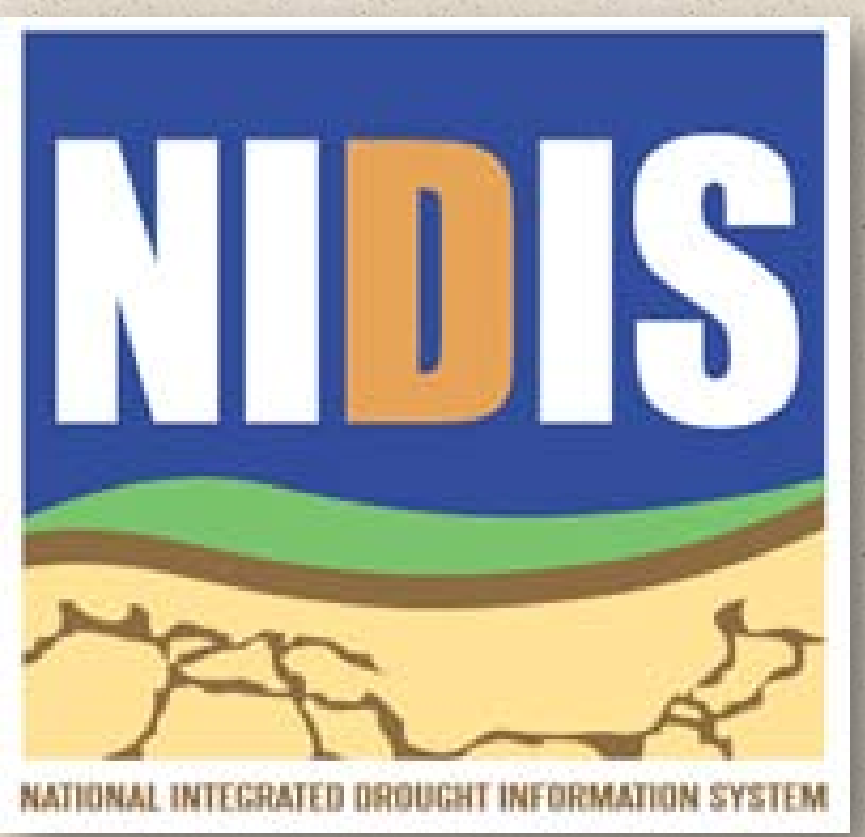


# NIDIS Research and Implementation: Developing Early Warning Information Systems Across Climatic Timescales

National Integrated Drought Information System (NIDIS) - A Pathway for National Resilience



**“No systematic assessment of drought impacts exists in the US”  
(Western Governors Association, 2004)**



**Public Law (109-430, 2006) articulates the need for  
“...better informed and more timely drought-related  
decisions leading to reduced impacts and costs...”**

**Natural variability together with near- and longer-term  
projections for a warmer climate make early warning  
information critical for supporting adaptation**

