


6-21-2011

An update on NOAA's National Integrated Drought Information System

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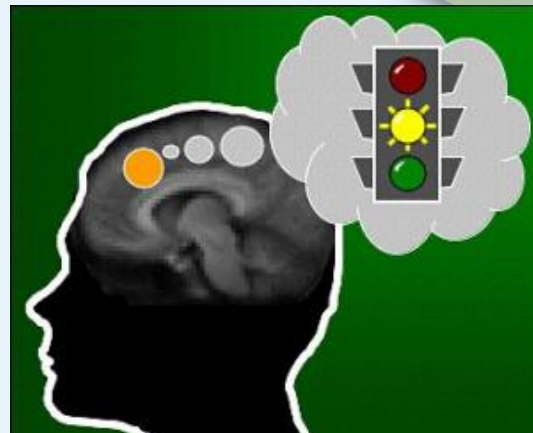
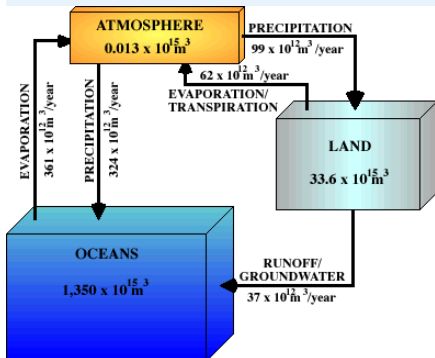
Kluck, Doug, "An update on NOAA's National Integrated Drought Information System" (2011). *2011 Symposium on Data-Driven Approaches to Droughts*. Paper 20.
<http://docs.lib.purdue.edu/ddad2011/20>

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The National Integrated Drought Information System- An Update

Roger S. Pulwarty and the NIDIS Implementation Team

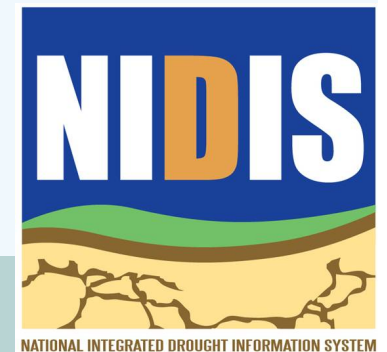
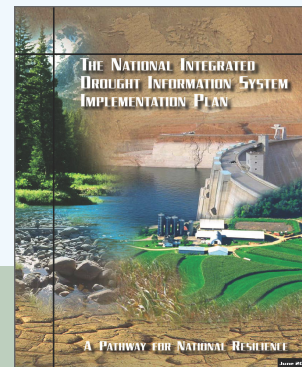
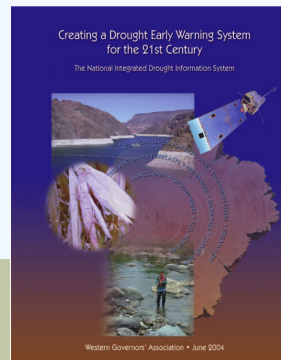
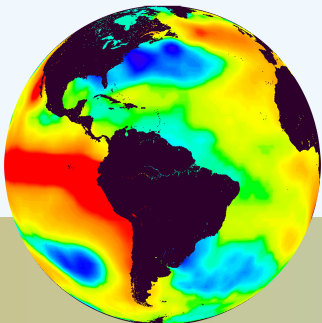
Chief, Climate and Societal Impacts Division and
Director, NIDIS
NOAA



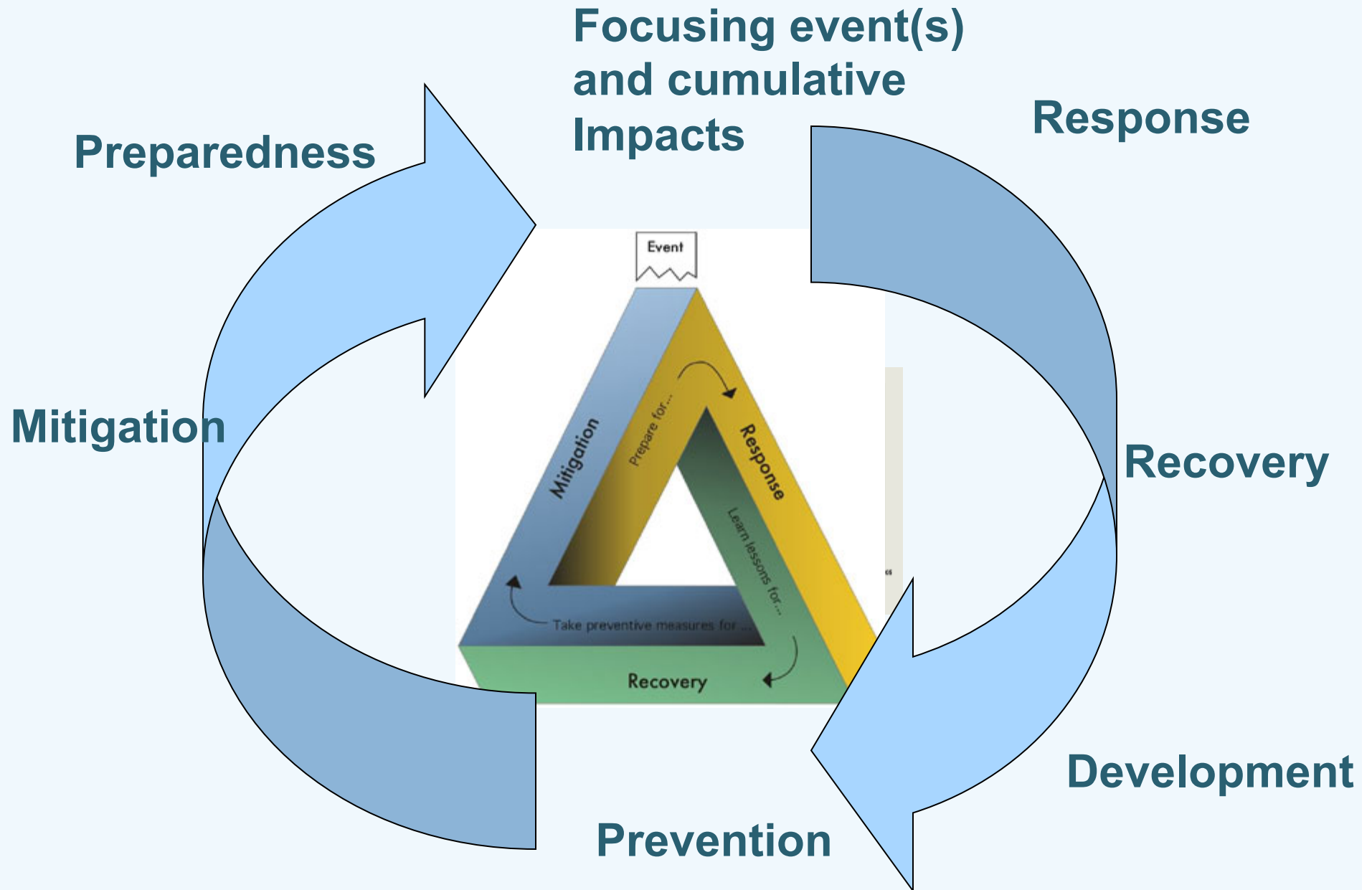


Three tasks under the NIDIS Act Public Law 109-430, 2006

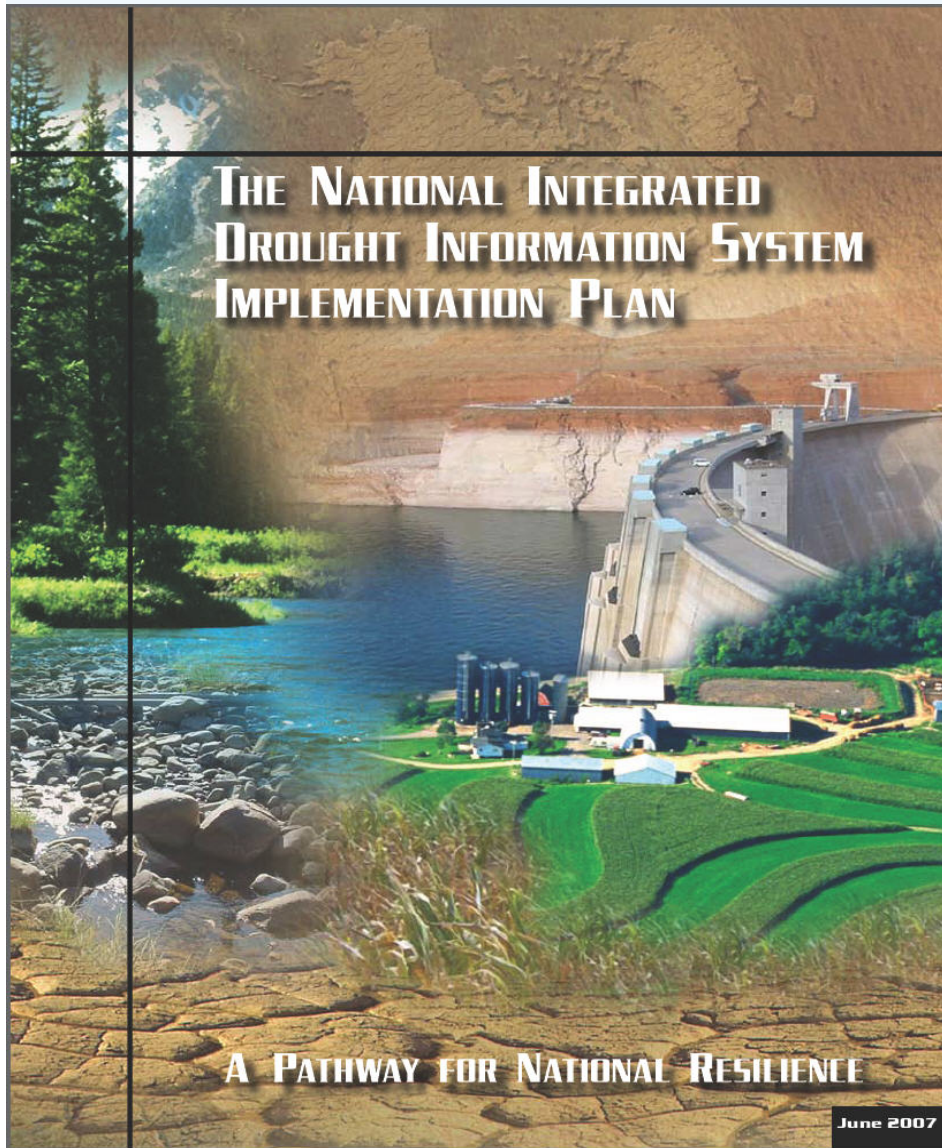
- (I) Provide an effective drought early warning system:
 - (a) collect and integrate key indicators of drought severity and impacts; and
 - (b) produce timely information that reflect local, regional, and State differences;
- (II) Coordinate and integrate as practicable, Federal research in support of a drought early warning system
- (III) Build upon existing forecasting and assessment programs and partnerships



Event to event.....issue attention cycle



NIDIS Components



- 1. NIDIS Office**
- 2. U.S. Drought Portal**
- 3. Climate Test Beds/Drought Integrating data and forecasts**
- 4. Coping with Drought-Grants-Impacts assessment and decision support research**
- 5. Regional Drought Early Warning Information Systems Design, Prototyping, Implementation**



RISA
• Regional Integrated Science and Assessments

Support cross-RISA efforts to explore testing drought-focused tools + one new drought-focused RISA

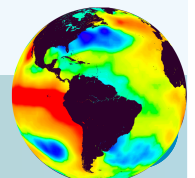
Coping with Drought Research

SARP
• Sector Applications Research Program

TRACS
• Transition of Research Applications to Climate Services

Identify *socio-economic effects of drought and *data and info needs of resource managers and policy/decision makers

Transition drought information products to operations for decision making in resource management



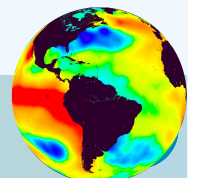


Reconciling Projections of Future Colorado River Stream Flow

R. S. Webb, NOAA, B. H. Udall, M. Hoerling, J. Overpeck, H. C. Hartman, D. P. Lettenmaier, J. Vano, D. R. Cayan, T. Das, L. D. Brekke, and K. Werner



esp.cr.usgs.gov



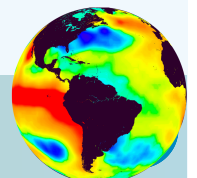


Evaluation of Fire Forecast Products to Enhance U.S. Drought Preparedness and Response

D. Ferguson (Univ. of AZ, CLIMAS); T. Brown (DRI, WRCC, CAP); P. Duffy (Neptune and Company, Inc., ACCAP); G. Owen (Univ. of AZ, CLIMAS); S. Trainor (Univ. of AK, ACCAP)



FWS.gov





S

- Develop drought decision support portal for the Republican River Basin (Knutson)

A

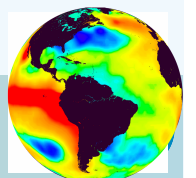
- Identify/evaluate water transfer arrangements to facilitate use of climate information in planning (Colby)

R

- Develop hydroclimatic reconstructions for water resources management (Mantua)

P

- Develop climate training workshops targeting Extension Agents/Farm Bureaus (Shafer)



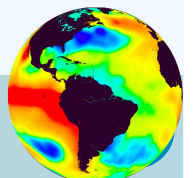


Paleoclimatic Information for Drought Planning and Decision Making

C. Woodhouse, University of Arizona, Tucson, AZ; and J. J. Lukas, M. Mauzy, and J. Jones



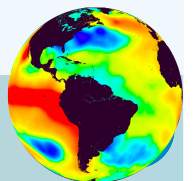
<http://www.ncdc.noaa.gov/paleo>





A Climate Information System to Enhance Drought Preparedness by Underserved Farmers in the Southeastern U.S.

