Regional climate services in response to the Southern Plains drought, 2010-2012

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OVERVIEW

- Setting the stage
  - Onset and evolution of the 2011 drought
  - Existing regional climate services capacity
- Implementation of a coordinated response
  - Regional outlook and assessment forums
  - Regional drought management webinars
  - Media engagement and outreach
- What We Have Heard
- Benefits, challenges, and questions

Setting The Stage

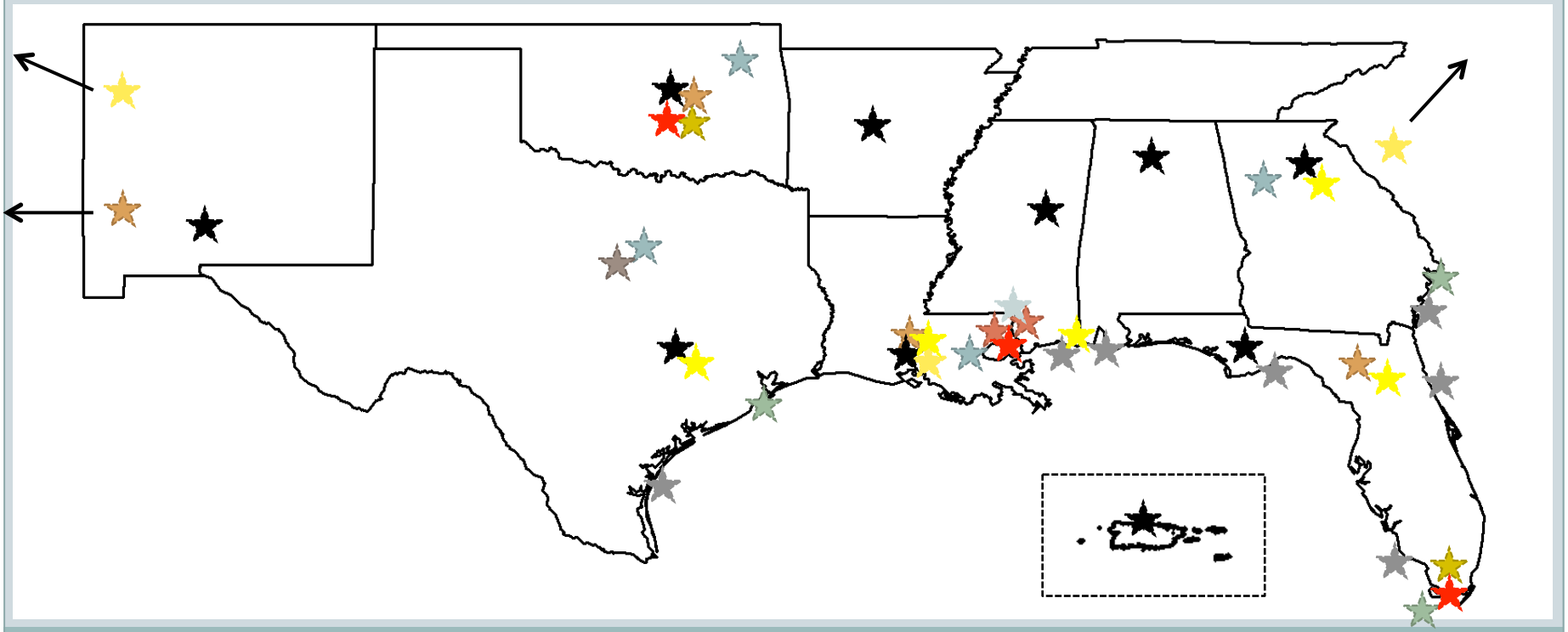
- 2011 drought <u>was</u> predicted
  - CPC outlooks picked up on it as early as Nov 2010
- But, rapid intensification and extreme magnitude were <u>not</u>
  - Only partially explained by La Nina – need for further attribution work
- Aggressive and intense nature of the drought left many constituents struggling to prepare for and respond to its impacts
- 2012 recovery (in parts) largely unexpected