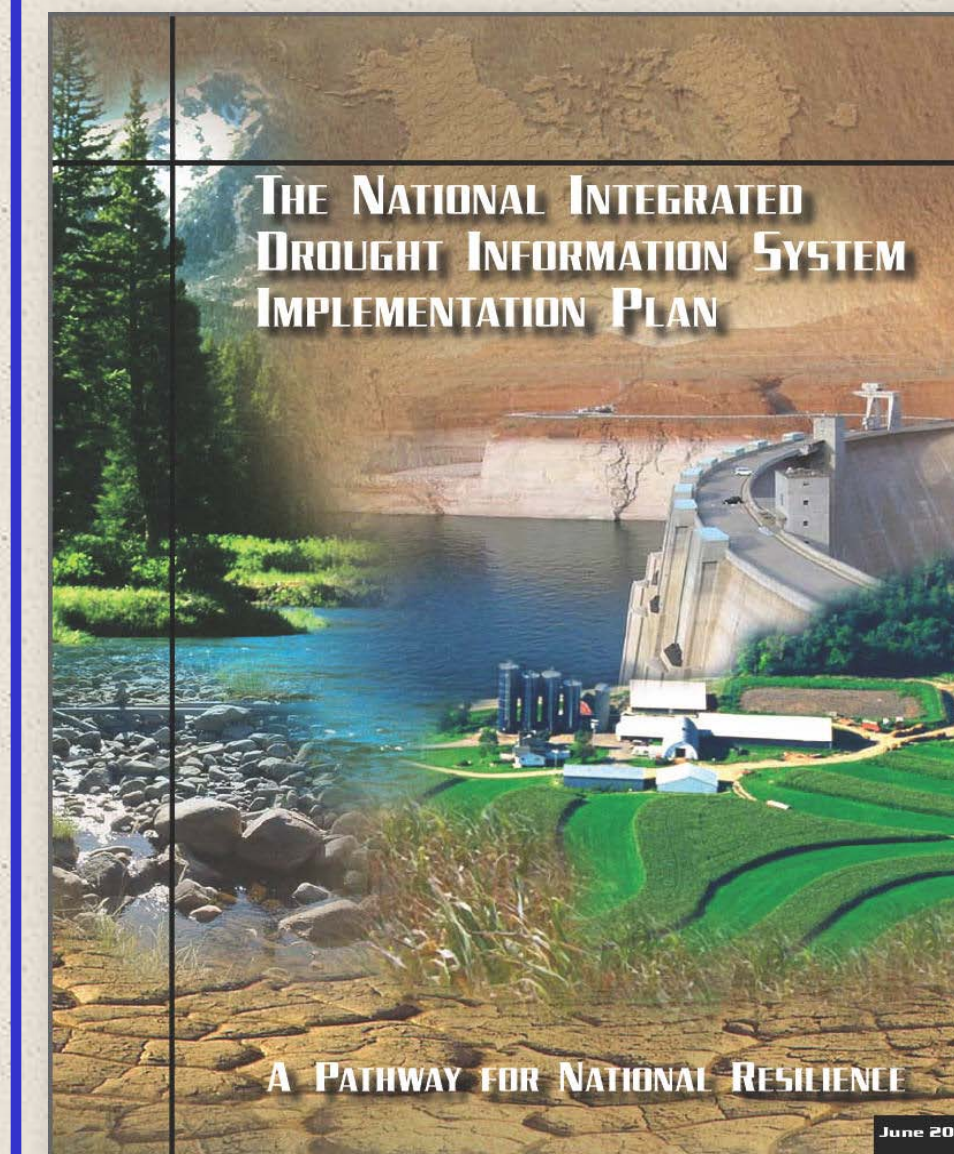
## Under Public Law 109-430, NIDIS will...

- (I) Provide an effective drought early warning system**
- (II) Coordinate, and integrate as practicable, Federal research in support of a drought early warning system; and**
- (III) Build upon existing forecasting and assessment programs and partnerships**