Roncoli, C. University of Georgia Research Foundation Inc.,
G. Hoogenboom, C. Furman, P. Knox, J. Paz, University of
Georgia, H. Gray, Federation of Southern Cooperatives/Land
Assistance Fund





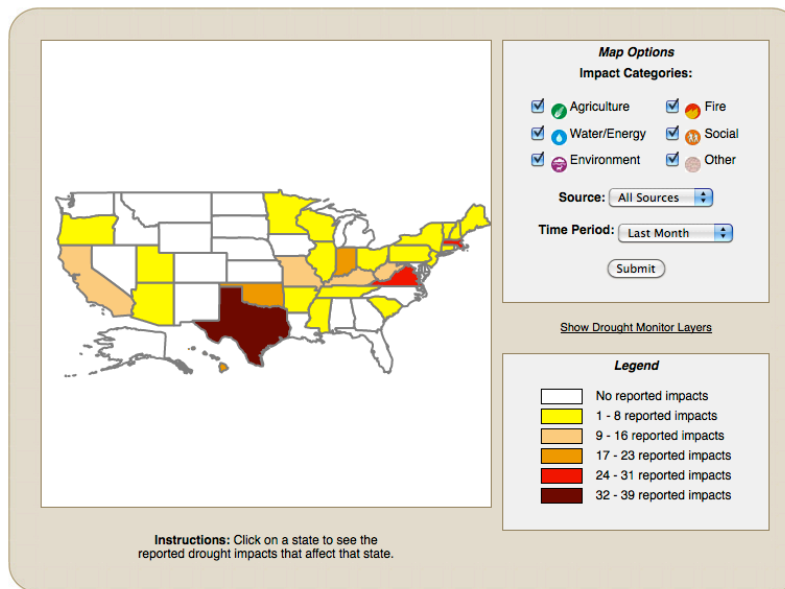
Bridging the Gap Between Research and Stakeholders: A Tale of Three Tools

M. Svoboda, NDMC , Lincoln, NE; and C. Knutson and M. J. Hayes

Drought Impact Reporter
National Drought Mitigation Center



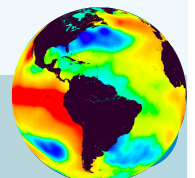
[View Drought Impacts](#) | [Add A Drought Impact](#) | [Time-Lapse Animation](#) | [About](#) | [Help](#) | [User Login](#)



<http://droughtreporter.unl.edu/>



- Drought Impacts Reporter
- Republican River Basin Water and Drought Portal
- Developing Drought Ready Communities





T

- Transition the Drought Impact Reporter into an operational system (Hayes)

R

- Operationalize the SECC AgroClimate Tool for extension services for drought management (Ingram)

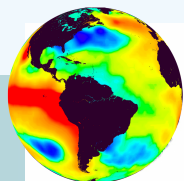
A

- Enhance decision-makers' monitoring tools by transitioning a new drought index (Garfin)

C

S

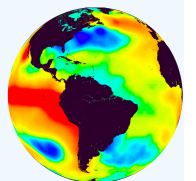
- Link NOAA climate forecasts to dynamic vegetation models to produce seasonal predictions for fire management (Brown)



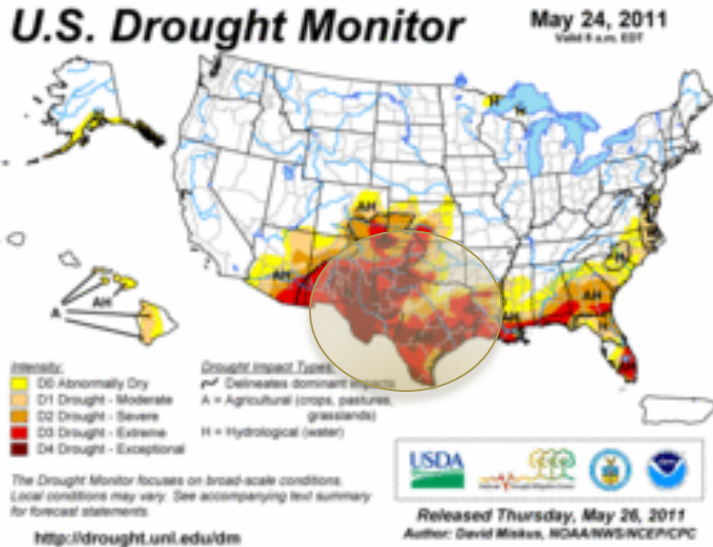
National Level: NIDIS Knowledge Assessments (selected);

What do we know? What do we need to know?

- **Drought, Climate change and Early Warning on Western Tribal Lands April 2011-Four Corners Region**
- **WGA/WSWC Workshops on developing constituencies for NIDIS (April 2010, September 2010-Washington DC, 2011)**
- **NIDIS Executive Council Meeting Hall of the States
Washington DC Sept. 2010**
- **Engaging Communities in Preparedness June 2011
Chicago**



May 24, 2011



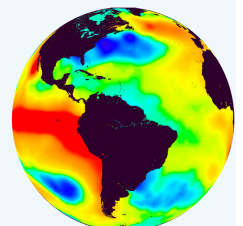
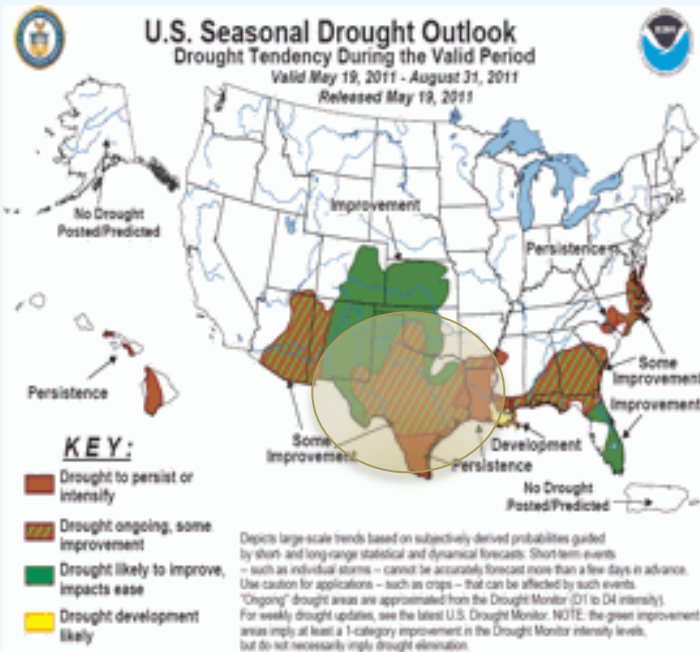
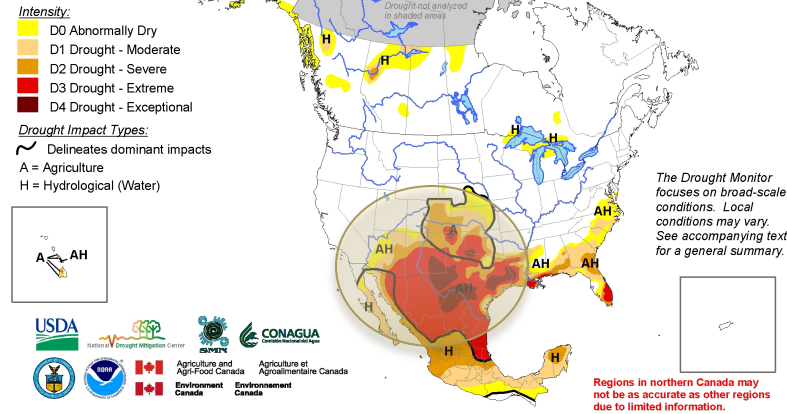
North American Drought Monitor

April 30, 2011
 Released: May 13, 2011

<http://www.ndbc.noaa.gov/nadm.html>

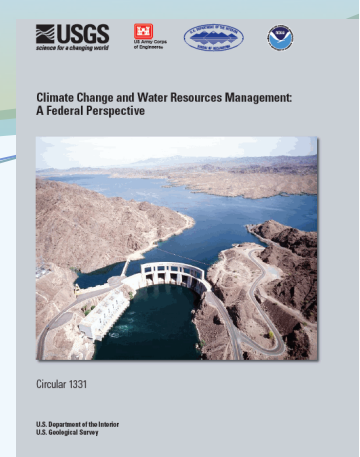
Analysts:
 Canada - Trevor Hadwen
 Dwayne Chobanik*
 Mexico - Reynaldo Pascual
 Adelina Albanil
 U.S.A. - Rich Tinker
 Richard Heim

(* Responsible for collecting analysts' input & assembling the NA-DM map)

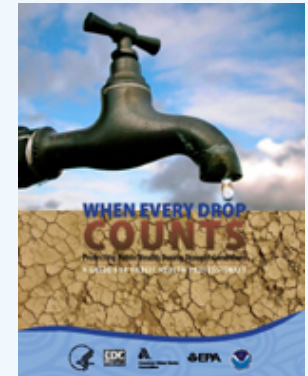




USGS 1331- Climate Change and Water Resources Management: A Federal Perspective 2009



Centers for Disease Control When Every Drop Counts: Protecting Public Health During Drought Conditions—A Guide for Public Health Professionals 2010

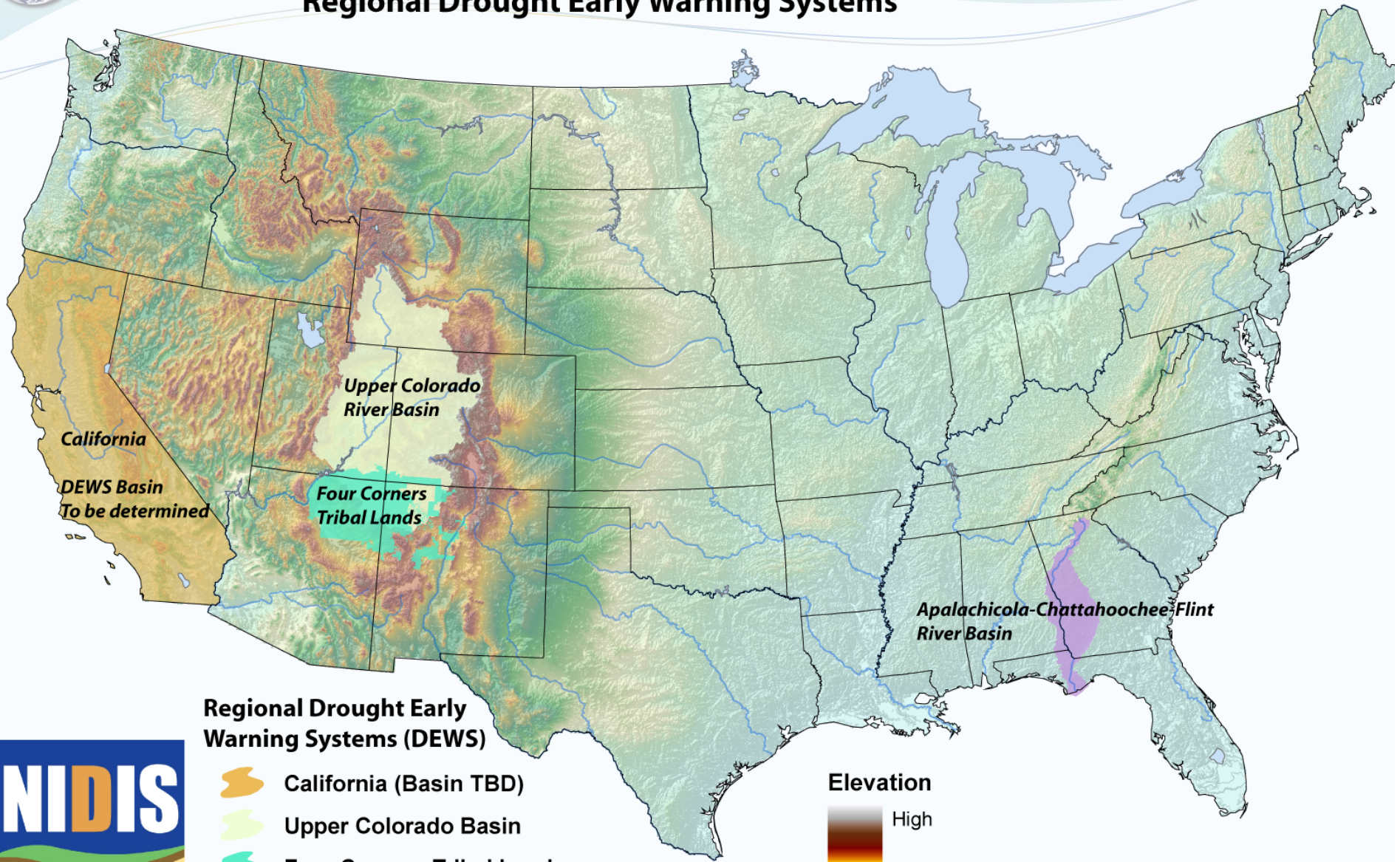


United Nations Global Assessment Report on Disaster Risk Reduction (2011)-Drought chapter





National Integrated Drought Information System (NIDIS) Regional Drought Early Warning Systems



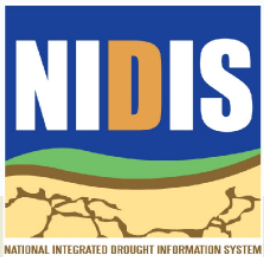
Regional Drought Early Warning Systems (DEWS)

-  California (Basin TBD)
-  Upper Colorado Basin
-  Four Corners Tribal Lands
-  Apalachicola-Chattahoochee-Flint Watershed