Climate Services Capacity

- Many climate services entities in the region

Climate Services Capacity

- Data Centers
- Laboratories
- River Forecast Centers
- NWS Regional HQ
- Marine Sanctuaries
- RISAs
- Reg Climate Centers
- State Climatologists
- Sea Grant
- Natl. Estuarine Reserves
- Cooperative Institutes
- Program Offices



Examples of NOAA Southern Region climate services activities

Climate Services Capacity

- Many climate services entities in the region
  - NOAA centers/offices: NWS, NCDC, NIDIS, etc.
  - NOAA core partners: RISA, RCC, SC, NDMC
  - Interagency partners: USGS, FWS, USACE, states
- But, historically a lack of coordination in "real-time" response to evolving climate impacts
- The 2011 drought created an opportunity to coordinate a multi-faceted, regional response among multiple climate services partners

The Chasm Between Us

One Solution…

…A Better Solution?

A Coordinated Response

- Purpose: identify opportunities for delivery of drought information, products and services, coordinated among regional climate partners
- Ringleaders:
  - National Integrated Drought Information System
  - Southern Regional Climate Services Director
  - Southern Climate Impacts Planning Program
  - Many key supporting players
- Approach: three-tiered effort to meet user needs for information and services

Outlook & Assessment Forums

- Austin (July 2011)
- Fort Worth (November 2011)
- Lubbock (April 2012)

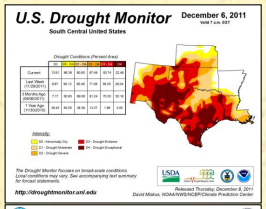
Outlook & Assessment Forums

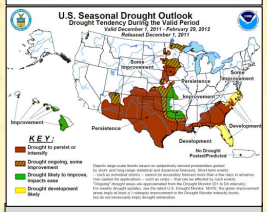
- Morning devoted to drought status and outlook
- Afternoon devoted to panel-based assessments of drought impacts on various sectors
  - Water, Ag, Livestock, Forestry, Wildfire, etc.
- Press conference during lunch for presenters
- Over 80 unique participants from public and private constituencies in TX, OK, NM, LA, KS

Drought Management Webinars

MANAGING DROUGHT IN THE SOUTHERN PLAINS

Webinar Topic: The Cattle Industry
December 8, 2011





Resources

U.S. Drought Portal
http://www.drought.gov

National Drought Mitigation Center
http://drought.unl.edu

Drought Impact Reporter
http://droughtreporter.unl.edu

State Climatologists
http://www.stateclimate.org

Southern Climate Impacts Planning Program (SCIPP)
http://www.southernclimate.org

Climate Assessment for the Southwest (CLIMAS)
http://www.climas.arizona.edu

Southern Plains Portal
http://www.drought.gov/portal/server.pt/community/southern_plains

Regional Drought Summary

Brian Fuchs, National Drought Mitigation Center

Improvements continued in the northeast part of the region as rainfall of 6-8 inches above normal has fallen in the last 60 days. But in large portions of Texas and eastern New Mexico, the drought continues. Elsewhere, drought expanded in the Southeastern U.S. with further intensification in Georgia and creeping into South Carolina. About 24% of the region remains in D4 drought, a staggering amount but a vast improvement over the 52% figure from 3 months ago. Overall, there has been a 9% decline in drought area in the region compared to 3 months ago, but this remains 42% higher than a year ago. Even with the fall rains, no month in Texas has had above-normal precipitation since January and hydrology has not recovered appreciably.

Little relief is expected in the next several weeks. Some chances for above-normal precipitation are possible in eastern Texas and eastward while dry conditions are expected to remain in place from California to New Mexico. Long-term prospects for improvement are better in the northern part of the region as the season goes on. In short, areas that have seen improvement in recent months should continue to improve while drought patterns hold in place elsewhere.