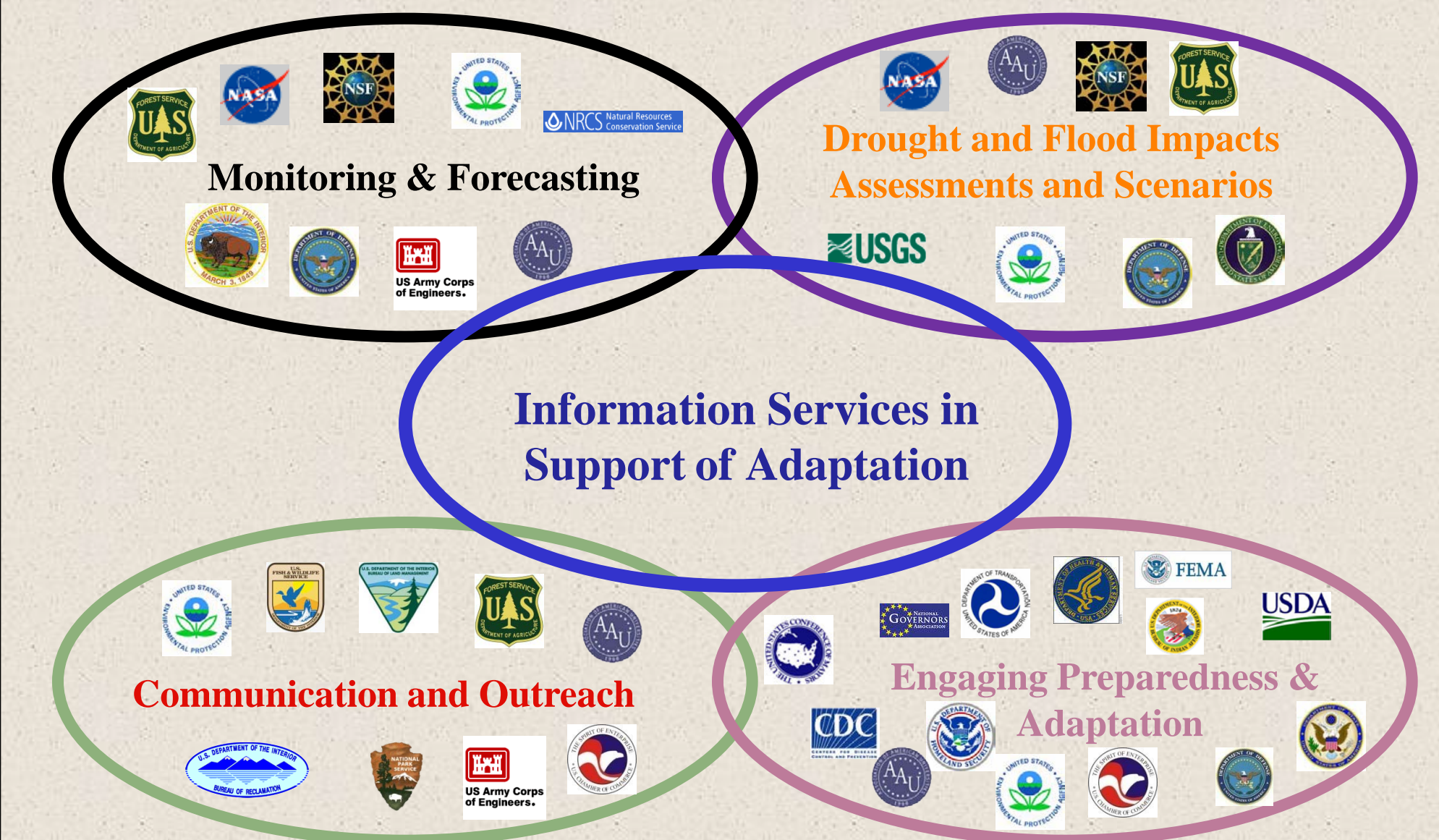


## NIDIS Components

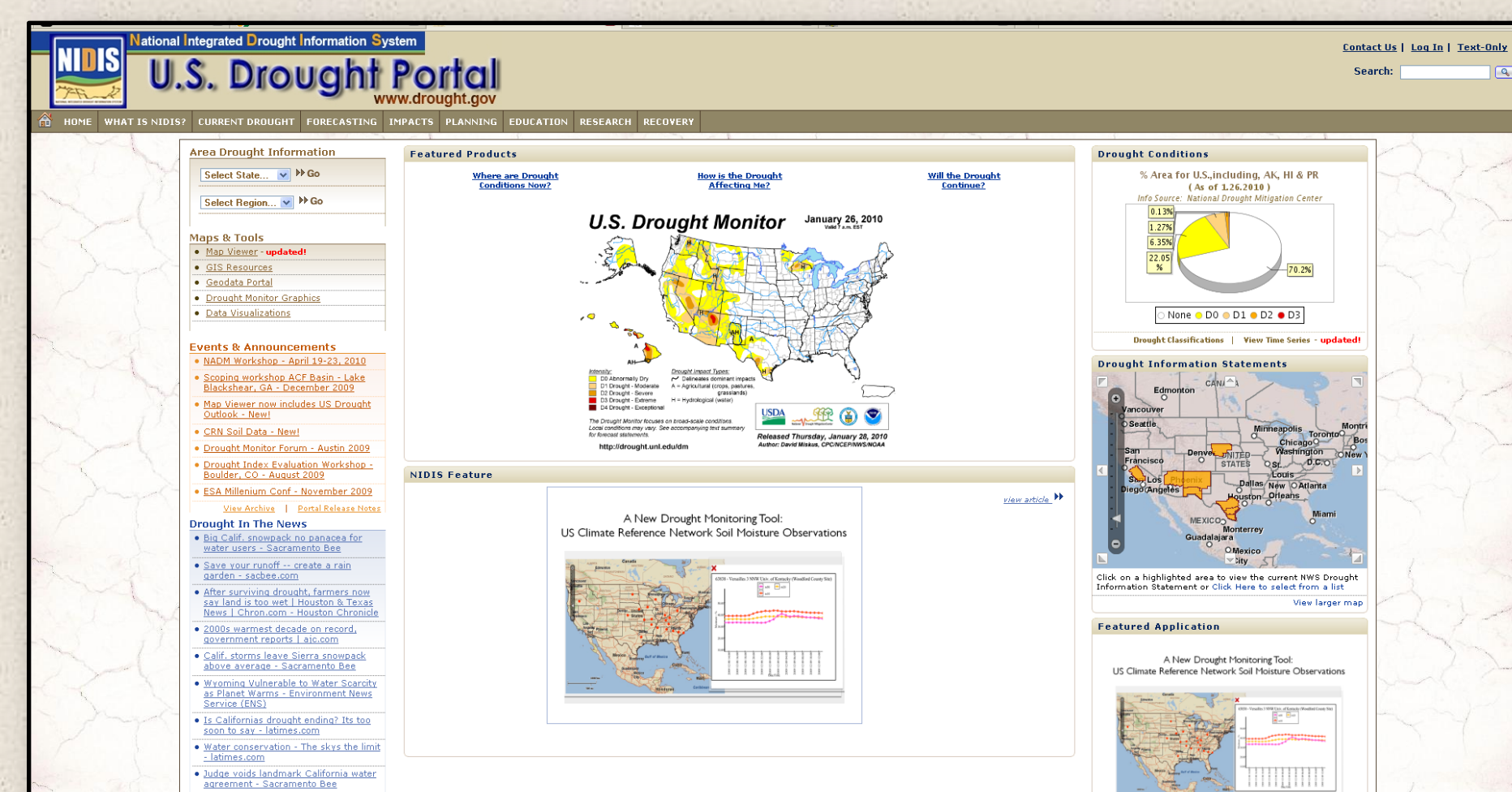
1. NIDIS Program Office
2. U.S. Drought Portal
3. Climate Test Beds
  - Integrating data and forecasts
4. Coping with Drought
  - Impacts assessments and applied research
5. NIDIS Early Warning Information System Pilots
  - Design, Implementation and evaluation