Elevation

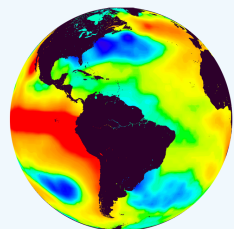


Rivers



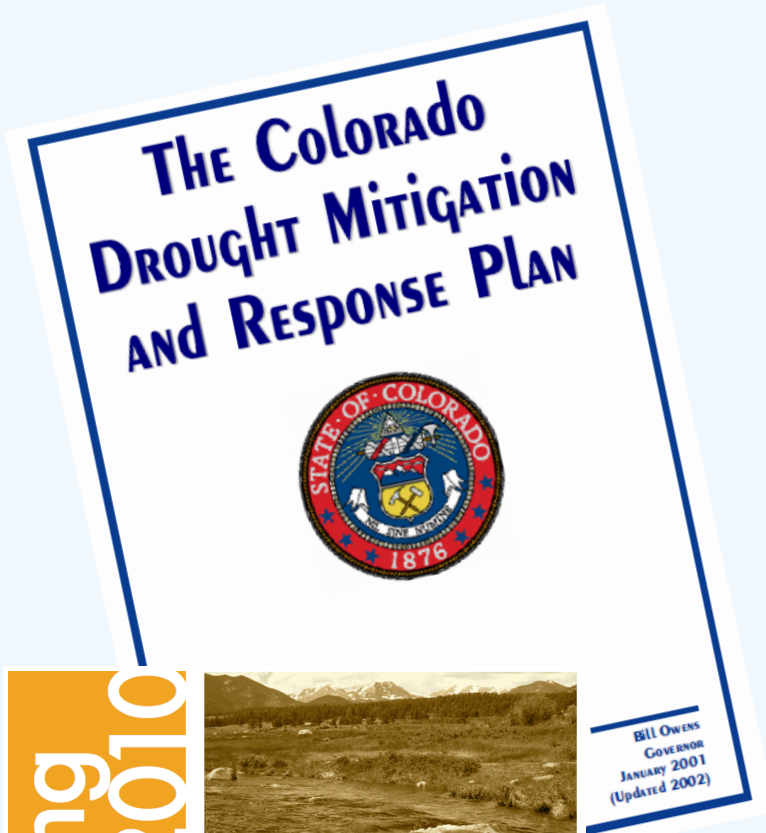
NIDIS Products and Services in the Colorado Basin to date

- Assessment of watershed-based drought indicators and management triggers in the Upper Basin-linkages
- Improved linkages between climate and streamflow modeling during drought
- Spatial analysis of water demand during drought
- Low flow impacts database for 164 NWS forecast points
- UCRB Community Colorado Basin-specific Drought Portal
- Weekly Drought and Water Outlook webinars/early warning discussions with resource managers in the UCRB
- Engaging underserved communities





Upper Colorado Basin Drought Outlooks



Spring
2010

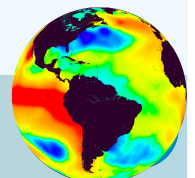


Weekly Climate, Water & Drought Assessment

Revision of the Plans to meet drought requirements of the State Natural Hazard Mitigation Plan, as well as FEMA and EMAP

NIDIS role

- Development of indices that incorporate current surface water conditions and a forecast component
- Assessment of trigger points and responses
- Weekly Early Warning Webinars
(coordinated with River Forecast Center briefings)





LOCAL NEWS

Comments 2 | Recommend 0

Multiple crashes due to wind and dust along I-40

[More Phoenix Local News](#)

09:21 PM Mountain Standard Time on Thursday, March 26, 2009

azfamily.com

WINSLOW – A dust storm shut down Interstate 40 in the High Country for several hours.

It was closed in both directions east of Flagstaff near Winslow. Department of Public Safety officials say wind gusts up to 58 miles-per-hour have hit the area, blowing dust and causing multiple car crashes. The freeway was reopened at about 7:30 p.m.

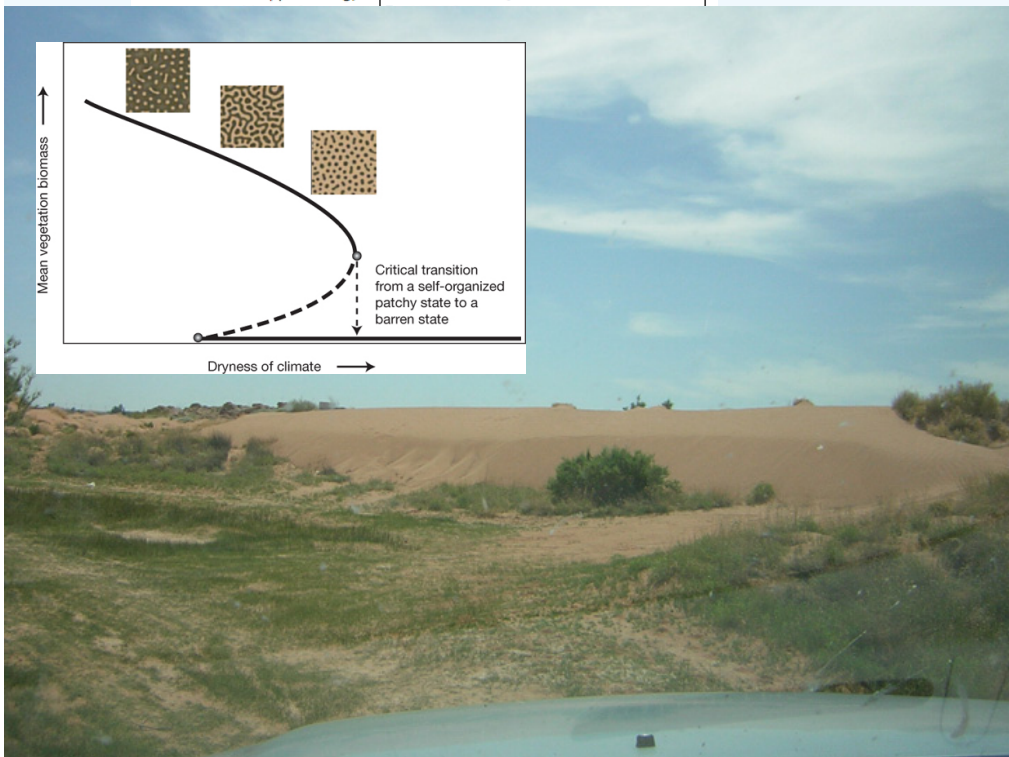
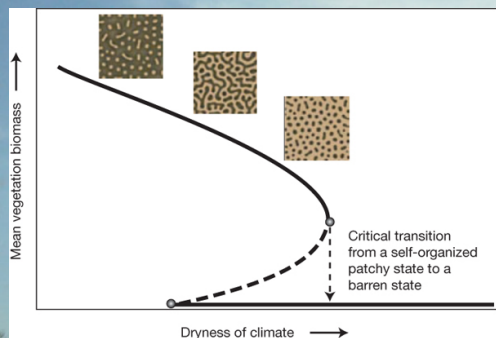


Wind and dust conditions closed I-40

azfamily.com

PHOTOS: Mojos

DPS says if you see a dust storm approaching,

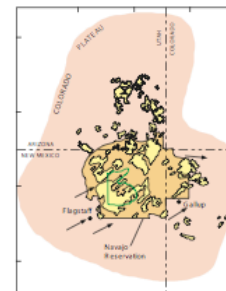


Landscape changes



Assessment of sand dunes and the affects of climatic variation on dune mobility in Navajo land

Work by the U.S. Geological Survey includes mapping sand dune deposits that cover one-third of the Navajo Nation, and classifying them according to stability based on the degree and type of vegetation. Sand dune deposits are being examined as indicators of climate change, and the potential of sand dune mobility is being assessed by combining mapping with data gathered on rainfall, temperature, wind speed, dust and sand migration. The final product of the dune-related work will be a map of sand dunes in GIS format, classified into groups based on the degree of vegetation and mobility. This map will provide valuable information to the Navajo Nation, and will be combined with climate information, so that it may be used to predict the potential for sand dune mobilization. Evaluating the present mobility of sand dunes is important for determining potential impacts of climatic variation on grazing and farming resources, native plants, air quality, damage to infrastructure, and health-related impacts from dust storms. (See USGS website <http://geochange.er.usgs.gov/sw/impacts/geology/sand/>)



Sand dunes are sensitive indicators of climate change, including precipitation, soil moisture balance, and wind circulation patterns. They become active during periods of drought, or increased temperature and evaporation, when the plants that are growing on them and holding them in place, die off. The degree of dune mobility can be predicted based on the ratio of precipitation to evapotranspiration.

If we calculate the dune mobility index values for wind speed, precipitation, and potential evapotranspiration (moisture loss) for the Colorado Plateau at present (using average values for 1961-1990), we can see in the graphs below that dunes fall into the category of being partly active, but largely stable, which is what we observe there today (pink dots). If we recalculate the dune mobility index values using data from the 1899-1904 drought, the values are shifted into the category of...



For more information contact Margaret Hiza R... U.S. Geolo... 2255 N. Ge... Flagstaff, A... mhiza@us...



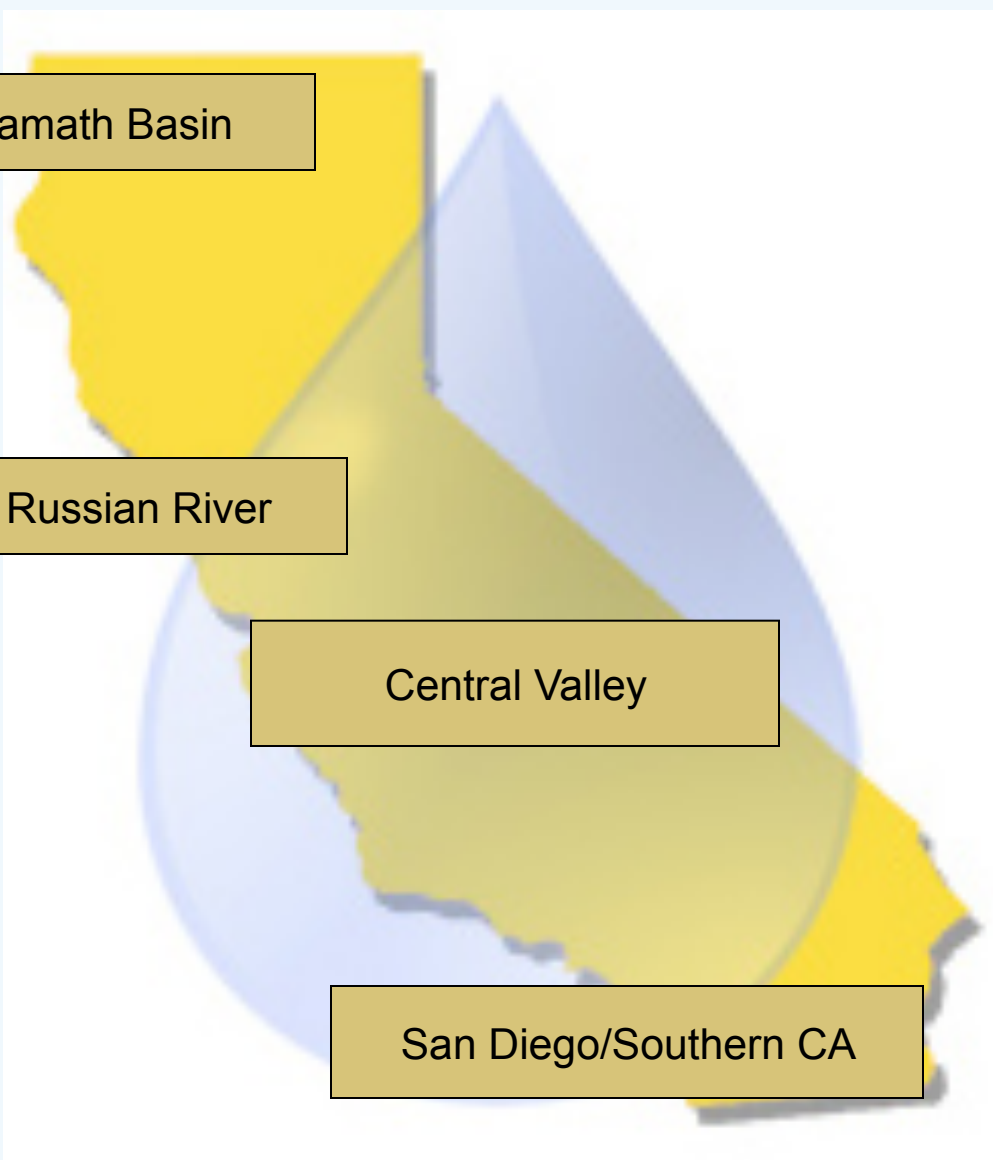
NIDIS California Drought Early Warning Information System Pilot(s)