Although not receiving as much attention, Louisiana has been flirting with exceptional drought in 2011. A very dry spring and sketchy summer led to severe to exceptional drought in western Louisiana. This was alleviated in one week in early September with Tropical Storm Lee, but since then a return to arid patterns has allowed drought to gradually creep back in. Some recent rains in the north and west have led to improvements but southern Louisiana continues to deteriorate.

Did You Know?

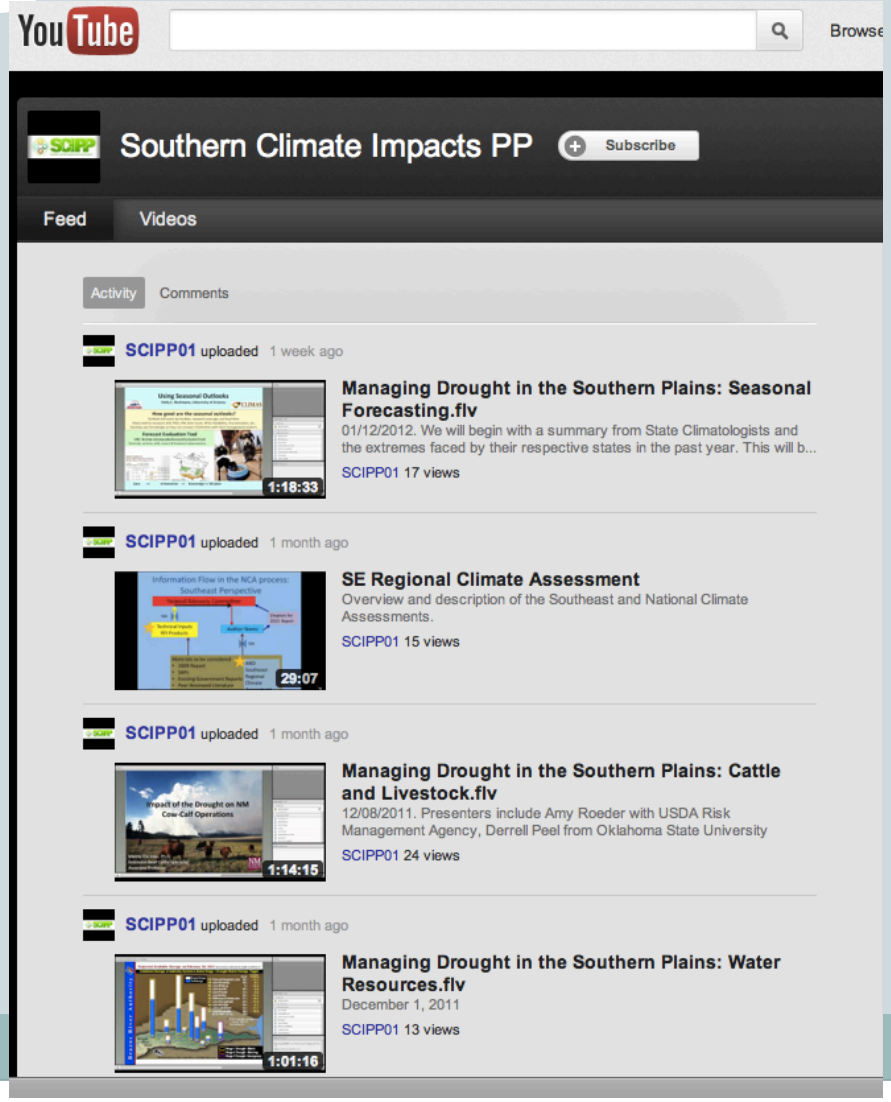
The National Drought Mitigation Center worked with rangeland experts to develop ranch plans to assist ranches with their operations during drought.

