in Texas. While in Texas, the interns were hosted by members of the Texas Tech and South Central Climate Science Centers. They began their week in Texas in Waco, where they toured the Waco Wetlands and focused on learning about how these

wetlands have been changing over the last couple of years. After two days in Waco, the interns were taken to Junction to learn about hill country natural resource issues, mainly including drought and the effects on vegetation. Finally, they came up to Lubbock to learn about impacts of climate change on more arid regions, including much of the agriculture in the area.

This summer internship program was unique to the SC-CSC this year, but the other Climate Science Centers are considering the same program for future years. The coordinators of the program are considering a shift from the travel-intensive program that interns did this year to a more research project-oriented program next year. Much of interns' time was spent in transit to different areas, and it is thought that a more focused research project may be good in years to come.



Dr. Cristina Bradatan

Dr. Cristina Bradatan is the newest addition to the Texas Tech Climate Science Center. Dr. Bradatan has dual bachelors and master's degrees in both sociology and mathematics. Her research is focused on understanding the sociological implications of climate change on human populations.

Dr. Bradatan is currently working with Dr. Katharine Hayhoe on a paper examining the effects of climate change on immigration in Senegal. Currently Senegal is dealing with increases in drought coupled with the sea-level rising. Using three different climate change scenarios, Dr. Bradatan and Dr. Hayhoe are predicting what migration from Senegal will look like over the decades to come, including how many people will leave, where they will go, and the issues of adaptation that these people will face.

<http://goo.gl/vY47Fw>

Featured Publication: Gelca, Rodica, Hayhoe, Katharine, & Scott-Fleming, Ian. "Observed trends in air temperature, precipitation, and water quality for Texas reservoirs: 1960-2010." *Texas Water Journal* [Online], 5.1 (2014): 36-54. <http://goo.gl/EaQVUI>

September Climate Science Seminar Speakers



Dr. Eric Bruning

**Atmospheric Sciences
Texas Tech University**

**“Lightning Flash Size Distribution and
NOx Chemistry”**

Dr. Bruning’s research is focused on how lightning is a major factor of uncertainty in the global NOx budget, with as much as three magnitudes of uncertainty. Lightning Mapping Arrays (LMA) can be used to flash length and size. With this data, researchers are able to track the rate, energy, and length of lightning strikes. The distribution of lightning strikes is directly related to the electrification processes of thunderstorms, which will vary by region. Dr. Bruning concluded that we do not understand these processes well, but that we must pay attention to them.

Coming up on October 7th:

Mark Stoll – Environmental Studies

Paxton Peyton – Biology

Venki Uddameri– Civil and Environmental Engineering

Other highlights from this summer:

- TTU CSC’s Dr. Jenni Vanos spent two weeks in Umeå, Sweden teaching a Climate Change and Health course, followed by one week facilitating the International Society of Biometeorology Students and Young Professionals Workshop in Vindeln, Sweden.
- Dr. Hayhoe and Dr. Vanos were featured on the “Ask Dr. Nandi” show, episode set to air later this month: <http://askdrnandi.com>
- Showtime docu-series that featured Dr. Hayhoe, *Years of Living Dangerously*, won an Emmy for Outstanding Documentary or Nonfiction Series
- HBO series *Vice*, which featured TTU CSC’s Dr. Hayhoe and Dr. Forbis, won an Emmy for Outstanding Informational Series or Special



Dr. Brad Dabbert

**Natural Resources Management
Texas Tech University**

**“Weather Event Influences on
Population Growth of Quail”**

Dr. Dabbert is a part of the Quail-Tech Alliance, which is a program including 26 ranches encompassing 1.6 million acres to track quail populations. Using the data collected, Dr. Dabbert and his researchers have found that quail populations suffer from drought conditions as well as extreme winter weather. In both cases, nesting is decreased, and with harsh winter weather, chicks often succumb to early fatality. In summary, increases in the frequency and severity of significant weather events will have a negative impact on bob white quail populations.



Dr. Rodica Gelca

**Institute for Environment and Human
Health**

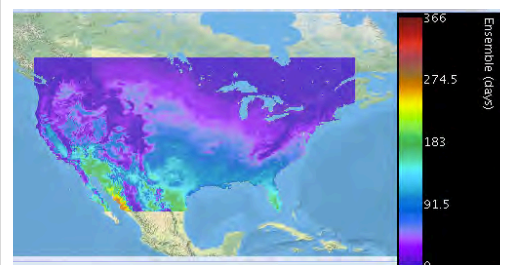
Texas Tech University

**“Impact of Climate Change on Surface
Water Quality”**

Dr. Gelca’s research uses the recent boom of Golden Algae in Texas water reservoirs to examine the effects of climate change on water quality. Her research has yielded results showing a positive correlation between increases in water and air temperature. In addition, increases in precipitation also mean increases in water temperature. With temperatures increasing in most places, and increases in precipitation, the results of Dr. Gelca’s research show that increases in Golden Algae are the result of the changing climate.

CSC Featured Dataset

The high-resolution climate projections generated by the TTU CSC are now online as part of the USGS GeoData Portal. They can be used to make interactive climate maps of a host of variables (shown: days per year with maximum temperatures above 90°F)
<http://goo.gl/OF49Ep>



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