Klamath Basin

Russian River

Central Valley

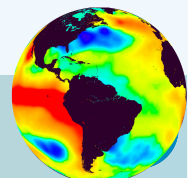
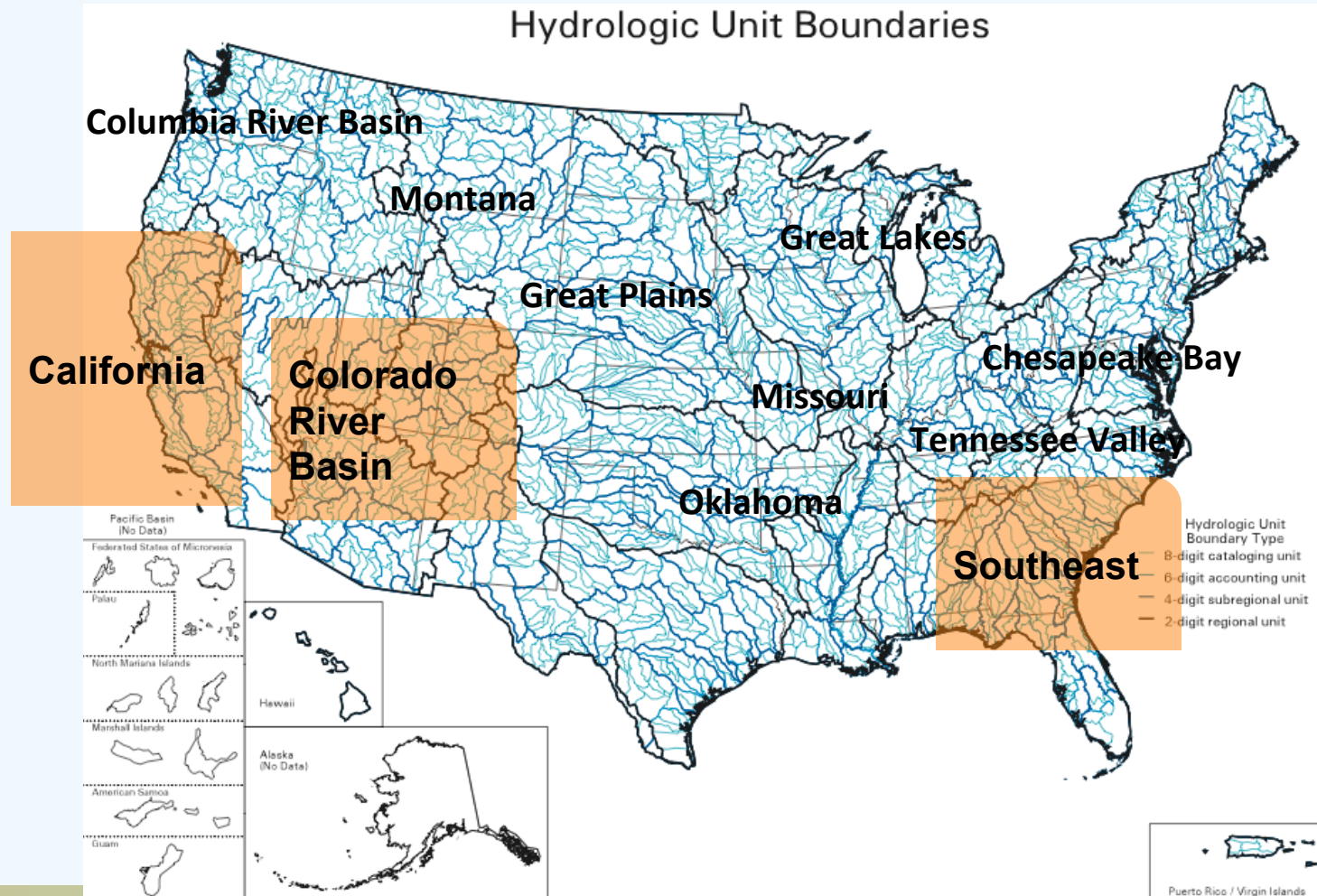
San Diego/Southern CA





Regional Drought Early Warning Systems

Highlighted-first round prototypes;
Non-highlighted-second round Regional DEWS



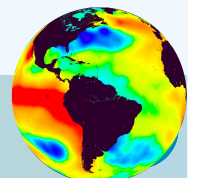


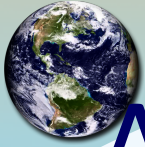
The prototype phase for regional drought early warning information systems allows for:

Information-integration, diffusion, use, evaluation

- Existing barriers to cross-agency collaboration to be addressed or least be made explicit
- Innovations and new information to be introduced and tested, and
- The benefits of participation in design, implementation and maintenance to be clarified

Mature prototypes becomes the regional system.

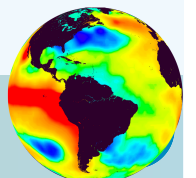




Approaches:

- Identifying appropriate partners, stakeholder representatives
- Setting goals/priorities, and involving partners in problem definition
- Using professionals from relevant agencies etc. to build common ground
- Producing collectively authored gaps assessments and agreement on the way forward
- Building long term collaborative partnerships
- Tradeoffs-Decision quality vs decision acceptability

Lessons become more likely to be successfully transferred within or to other as yet underserved regions.



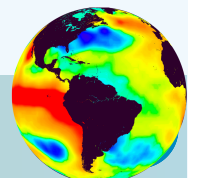


1. Cross-RISA collaborations to transfer tools, knowledge, products.

2. Geographically supported efforts (SE, SW, Great Plains, Pacific NW and Chesapeake Bay watershed)

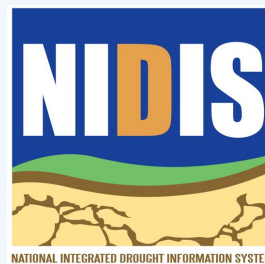
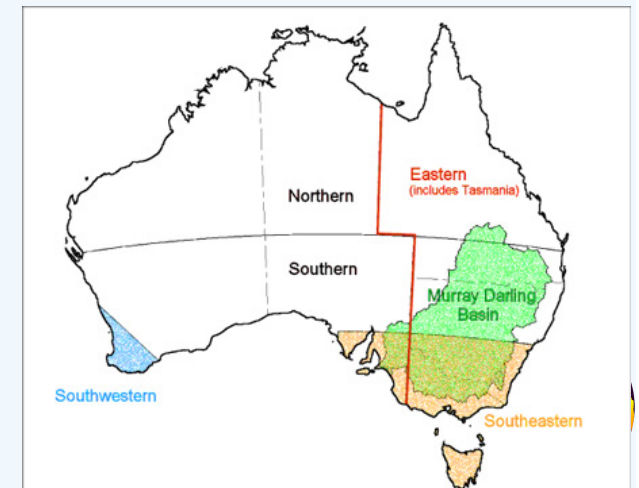
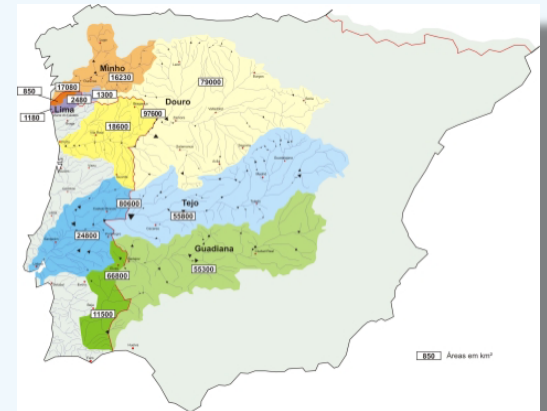
- Characterize climate related risk perception by institutions faced with making decisions in a changing climate (time scales)
- Assess the components and types of risk analysis that are needed for planning for a changing climate
- Assess impacts including indirect or secondary economic impacts, develop socioeconomic baselines and/or tools for generating drought risk scenarios
- Understand how a jurisdiction plans to respond to water demand in the face of drought (how are decisions made to allocate water given competing needs)
- Characterize the readiness of institutions that are dealing with drought to utilize climate information

3. Transition products links to the US Drought Portal.

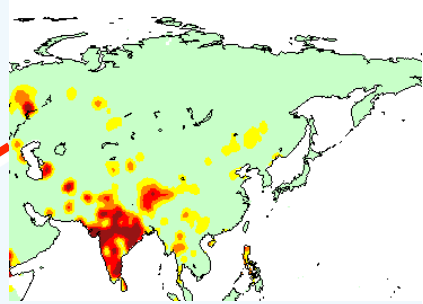
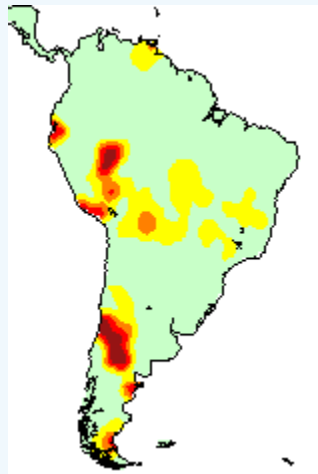
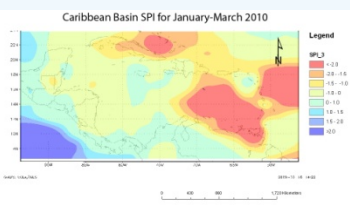
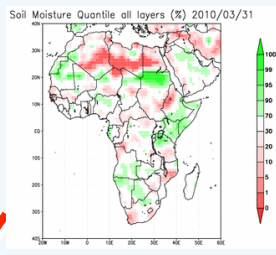
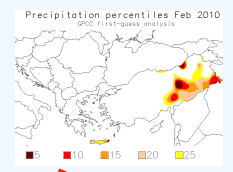
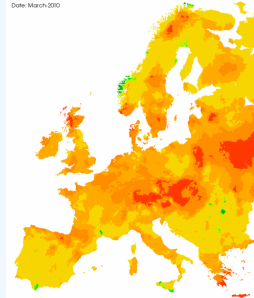
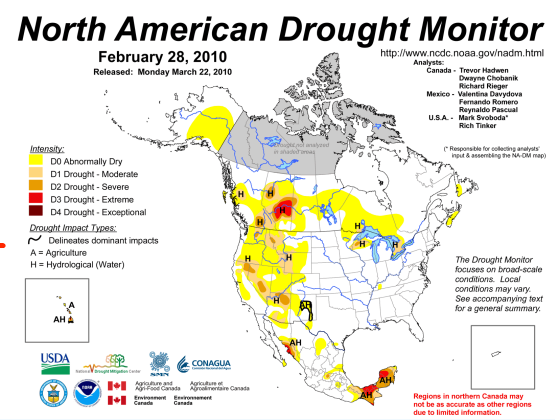
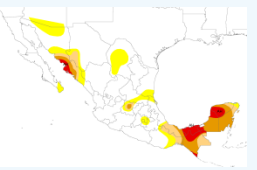
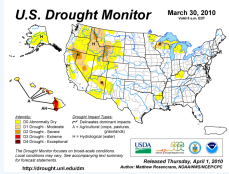
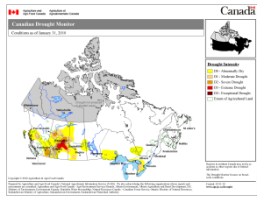


NIDIS-Transferability

- FEWSNet
- GEO Water Resources
- Mediterranean/Iberian Peninsula
- Australia (MDB/Colorado)
- India NIDIS
- Caribbean Basin
- US-Canada PNW
- GIDIS-



Global Drought Monitoring Conceptual Framework

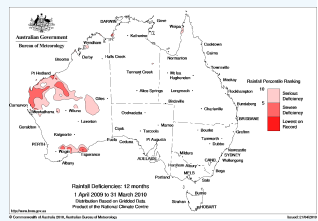


Global Drought Monitor

Search: Asheville Go

Map Style: Satellite Hybrid Streets Topo Relief

GDMwp - Global Drought Monitoring web portal



“We would cite the National Integrated Drought Information System (NIDIS) as one example of how federal agencies can work together and with statesit demonstrates key elements of how....to deliver actionable information to end users and decisionmakers”

Western Governors letter to CEQ-Response to CEQ Adaptation Interim Report May 21, 2010

NIDIS is an important example of what a climate service should do (T. Busalacchi, Climate Working Group Chair, Sept., 2010)

NIDIS is an organizational model for developing and coordinating ongoing climate assessments K. Jacobs NCA
November, 2011

NIDIS offers a valuable model for interagency early warning systems design ... Subcommittee on Disaster Reduction (June 2, 2011)

Drought and Water Resources: (Federal, States, Tribes, Urban, other)



Monitoring & Forecasting



Drought and Flood Impacts Assessments and Scenarios



Early Warning Information in support of Adaptation

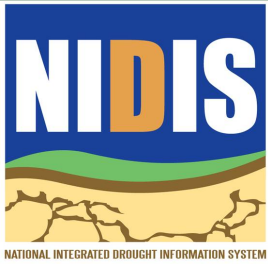


Communication and Outreach



Engaging Preparedness & Adaptation





NIDIS Implementation

Integrated Monitoring and Forecasting

NRCS, USGS
River Forecast Center, BoR
Climate Prediction Center
USDA

Interdisciplinary Needs Assess., Research, Applications

Regional Integrated Sciences and Assessments
Regional Climate Centers
NCAR

U.S. Drought Portal

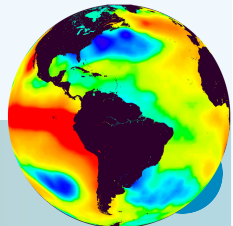
NCDC
NDMC-NOAA, USGS, USDA, USBoR

Public Awareness And Education

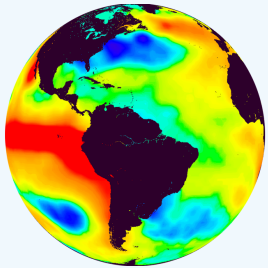
State Climatologists
NWS-CSD
USDA

Engaging Preparedness Communities

NDMC
State Offices, RISAs
US BoR, USACE, Counties



THANK YOU!

