

Oklahoma Weather and Climate Needs Assessment: Preliminary Findings

Rachel Riley
Research Associate
Southern Climate Impacts Planning Program
Oklahoma Climatological Survey
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And many others:
Kodi Monroe, James Hocker, Mark Shafer, Renee McPherson, & Gary McManus



Lynne Carter & Hal Needham



Oklahoma Weather & Climate Needs Assessment

- Purpose:
 - to determine the most significant climate-related issues facing Oklahoma decision-makers right now as well as those they anticipate they will face in the future
 - to determine the spatial and temporal scales in which they make decisions
 - to determine their need for climate information, education, and decision support tools
 - to determine how they are adapting to current challenges, and how they plan to adapt to future challenges

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- Louisiana State University is doing a similar assessment along the Gulf Coast

Participating Individuals From:



Federal



US Army Corps of Engineers®



State

Tribal



Local



Sector Engagement



Oklahoma Decision-Makers are Impacted by:



Urban Strike Forest



Rachel Riley



Bill Waugh/AP



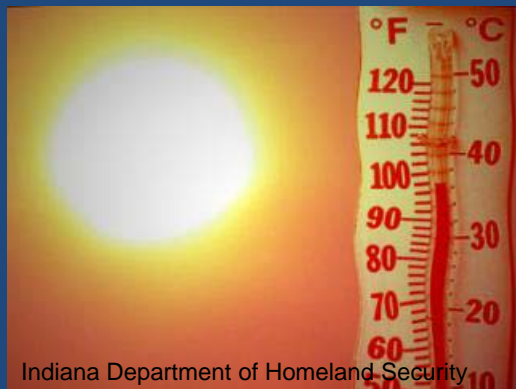
Gary McManus



COURTESY KOCO



Rachel Riley



Indiana Department of Homeland Security



Kiel Ortega/NWS



KWTV-TV

Untimely Warmth/Freeze

- Agriculture:
 - Crops can mature too early and be susceptible to late freezes
 - Invasive species can survive if it doesn't get cold enough

Wildfires

- Public Safety:
 - Homes and farmland damaged/destroyed (doesn't receive as much attention as it deserves)