## Drought and Water Resources Federal Partnerships

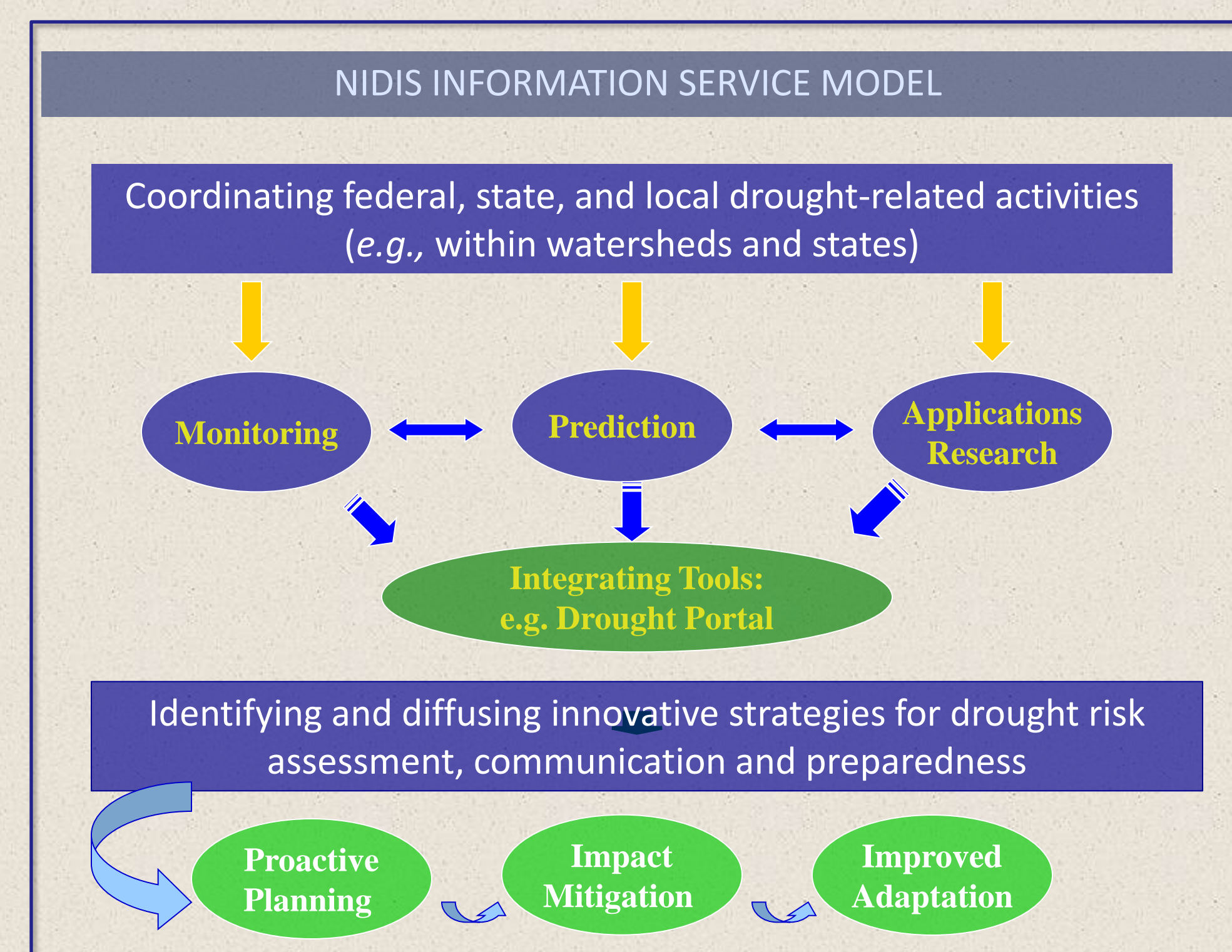


## NIDIS U.S. Drought Portal (www.drought.gov)



**Key Clearinghouse Functions:  
Credible, Accessible, Timely Information**

**Where are drought conditions now?  
Does this event look like other events?  
How is the drought affecting me?  
Will the drought continue?  
Where can I go for help?**

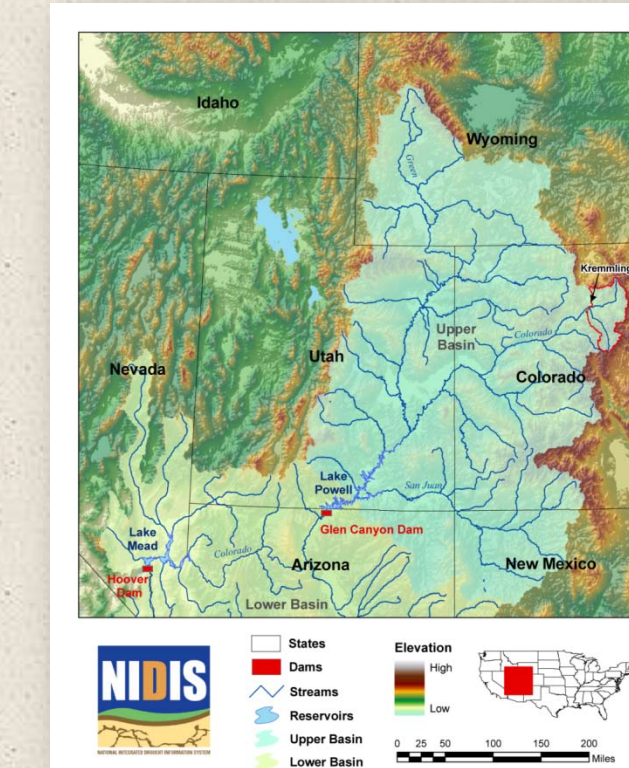


The key to implementing this service model is through the pilot drought early warning systems. The first three pilots are currently under development for the **Colorado River Basin**, the **Southeast United States** and **California**.

## Upper Colorado River Basin (UCRB) Early Warning System (EWS)

### Priorities:

- Monitoring gaps assessment
- Analyses of water demand
- Basin-specific drought monitor
- Drought scenarios across timescales
- Develop EWS discussion fora at key points during the water year

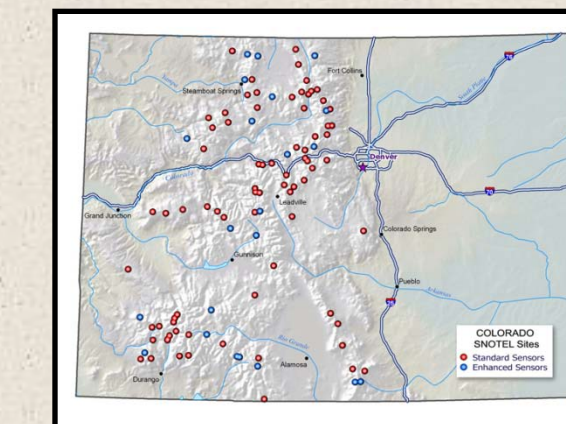


The pilot area extends from the Upper Colorado River Basin down to Lake Mead and across the Continental Divide to the Front Range of Colorado.