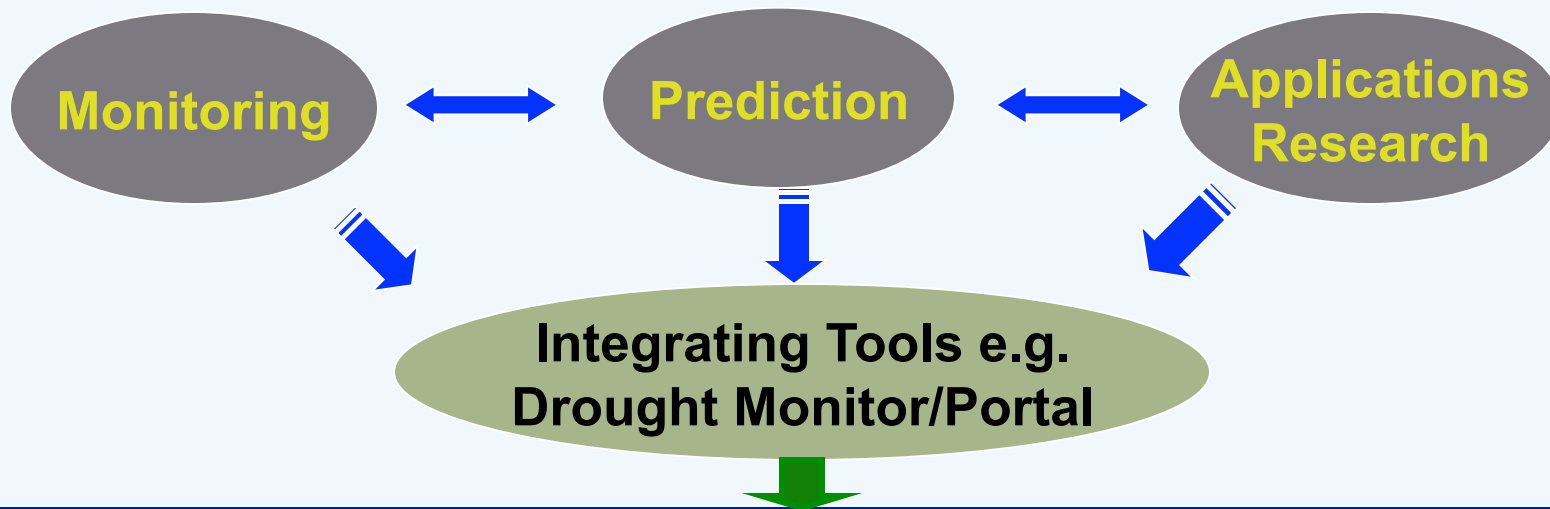


BACKUP SLIDES

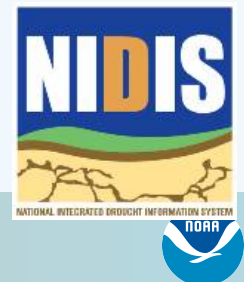
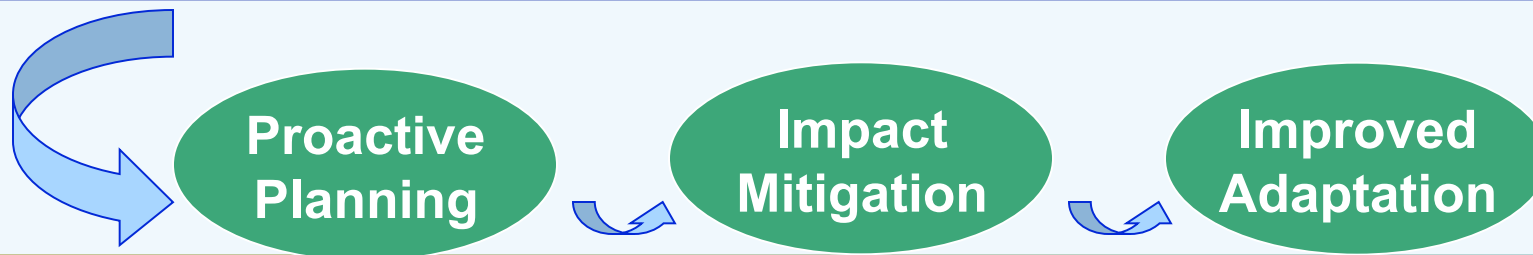


NIDIS REGIONAL INFORMATION MANAGEMENT MODEL

Coordinate existing federal, state, and local drought-related data and decision support activities (e.g., within watersheds and states)

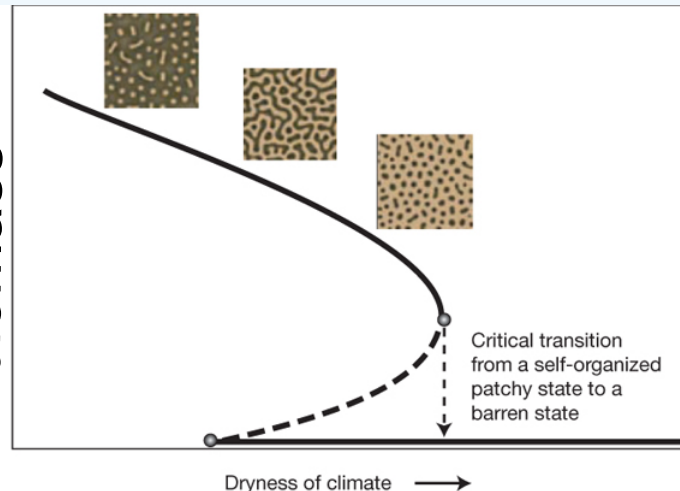


Identifying and transferring indicators, decision support tools and innovative strategies for drought risk assessment, communication and preparedness



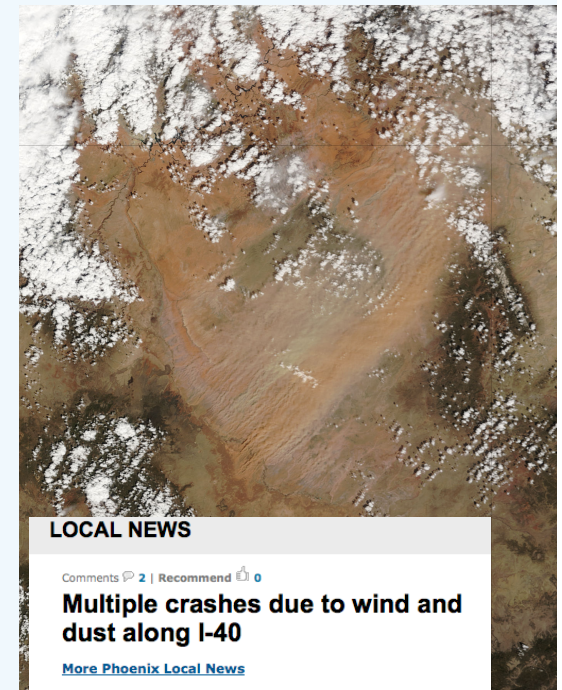
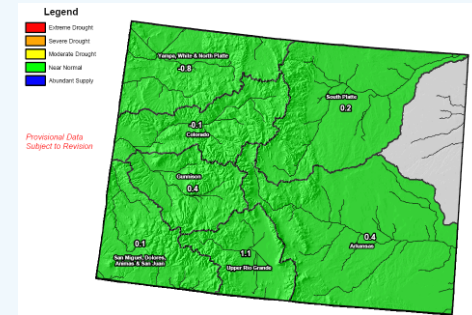
Landscape changes- Drought Early Warning on Tribal Lands in the Four-Corners Region

Mean vegetation
biomass



Dryness of climate

(Nature, 2009)



LOCAL NEWS

Comments 2 | Recommend 0

Multiple crashes due to wind and dust along I-40

[More Phoenix Local News](#)

09:21 PM Mountain Standard Time on Thursday, March 26, 2009

azfamily.com

MTNCLIM - A dust storm



Risk Profiles

Vulnerable Sector/ activity/ group	Magnitude	Rates of Change	Persistence and reversibility	Likelihood and confidence	Distribution	Potential for Adaptation
Economic sectors (Water, Ag, Tourism etc.) Communities at risk Bounded ecosystems such as coastal, mountain are already stressed	Situation of existing Levels of vulnerability for different magnitudes of change, especially thresholds, relative to temperature, precipitation or the other critical parameters that create the vulnerability	Critical rates/steeper response curves that affect vulnerability	Likelihood that the vulnerable sector will be affected by an irreversible impact and whether it is likely to persist.	Overall confidence and likelihood, but state confidence also with any specific figures or points.	Distribution of impacts – both physically and socially within countries (not in a simple developed/developing dichotomy).	Capacity for adaptation. Is adaptive capacity sufficient to delay or prevent adverse impacts and at what cost.



Prototype Implementation Upper Colorado River Basin

Year 2 Actions

Prototyping/gaming: Given better data and information coordination, would responses have been improved for past events? Assess:

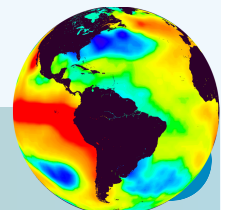
1. Value of improved information using past conditions
2. Responses for projections/ scenarios (seasons, decadal, change)
3. Develop EWS Fora
4. Feedback on priorities (e.g. data gaps) to Executive Council



Adaptation: Crisis, learning and redesign

What has led to “action”?

1. Focusing events-extremes, legal decisions etc.
2. Leadership at different levels and the public are engaged:
3. Supported framework for collaboration between research and management-integrated, scenarios, scenarios/gaming, communication, embedding information into practice, evaluation
4. Existing social basis or even pressure for collaboration





Climate drivers of drought-a continuum

Heat Waves

Storm Track Variations

Madden-Julian
Oscillation

El Niño-Southern
Oscillation

Decadal Variability

Solar Variability

*Deep Ocean
Circulation*

Greenhouse Gases

30 1
DAYS SEASON

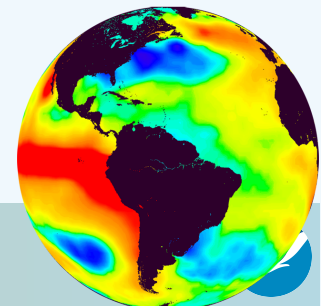
3 10
YEARS YEARS

30 100
YEARS YEARS

SHORT-TERM

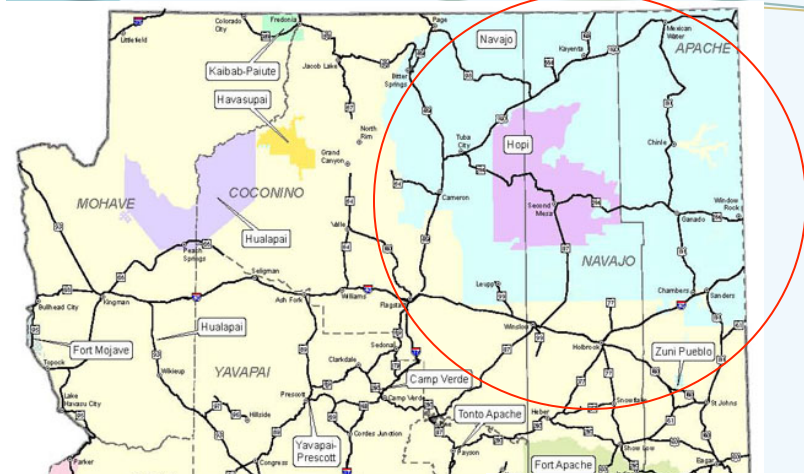
INTERANNUAL

DECADE-TO-
CENTURY

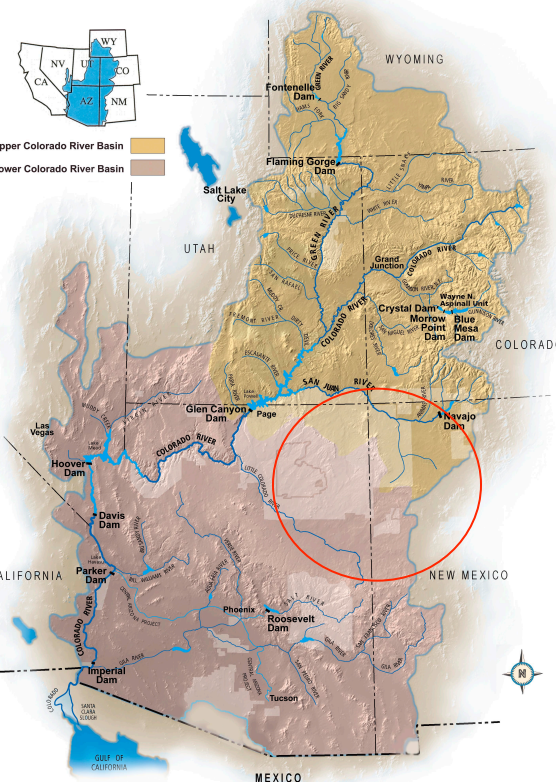




Native Nations in SW are major land managers

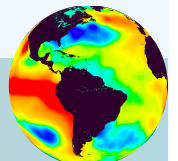


Colorado River Basin



- 6 million acres/ 242kha of land
- held in trust by the US for American Indian tribes and Alaska Natives
- Reservations and tribal lands are >25% of land in AZ
- Confronting same climate trends, need same info, but context is different

- cultural ties to landscape
- federal trust relationship
- widely variable capacity





Assessing progress for each element of planning and implementation

(i) Knowledge development and management

(ii) Products and delivery

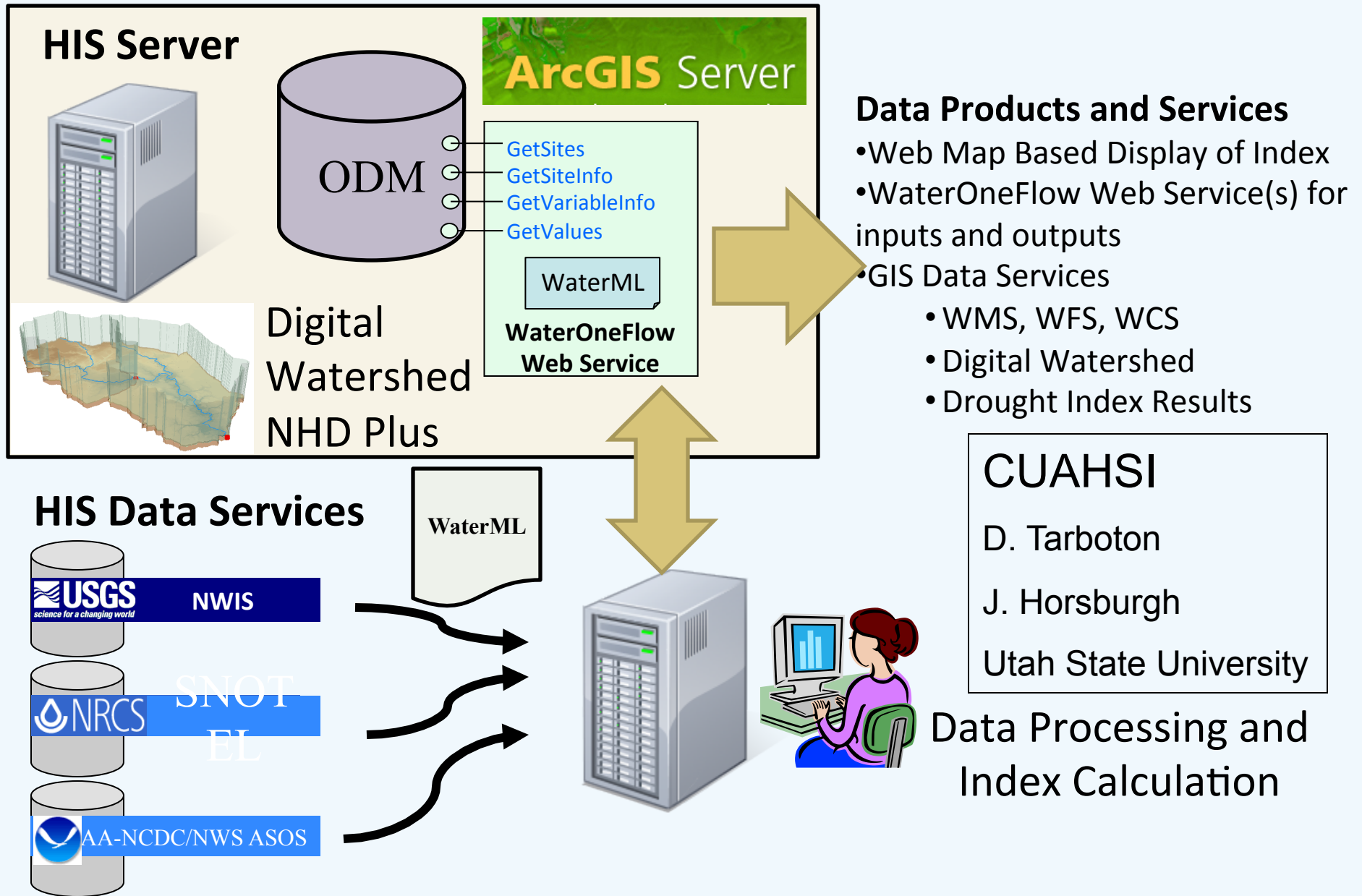
(iii) Capacity and coordination

Priorities for early adaptation action, including land use planning, building design, emergency planning, local infrastructure provision and green space management