- You can find it at www.drought.unl.edu/ranchplan
- Drought Basics provides information on how drought impacts operations – grasses, grazing, finances, and health of the cattle
- Tips and triggers on what to do before, during and after a drought
- Step-by-Step planning from experience & experts plus example plans

Is drought properly classified in your region? If not, let us know by:

- Adding to the Impact Reporter
- Contacting your State Climatologist
- E-mailing the Drought Monitor Authors at: droughtmonitor@unl.edu

Produced by the Southern Climate Impacts Planning Program, http://www.southernclimate.org



Drought Management Webinars

- Designed to build sustained network of users of climate information and products
  - For the 2011 drought, but model can be used for other climate-based management challenges
- Ten webinars from September thru April plus 3 briefings
- Summary of current conditions, state reports from SCs, and topical focus with invited experts
  - Water resources, cattle, La Nina, “flash drought”, etc.
- Over 190 unique participants to date

Media Engagement & Outreach

Media Engagement & Outreach

- Media has somewhat unique requirements for information delivery, format, and timeliness
- Thus, need to engage as a distinct constituency
  - Media-specific webinars (April and May 2011)
  - Press conferences and advisories for outlook forums
  - Participation in NOAA winter outlook teleconference
  - Press releases and op-eds to regional media outlooks
- Several hundred media "contacts" since April
  - NYT, WaPo, USA Today, WSJ, AP, Reuters, Dow Jones, NPR, CBS, ABC, Fox, VoA, Univision, local outlets

What We Have Heard

- Magnitude of the drought and heat was unprecedented
  - Summer temperatures broke previous records by more than 2 degrees
- Temperature-driven aspects (high evaporation rates) caused severe drought in fringe areas
  - Record flooding in Arkansas in spring turned to severe drought by July
  - Underscores importance of *systematic* reporting and temperature-based indicators

What We Have Heard

- Record low flows on Rio Grande, Lower Colorado and Brazos Rivers
  - Depleted soil moisture and aquifers make recovery unlikely in Rio Grande this year
  - Curtailment of contracts in Lower Colorado with impacts to rice farming
  - Evaporation rates 13-18% higher than planning criteria
- Low runoff and flow leads to environmental problems
  - Proliferation of blue-green algae
  - Salinity issues

What We Have Heard

- Agricultural losses more than $9 billion
  - $2.8 B payouts from USDA Risk Management Agency
- Cattle inventory declined 12-16%
  - Cushioned by higher prices
  - Delayed national plans of increasing inventory
  - Long-term rebuilding efforts face higher costs and shorter supplies of genetics
  - Bright spot: opportunity to improve genetics
- Imported forage =new weeds and grasses
- Dwindling water supplies = higher mineral concentrations

Cattle Decision-Map

How much rain will we get?
How many cattle can I stock?
How much Hay will I need?

Spring

- Gather information & plan

Summer

- Implement plan

Fall

- Make adjustments.

Cattle Decision-Map

Should I wean calves early?
Should I supplement feed?
Should I rotate pasture?

Spring

- Gather information & plan

Summer

- Implement plan

Fall

- Make adjustments.

Cattle Decision-Map

Will there be enough water?
Will there be enough feed?
Can I afford it?

Spring

- Gather information & plan

Summer

- Implement plan

Fall

- Make adjustments.

What We Have Heard

- Wildfire forecasts improving
  - 30 to 60 day outlooks for planning
  - Up to 8 days detailed outlooks for positioning resources and staffing
- Juniper mortality and lack of fine fuels wildcards
- Prescribed burning still possible in drought but need to consider pasture recovery process
- Whitetail deer, pronghorn sheep, bobquail white populations affected
- Relocation of shiner and mussels as tributaries dried

Benefits, Challenges, Questions

- Short-term benefits:
  - Improved climate services delivery to diverse users
  - "Best practices" for responding to emerging drought
- Long-term benefits:
  - "On the ground" implementation of interagency agreements for climate (DOI-NOAA, WGA-NOAA, etc.)
- Challenges and questions:
  - How to maintain momentum with users, after drought has ended? Is the model portable to other regions, and for other climate-based management challenges?

Thank You

SCIPP
Southern Climate Impacts Planning Program