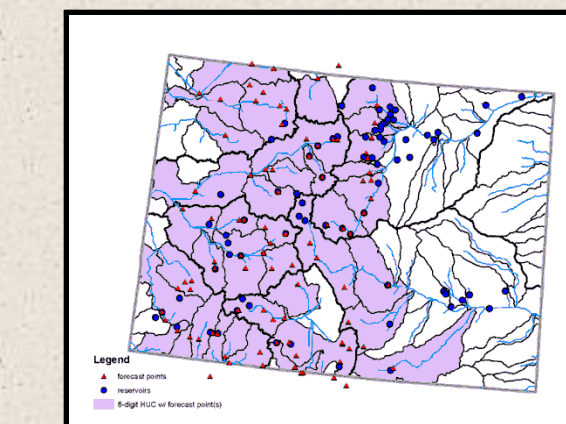


## UCRB EWS – Outcomes

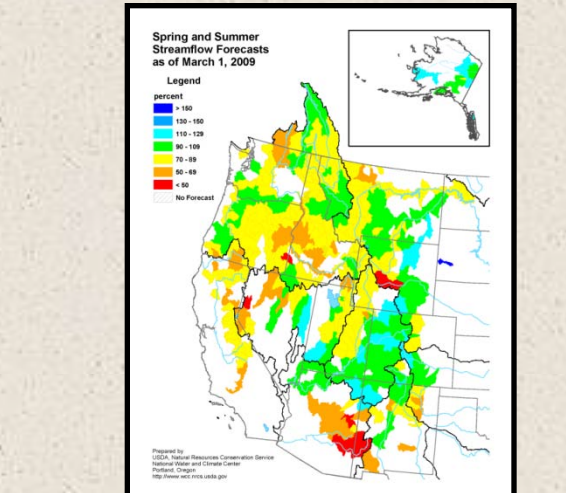
Enhanced in-situ measurements



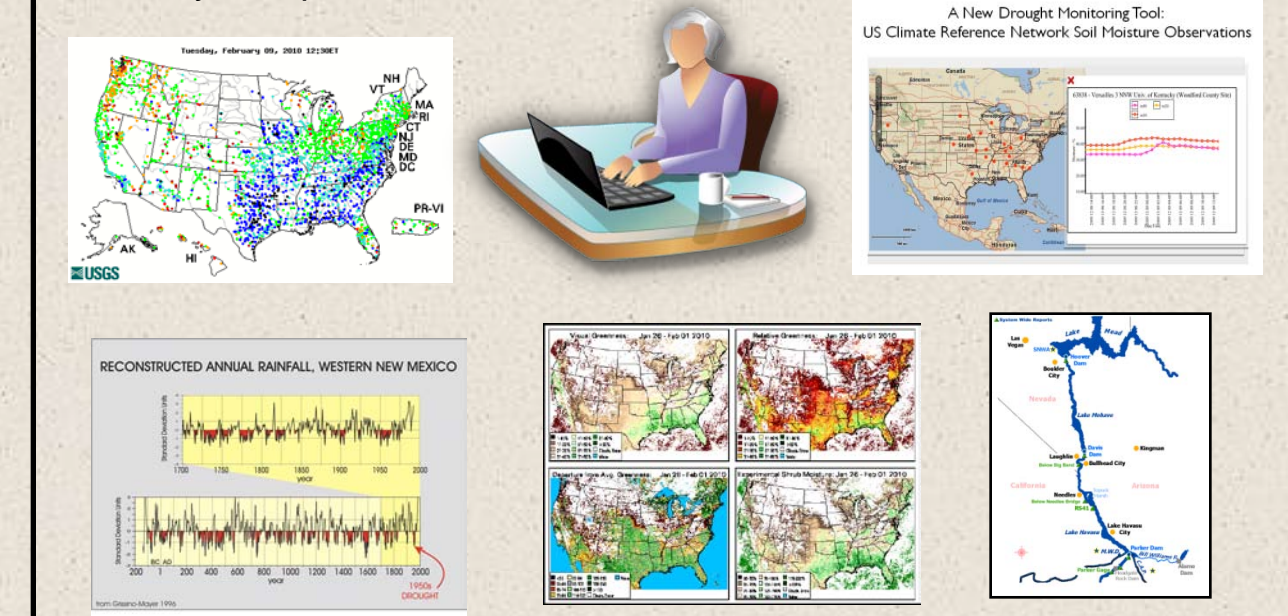
Improvements in drought indices



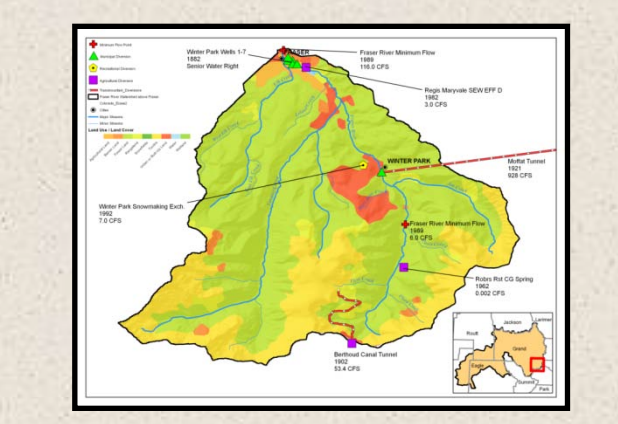
Improved streamflow forecasts



Through stakeholder involvement, bring observations, model output, remote sensing data, climate data, reservoir levels, and more, into a user-friendly web portal



Better understanding of water demand