Timeliness of action

- depends on regional/local circumstances-surprises
- cost-effectiveness of adaptation measures
- implementation monitoring and evaluation

CUAHSI HIS Custom Drought Index Server





The “Services” Challenge

Identify user requirements
Conduct research

Develop applications and capacity
Integrate knowledge and products

Deliver information
Data quality control

MONITORING/FORECASTS

&

DEVELOPMENT
(Assessments, int. products)

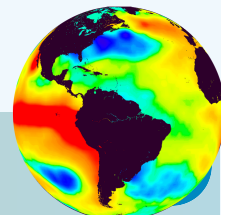
&

PROTOTYPING
(Scenarios, Applications)

DELIVERY/MAINSTREAMING

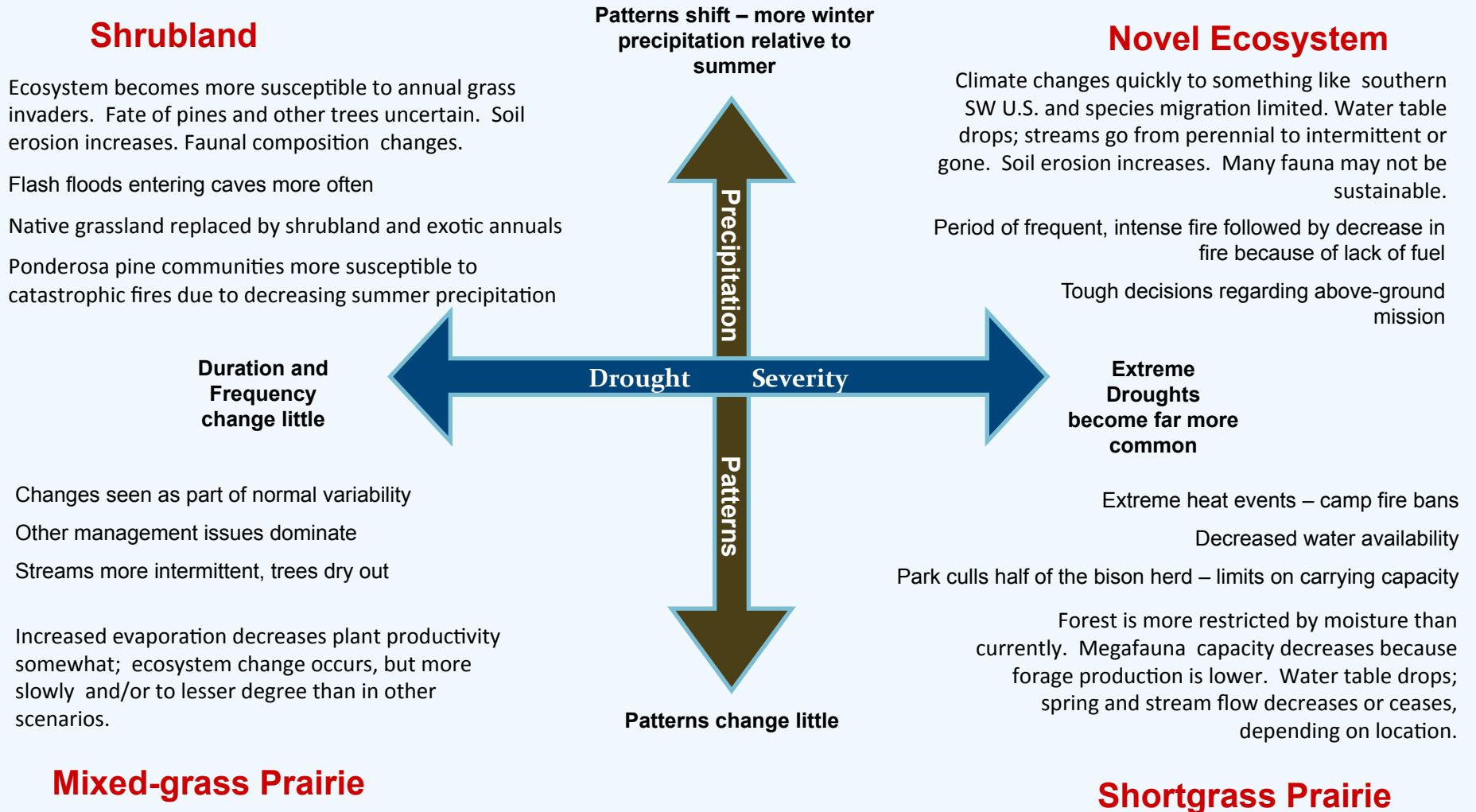
Relative status of information

STATIC.....EMERGENT/DYNAMIC



Co-produced Scenarios: Navajo Lands

Through conversations before and during workshops, the team identified the most important and most uncertain climate drivers that will affect conditions over the next 40 years. These were combined in the following matrix. (Also note that temperature increase was a 'given' so it applies in all scenarios)



Challenges

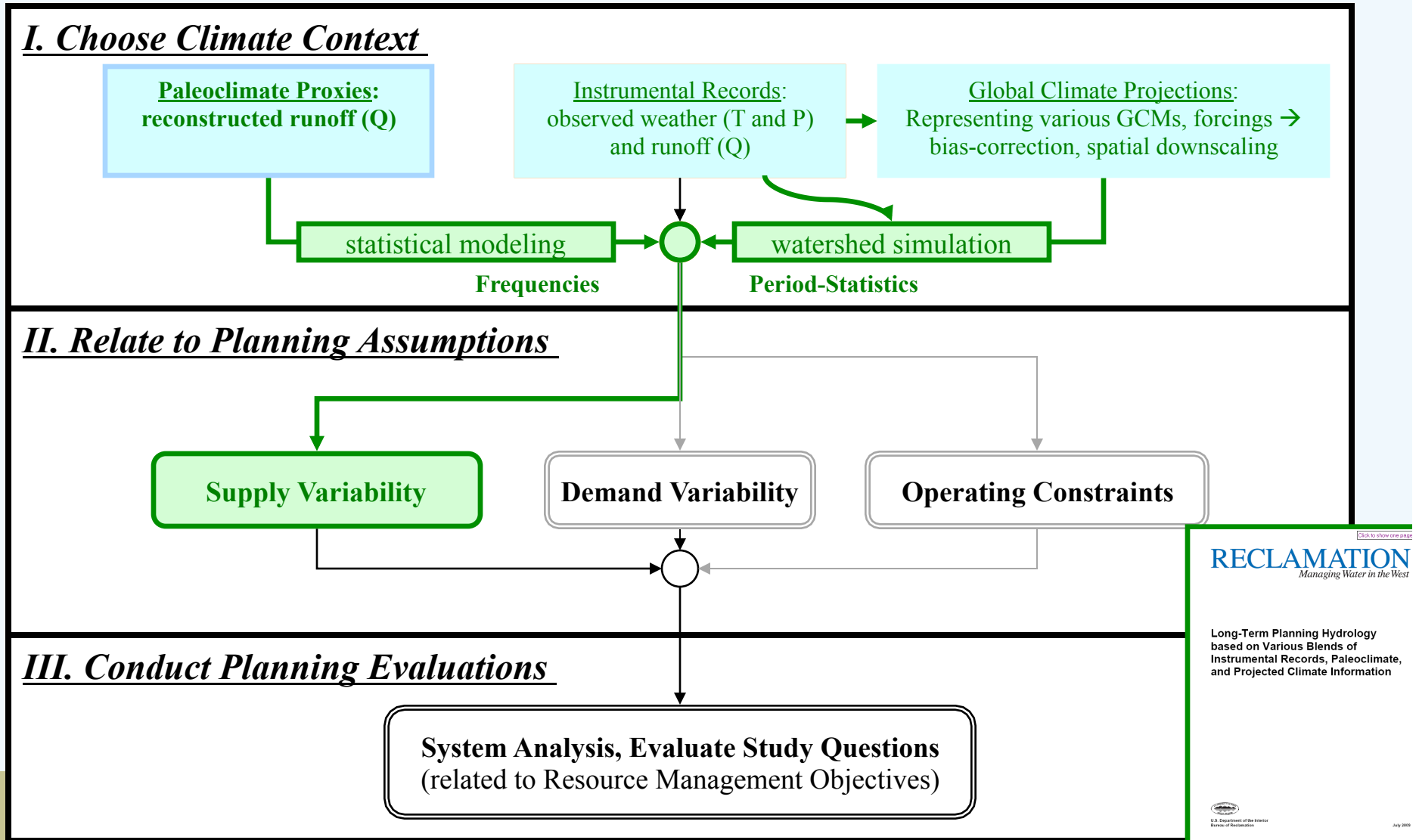
- Develop strategic responses to crises: foreseeable, impending, actual; and
- Provide implementable options to critical actors for decision-making

A systemic view would involve assessing:

- Impediments to the flow of knowledge among existing network components
- Policies and practices that can give rise to failures of the component parts working as a system
- Opportunities for and constraints to learning and institutional innovation



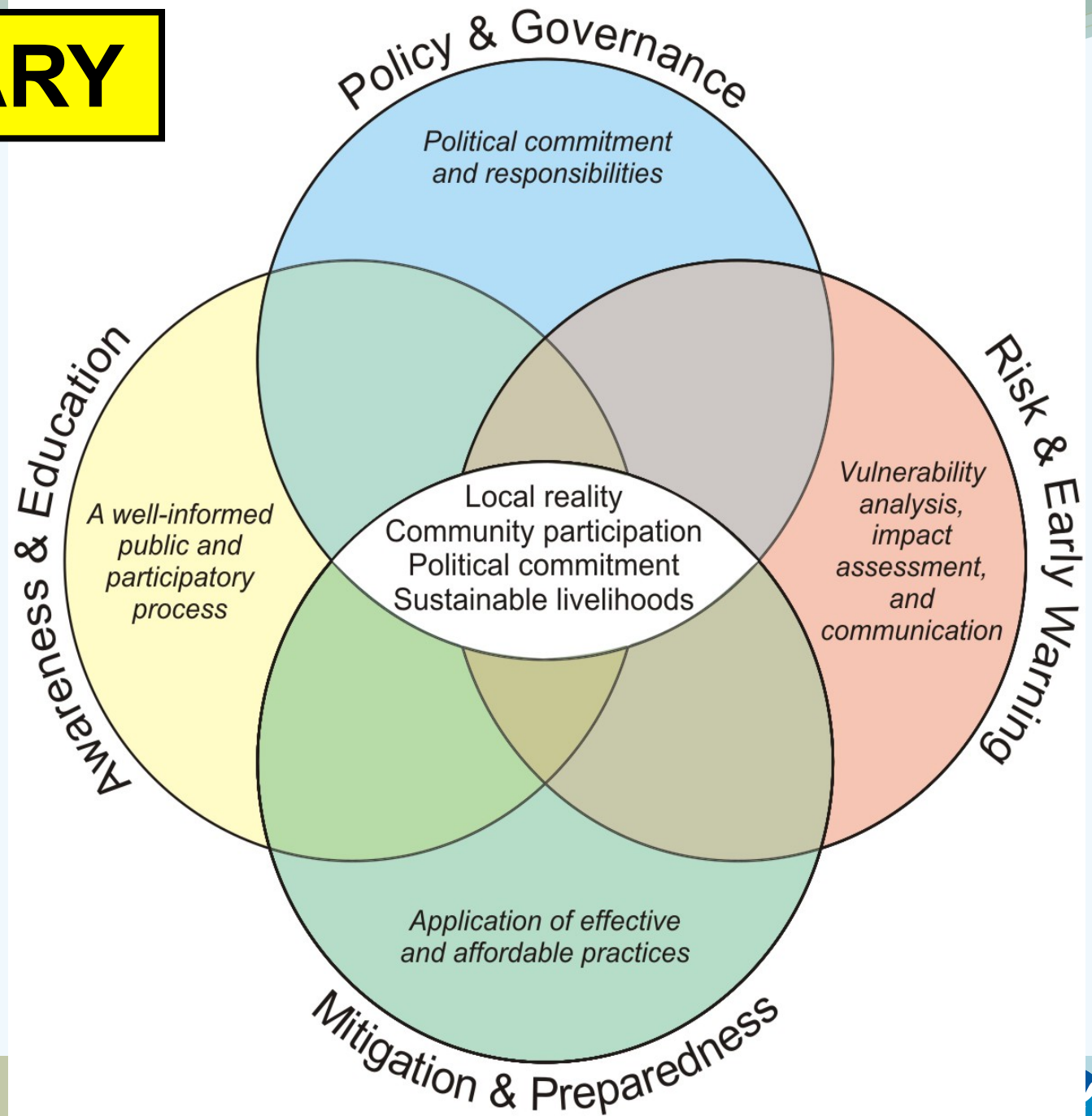
Supply Variability: Blend paleo, instrumental and projected climate (Reclamation-Brekke and Prairie 2009)





SUMMARY

Principal Elements of Drought Risk Reduction Framework



Drought Preparedness for Tribes in the Four Corners Region Workshop

April 8-9, 2010, Flagstaff, Arizona

Tribal perspectives on critical issues

Local Knowledge & Drought: How do we incorporate local knowledge?