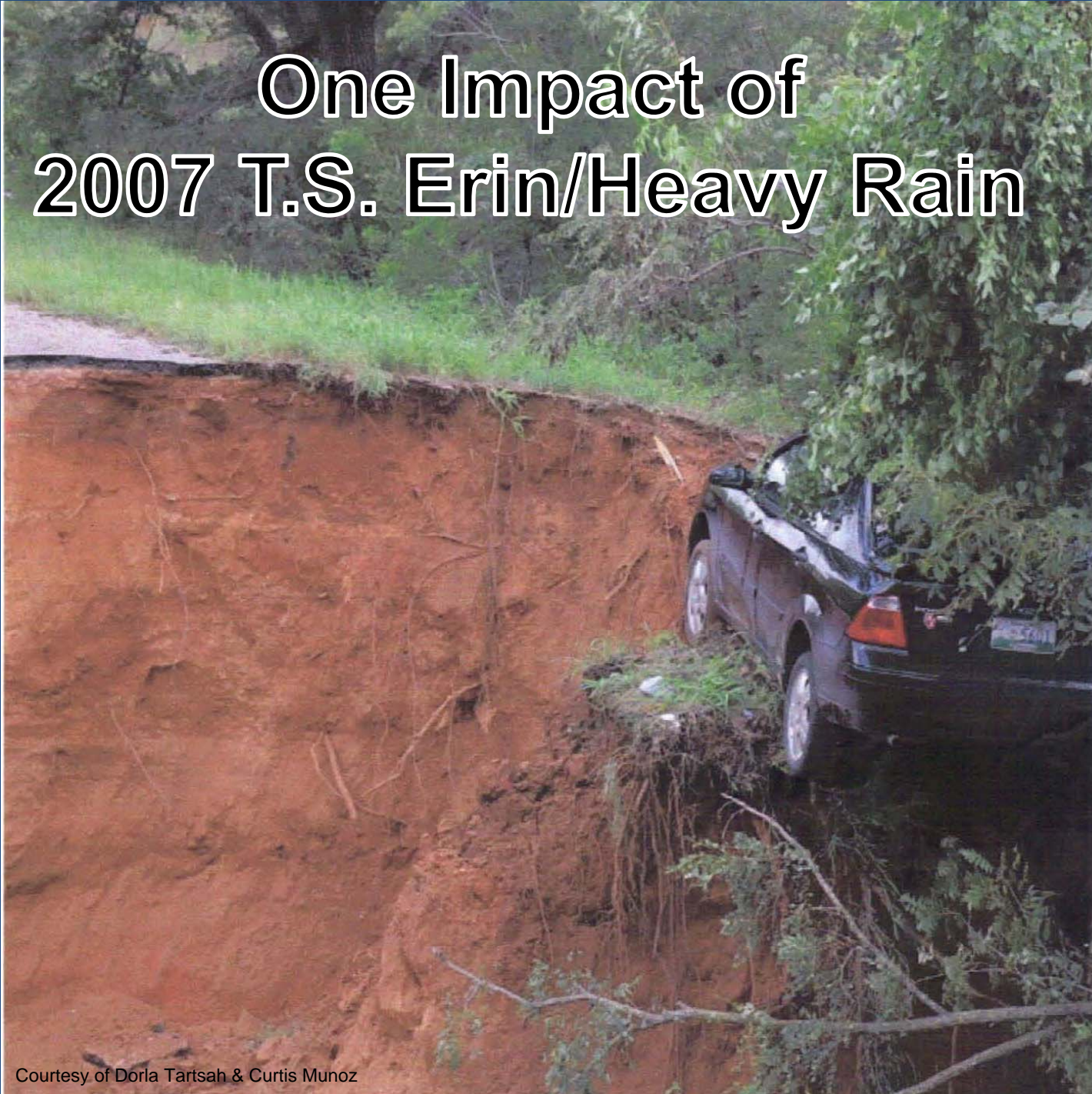
Extreme Cold

- Water Resources
 - Pipes can freeze and burst
- Transportation
 - Potholes (increased maintenance costs)

Snow and Ice Storms

- Health:
 - Patients unable to get to dialysis
 - Employees unable to get to work to assist patients
 - Hospitals put at capacity if patients are unable to be discharged due to the weather
 - Lots of medical bills, which puts a strain on Medicare and Medicaid
- Public Safety:
 - People stranded on the highway
 - Homes and businesses lose power - > 600,000 lost power in Dec. 2007 ice storm, (National Weather Service Norman Weather Forecast Office, 2011)
- Water Resources:
 - Power outages cause water pumps to fail
- Ecosystems
 - Tree damage - Dec. 2007 ice storm caused an estimated 750,000 cubic yards of debris to be removed from cities across the state (NewsOK, 2011)