Help states develop drought plans

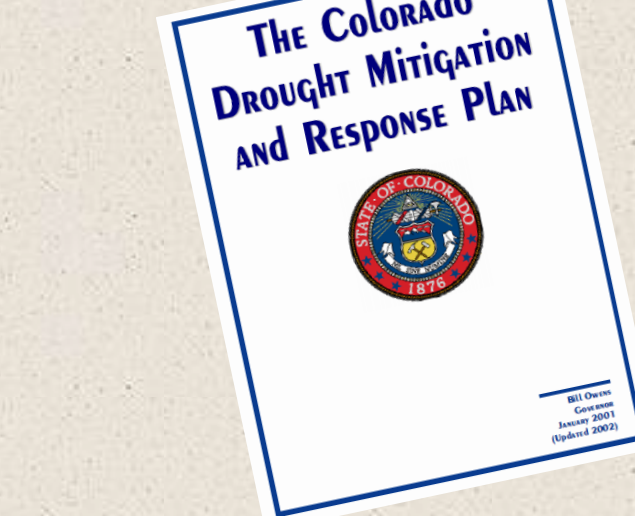


Figure courtesy of Olga Wilhelm and Kevin Sampson, NCAR

## Drought conditions on tribal lands Lower Colorado River Basin EWS Pilot



Cornfield on Hopi reservation, Summer 2009



Dry stock tank on Hopi reservation, Summer 2009



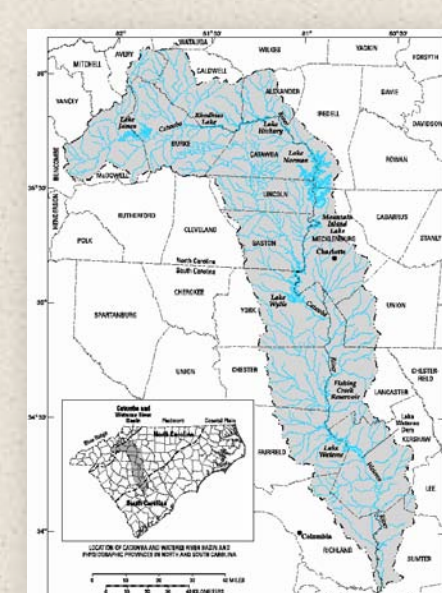
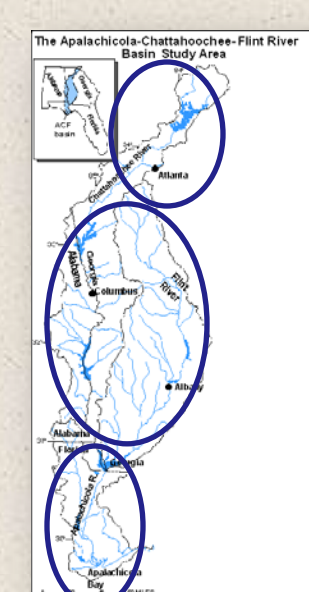
Encroaching sand dunes in Kayenta, AZ, 2004

## Southeast US Pilot

Focus on the following river basins as identified by stakeholders:

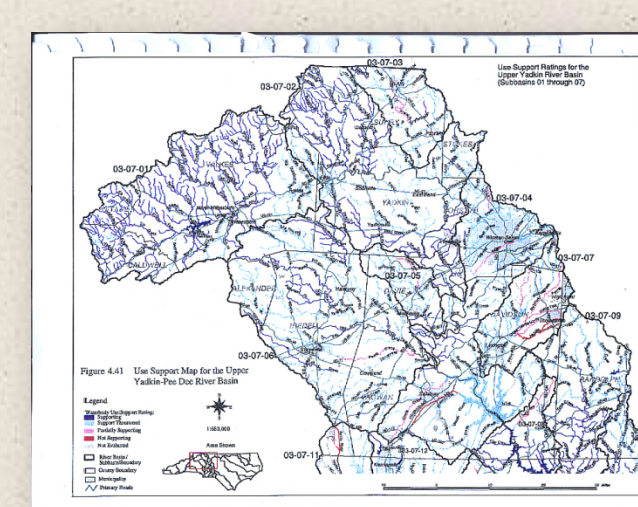
- (1) Apalachicola-Chattahoochee-Flint (ACF)
- (2) Catawba-Wataree
- (3) Yadkin-Pee Dee

Apalachicola-Chattahoochee-Flint  
(Georgia, Florida, Alabama)



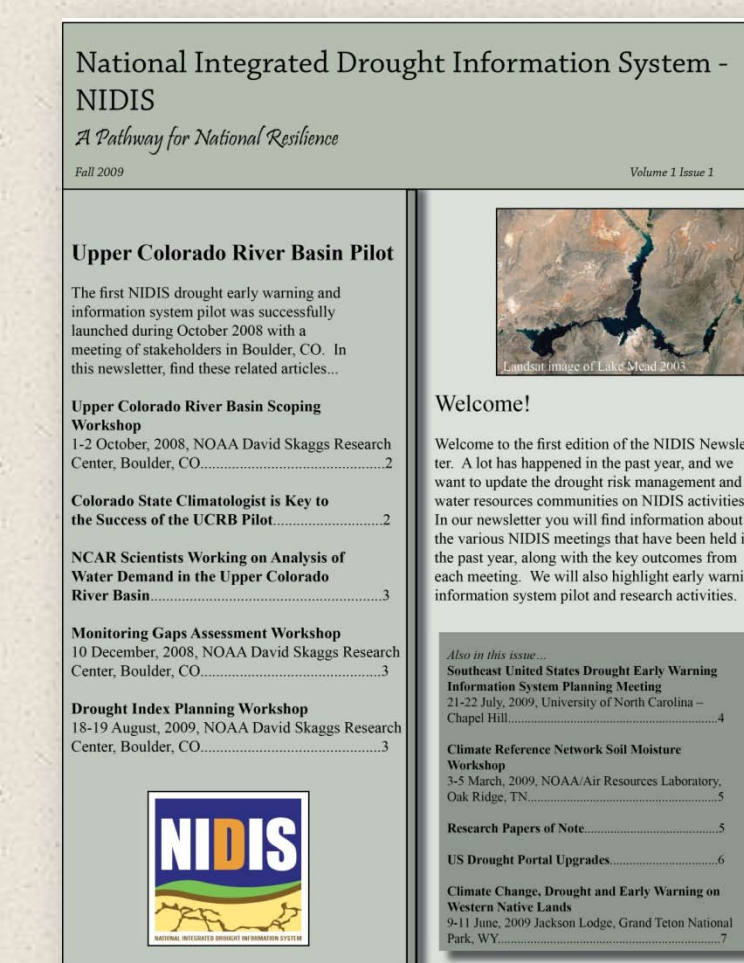
Catawba-Wataree  
(N & S Carolina)

Yadkin-Pee Dee  
(N Carolina)



## Knowledge Assessment Workshops (selected)

- Drought, Climate Change and Early Warning on Western Native Lands, June '09
- Status of Drought Early Warning Systems across the US, June '08
- Assessing Satellite-Based Estimates of Soil Moisture, Feb '08
- Climate Change and Water Resources: Federal Perspectives (USGS Report 1331), 2009



NIDIS Newsletter released in Sep 2009 and circulated across disaster management communities, agencies and states (available on [www.drought.gov](http://www.drought.gov)).

## NIDIS Priorities

- Initiate the California EWS (Sacramento-San Joaquin Basin, Klamath)
- Initiate transboundary drought and adaptation plan (US, Canada, Mexico)
- Assess economic impacts of drought
- Assess drought impacts on ecosystem services

## Evaluation

- Co-convene workshops with the Western Governors Association
- Convene NIDIS Executive Council Meeting