What are current vulnerabilities and impacts tied to drought and climate change?

Critical drought-related information needs on tribal lands in Four Corners region

Improved monitoring emerged as the highest priority near-term need



Drought and Water Resources Services

Mission: Implement a dynamic, accessible, authoritative drought information system

NOAA Produces:	With Our Partners:	Used By:
Monitoring and Forecasting		
U.S. Drought Monitor	USDA, National Drought Mitigation Center	USDA, state and local governments
U.S. Soil Moisture Monitoring	DOE, USDA (NRCS)	USDA, agricultural producers
Normalized Difference Vegetation Index	USGS, NASA	USAID (FEWS NET)
Crop Moisture Index	USDA	USDA, agricultural producers
Ensemble Water Supply Forecasts	USDA	USBR, USACE, state water management agencies, local district water managers
Soil Moisture Anomaly Forecast	USDA (NRCS)	USDA, agricultural producers





NOAA Produces

With Our Partners:

Used By:

Products Informing Risk Assessment and Management

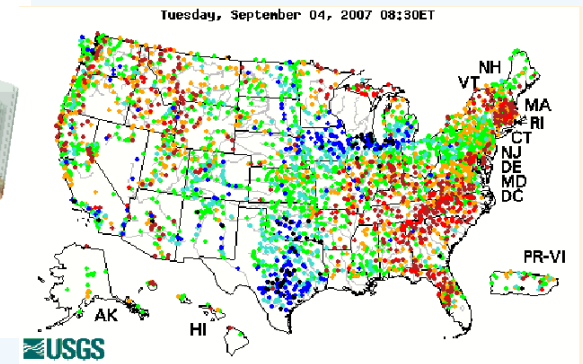
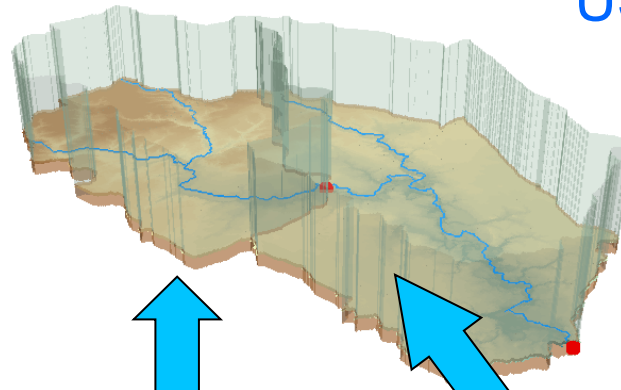
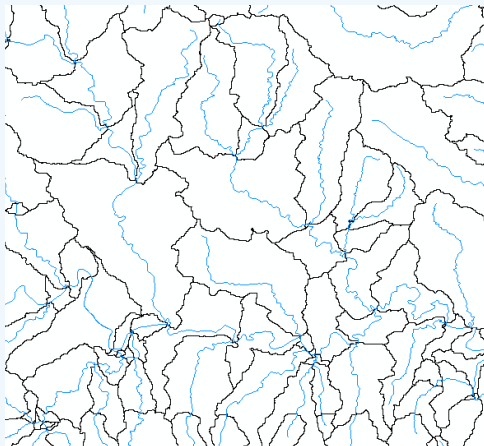
Reconciling projections of future Colorado River stream flow in a changing climate	USBR, USGS, University of Washington, University of Colorado, University of Arizona, University of California-San Diego	USBR, state and local water providers, reservoir managers, Water Conservancy Districts
USGS Circular 1331: Climate Change and Water Resources Management: A Federal Perspective	USGS, USBR, USACE	USBR, USACE, Water Utilities
Climate Change in Colorado: A Synthesis to Support Water Resources Management and Adaptation	Colorado Water Conservation Board, University of Colorado, Western Water Assessment RISA	Colorado water planners, State Climatologists
Managing Threatened and Endangered Salmon in Low Water Conditions	USBR, CA Department of Fish and Game, CA Department of Water Resources, University of California Davis, Humboldt State University	NMFS, CA Department of Fish and Game, CA Department of Water Resources, Pacific Fisheries Management Council
Assessing Drought Indicators and Triggers	USGS, USDA (NRCS), Colorado Water Conservation Board, Colorado State University, Utah State University, University of Wyoming	USGS, USDA, USBR, water planners/providers, reservoir managers, State Climatologists



Connecting geospatial and temporal water resources data

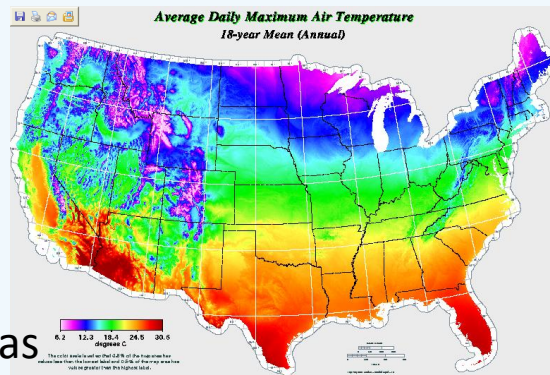
Digital Watershed

USGS NWIS Streamflow

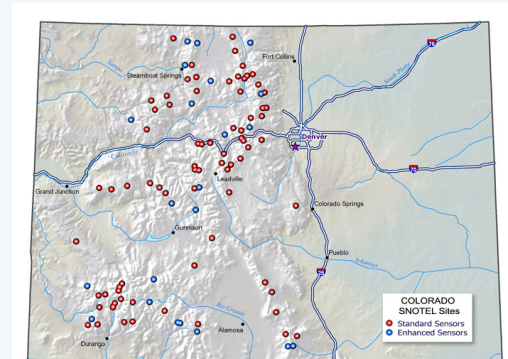


NHDPlus

NOAA NCDC
and ASOS



NRCS
Snotel

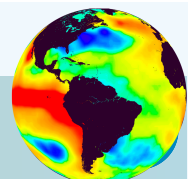
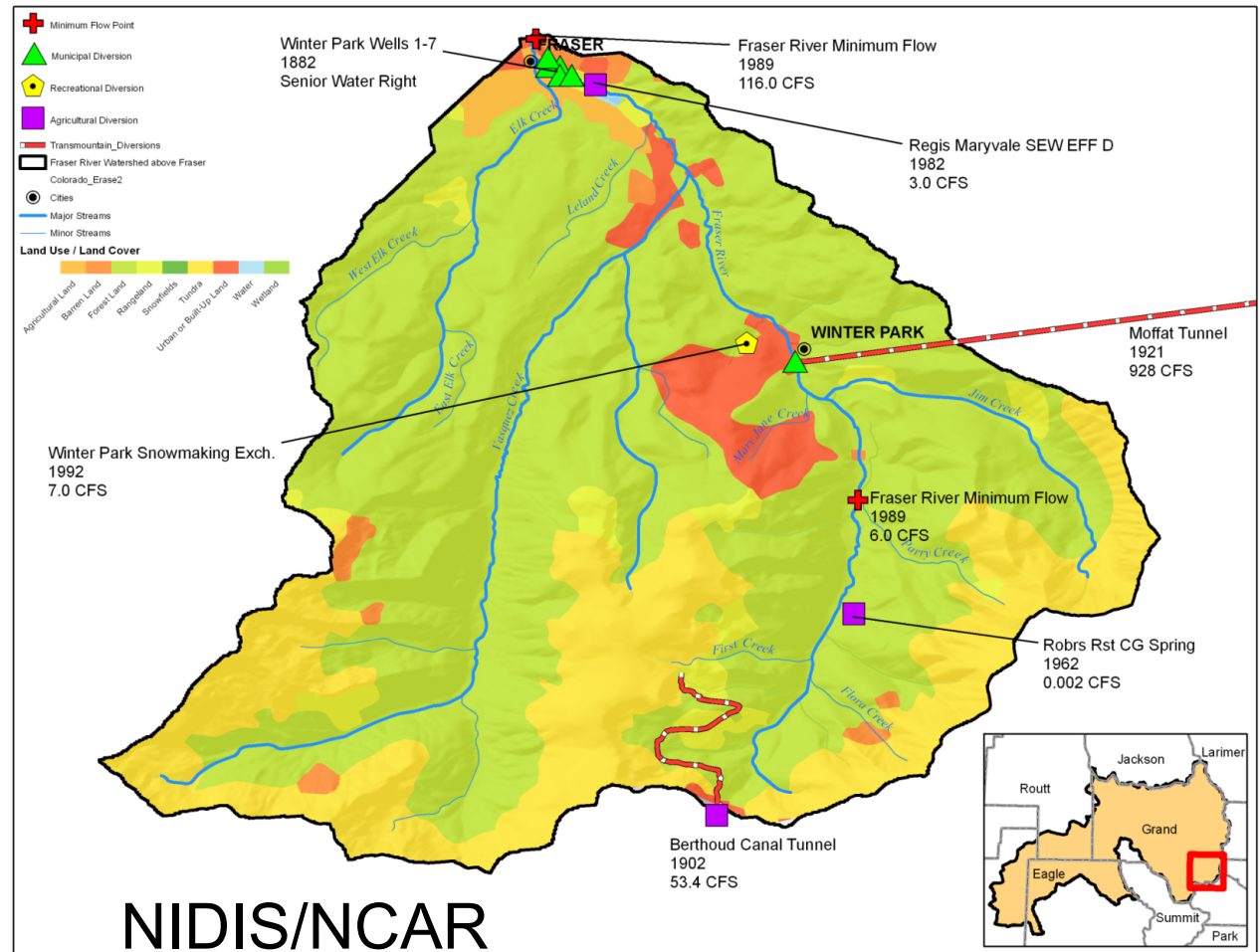


David Maidment, U Texas



Upper CO Basin Water Demand Spatial Analysis

Drought vulnerability GIS database that represents relationships among water users and their respective sources of water supply





Data Mining for Water Availability, Ecosystem Change, and Services

USGS ScienceBase-Catalog: Search | Virtual Catalogs | Admin

bristol@usgs.gov | Help | myUSGS | Logou

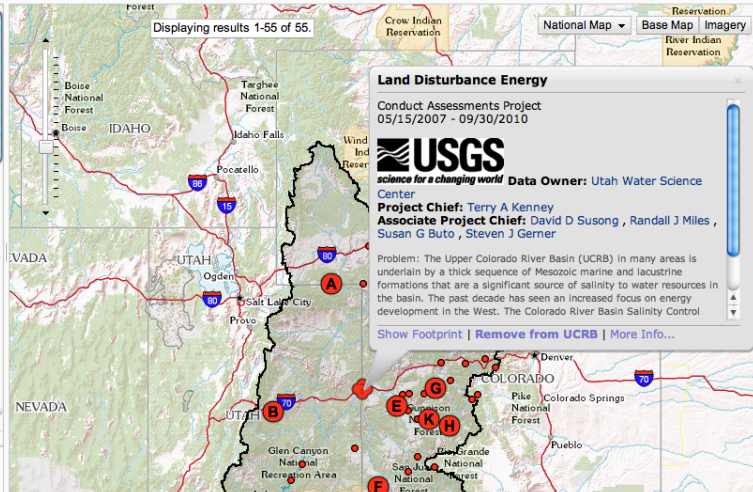
UCRB Home > UCRB > Items | Search | New Item

About | Summary | Help

Projects

Filter: Item Type is BASIS+ Project (remove)

- A Salt Loading Manila Green River - Project**
Remove from UCRB - More Info >
Numerous international, federal and state laws and agreements govern the distribution of water in the...
- B Muddy Creek Salinity Investigations - Project**
Remove from UCRB - More Info >
Levels of dissolved solids (salts) in the Colorado River and its tributaries have increased over time as...
- C Land Disturbance Energy - Project**
Remove from UCRB - More Info >
Problem: The Upper Colorado River Basin (UCRB) in many areas is underlain by a thick sequence of...
- D Upper Colorado River Basin Irrigated Lands Mapping - Project**
Remove from UCRB - More Info >
Irrigation in arid environments can alter the natural rate at which salts are dissolved and



Portal development sponsored by USGS Climate Effects Network and NIDIS

Publications

UCRBs owned by user

Authors	Title	Year	Published In
Albert, Steve...	Collared peccary range expansion in northwestern N...	2004	The Southwest...
Alfaro, Eric J; ...	Prediction of summer maximum and minimum te...	2006	Journal of Climate
Allen, J R L	Fining-upwards cycles in alluvial successions	1964	Geological Journal
Allen, Julia A; ...	Non-native plant invasions of United States National Parks	2008	Biological Invasions
Allred, TM; Sc...	Channel narrowing by vertical accretion along the Green Ri...	1999	Geological Society of ...
AMMERMAN, ...	Biochemical genetics of endangered Colorado squa...	1989	Transactions of the Ame...
Amundsen, M...	Uncle Sam and the yellowcack towns: The effects of feder...		
Andelt, Willia...	Long-Term Trends in Mule Deer Pregnancy and Fetal R...	2004	Journal of Wildlife Ma...
Andelt, Willia...	Occupancy of Random Plots by White-Tailed and Gunnis...	2009	Journal of Wildlife Ma...
Andersen, Do...	Characterizing flow regimes for floodplain forest conserva...	2005	Canadian Journal of R...
Andersen, Do...	Dams, floodplain land use, and riparian forest conserva...	2007	Environmenta and Range Man...
Andersen, Do...	Movement Patterns of Riparian Small Mammals dur...	2000	Journal of Mammalogy
Anderson, Da...	Factors Influencing Development of Cryptogami...	1982	Journal of Range Man...
Anderson, R S	Middle- and late-Wisconsinan	2000	Palaeogeogra...