One Impact of 2007 T.S. Erin/Heavy Rain

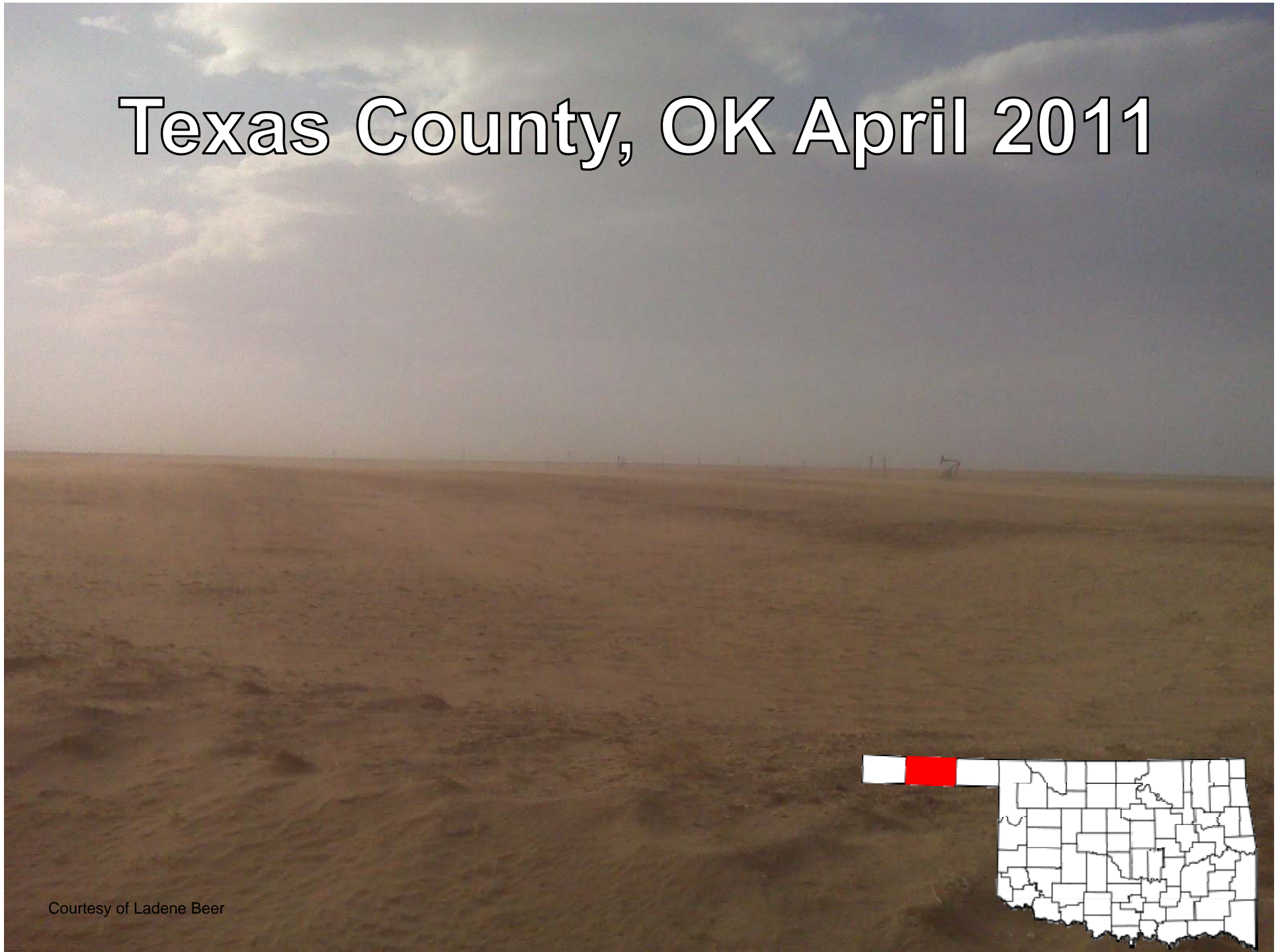


Courtesy of Dorla Tartsah & Curtis Munoz

Heavy Rain/Flood

- Transportation
 - Roads and bridges can wash out
- Ecosystems
 - Erosion (2007 T.S. Erin moved the Washita River 50 ft)
- Agriculture
 - Crop damage or destruction
- Water Resources
 - Potential for dams to break
 - Sewer lines and water treatment facilities can overflow or backup (In June 2010 in OKC, manholes overflowed and one pump station was submerged, causing millions of gallons of sewage to be mixed with water)
 - Pesticides runoff which pollutes water

Texas County, OK April 2011



Courtesy of Ladene Beer

Drought

- Agriculture
 - Crop damage/destruction (think southwest Oklahoma and Panhandle right now)
- Health
 - If agricultural producers don't have money to pay for health insurance they have to go to their local health department, which can put a burden on the system
- Ecosystems
 - If prolonged, wildlife may be unable to get food
- Water Resources
 - Potential to limit water supply, especially in rural areas
 - Cracking and drying ground can cause pipes to shift, break, and lose water
 - Less water in a reservoir can decrease the water quality
- Transportation
 - Gives people a false sense of security in flood prone road and bridge areas

Some Examples of Decision-Makers Adapting to Oklahoma's Variable Climate

- U.S. Bureau of Reclamation: Line canals to prevent seepage and convert irrigation canals to pipeline to reduce evaporation
- OSU Natural Resources & Ecology Management: Researchers are looking into using deficit irrigation
- Agricultural producers use no-till or low-till farming as a water conservation strategy
- Oklahoma Association of Conservation Districts: Working with others to make sure that flood control structures and ponds capture runoff to assist in dry years
- Oklahoma Agriculture Experiment Station: Researchers are working on developing crops where the seeds don't shatter as much in heavy rain

Thank you!

Rachel Riley
rriley@mesonet.org



References

- National Weather Service Norman Weather Forecast Office, cited 2011: Information for the December 2007 ice storm. [Available online at [http://www.srh.noaa.gov/oun/?n=events-20071208.](http://www.srh.noaa.gov/oun/?n=events-20071208)]
- NewsOK, cited 2011: Oklahoma ice storms, 2000-2007. [Available online at [http://newsok.com/oklahoma-ice-storms-2000-2007/article/3340695.](http://newsok.com/oklahoma-ice-storms-2000-2007/article/3340695)]