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People

Beth Middleton, Ph.D
Research Ecologist, National Wetlands Research Center, USGS Lafayette, Louisiana, United States

Publication Statistics
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Publications

- Book (1)**
Beth A Middleton (1999) *Wetland restoration, flood pulsing and disturbance dynamics*. In Wiley, New York.
books.google.com/books?id=Zv_suj7dM8...
- Journal Article (3)**
Middleton Beth A (2009) *Regeneration of coastal marsh vegetation impacted by Hurricanes Katrina and Rita, 54-65*. In *Wetlands*.
www.bionline.org/doi/pdf/10.1672/08-18.1
- All Publications**
[http://profile.usgs.gov/professional/...](http://profile.usgs.gov/professional/)
- Middleton Beth A, Devin D, Proffitt E et al. *Characteristics of mangrove swamps managed for mosquito control in eastern FL*. 117-129. In *Marine Ecology Progress Series*.
www.int-res.com/articles/meps_oam371...

2 Contacts See all

- Joseph Stachelek
- John David

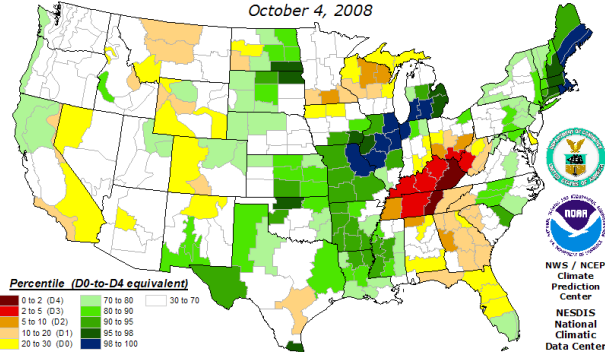
Public Collections
Beth's Public Collections
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Read [how to create your own public collections](#).

Subscribed Collections
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Find new [public collections](#).

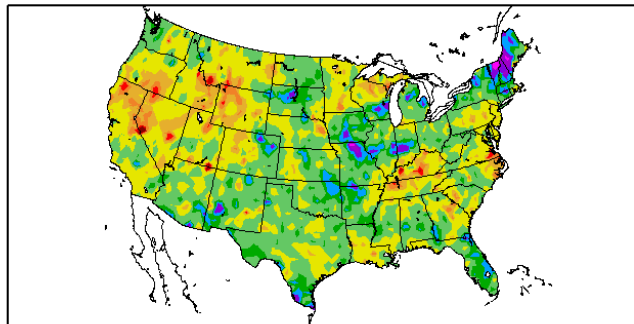
Awards and Grants
No awards or grants added yet.



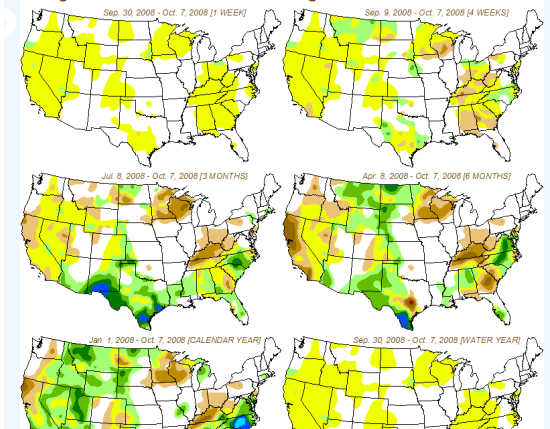
Objective Short-Term Drought Indicator Blend Percentiles
October 4, 2008



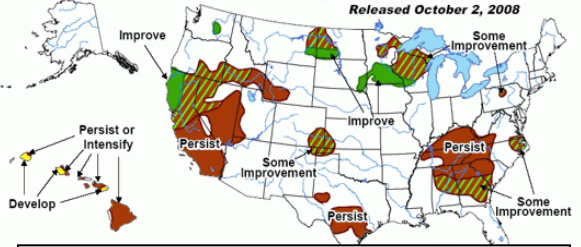
3-Month SPI
6/1/2008 - 8/31/2008



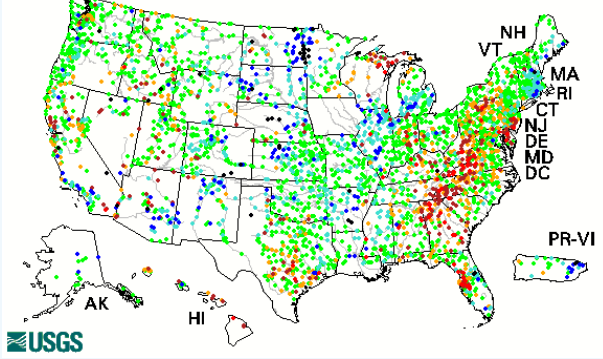
Drought Monitor Classification Changes for Selected Time Periods



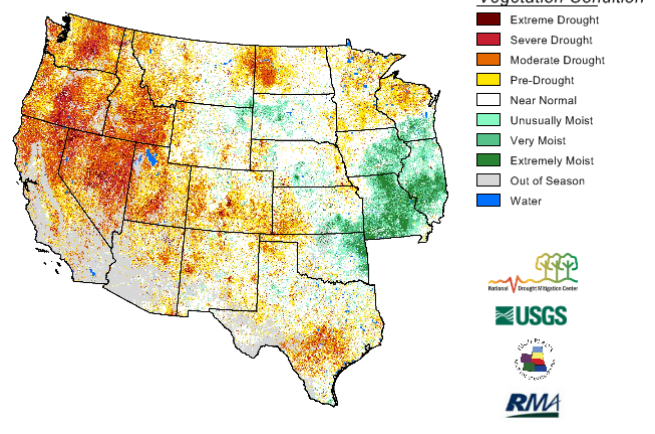
U.S. Seasonal Drought Outlook
Drought Tendency During the Valid Period
Valid October 2, 2008 - December, 2008
Released October 2, 2008



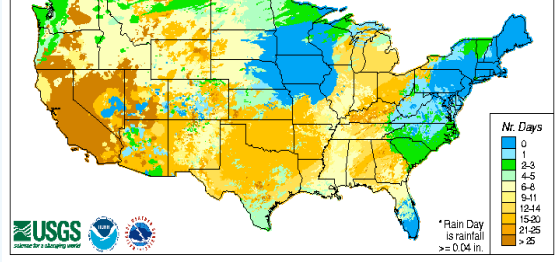
Monday, October 13, 2008 03:30ET



Vegetation Drought Response Index
Complete



Number of Days Since a Rain Day*
in past 30 days, as of 28 Sep. 2008



... with more tools on the way!

Drought Impact Reporter
National Drought Mitigation Center

[View Drought Impacts](#) | [Add A Drought Impact](#) | [Time-Lapse Animation](#) | [About](#) | [Help](#) | [User Login](#)

Map Options
Impact Categories:

- Agriculture
- Fire
- Water/Energy
- Social
- Environment
- Other

Source: All Sources
Time Period: Last Month

Show Drought Monitor Layers

Legend

- No reported impacts
- 1 - 13 reported impacts
- 14 - 26 reported impacts
- 27 - 38 reported impacts
- 39 - 51 reported impacts
- 52 - 64 reported impacts

Instructions: Click on a state to see the reported drought impacts that affect that state.

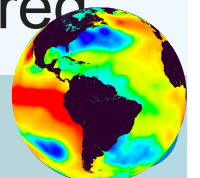


The development phase of regional drought early warning information systems:

Information-integration, diffusion, use, evaluation

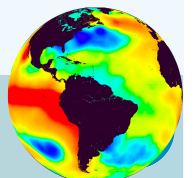
- Allows for existing barriers to cross-agency collaboration to be addressed
- Innovations and new information to be introduced and tested, and
- The benefits of participation in design, implementation and maintenance to be clarified

Mature prototypes becomes the regional system.
Lessons become more likely to be successfully transferred within or to other as yet underserved regions.

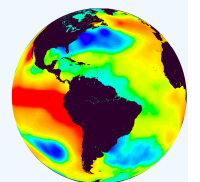
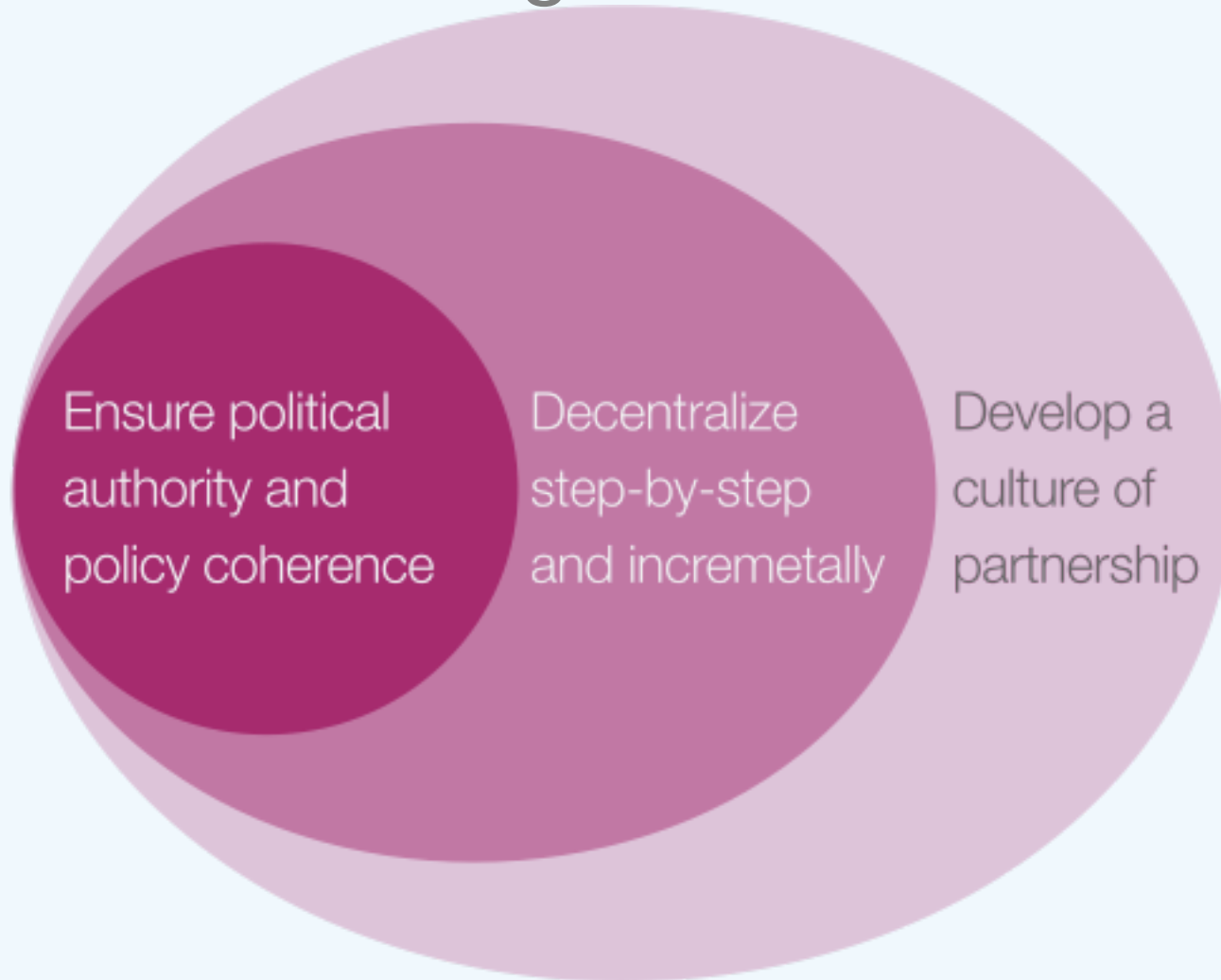




- Identifying appropriate partners, stakeholder representatives
- Setting goals/priorities, and involving partners in problem definition
- Using professionals from relevant agencies etc. to build common ground
- Producing collectively authored information gaps assessments
- and agreement on the way forward
- Building longer term collaborative partnerships
- Tradeoffs-Decision quality vs decision acceptability



Risk information-governance





Transitions to preparedness and adaptation



Transitions from applications to adaptation:
Social-structural and spatial-temporal, resource management

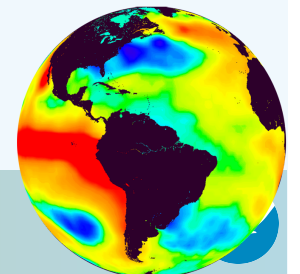
Limits of co-production

Social-ecological

Path dependence

Organizational boundaries

Joint monitoring and joint fact-finding



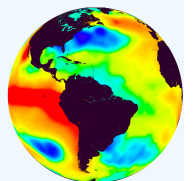
Adaptive institutions display robustness through:

Levels of alertness -monitoring the external world for early warning signs that key assumptions are likely to verify/fail, and a commitment to rigorous monitoring of performance;

Agility-the ability to react to early warning signs of problems or opportunities; flow of knowledge across components, and to adjust strategies and tactics rapidly to meet changes in the environment; and

Alignment- the ability to align the whole organization (and partners) to its mission-policies and practices that give rise to failures/successes

Tested through appraisal of past and ongoing practices for major focusing events



International Association of Public Participation