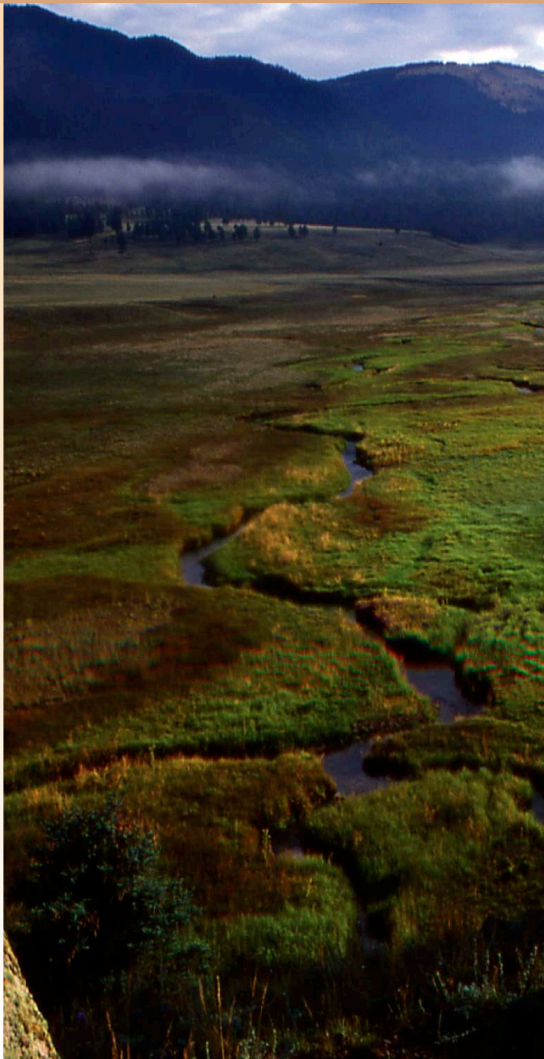




New Mexico
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NM EPSCoR State Committee Meeting

Agenda

2:00 - Welcome and comments. Jack Jekowski, Chairman

2:15 - Current RII Track 1 overview and progress. Bill Michener, Program Director

2:45 - EPSCoR State Program activities update. Bill Michener and Katherine Mitchell, Associate Director

3:15 - Discussion of committee member vacancies and action item on new Vice-Chairperson. Jack Jekowski

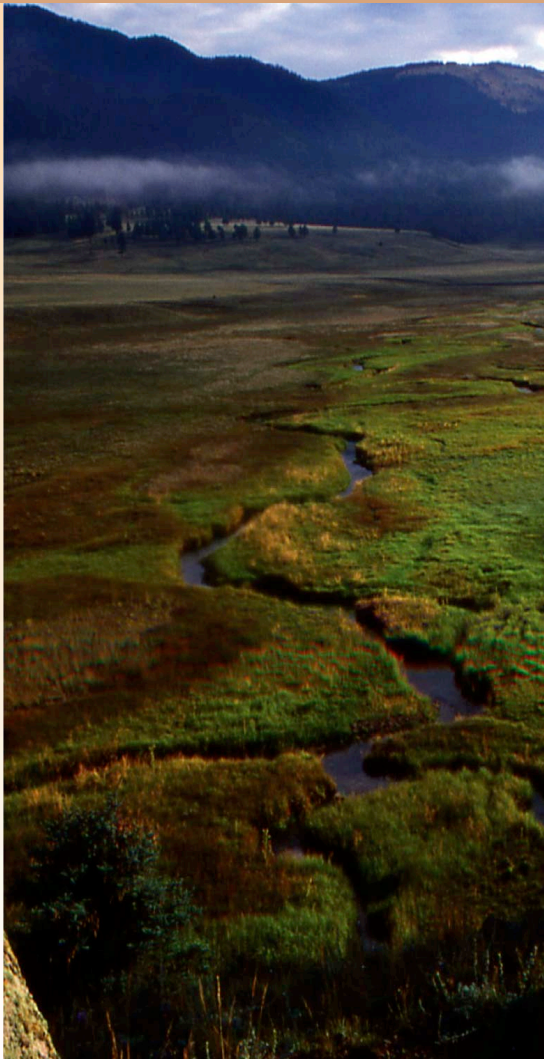
3:30 - Emerging directions and philosophy within NSF. Jack Jekowski and Bill Michener

3:45 - Review of New Mexico State S&T Plan. Tom Bowles, Science Advisor to the Office of the Governor

4:00 - Proposed fall agenda items and final comments.



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New Mexico EPSCoR State Committee Meeting May 27, 2009

- I. NM EPSCoR RII Phase 3: Project Update
- II. NM EPSCoR State Program: News and Issues

Bill Michener & Katherine Mitchell
Program Director Associate Director

Part One: NM EPSCoR RII 3 Project Update

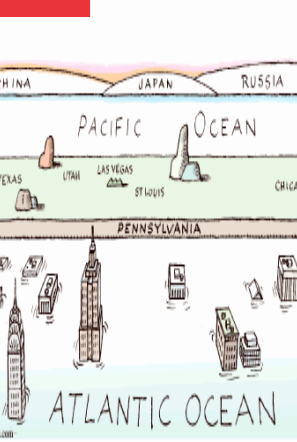
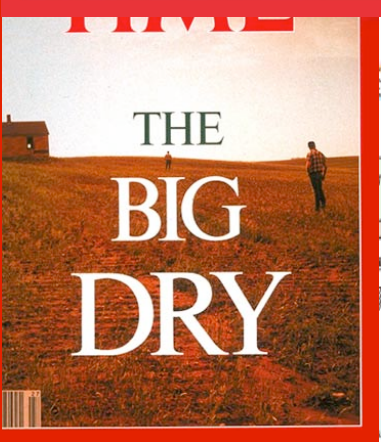
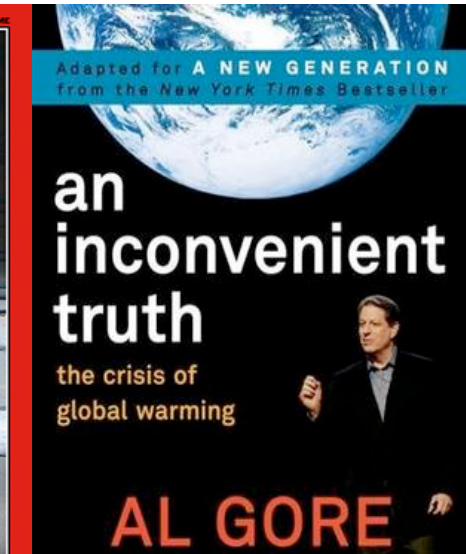
- Climate Impacts on New Mexico's Mountain Sources of Water
- Year One: 9/1/08 - 8/31/09
- Project Oversight and Management Structure
 - New staff additions and introductions
 - Organizational chart (in packet)



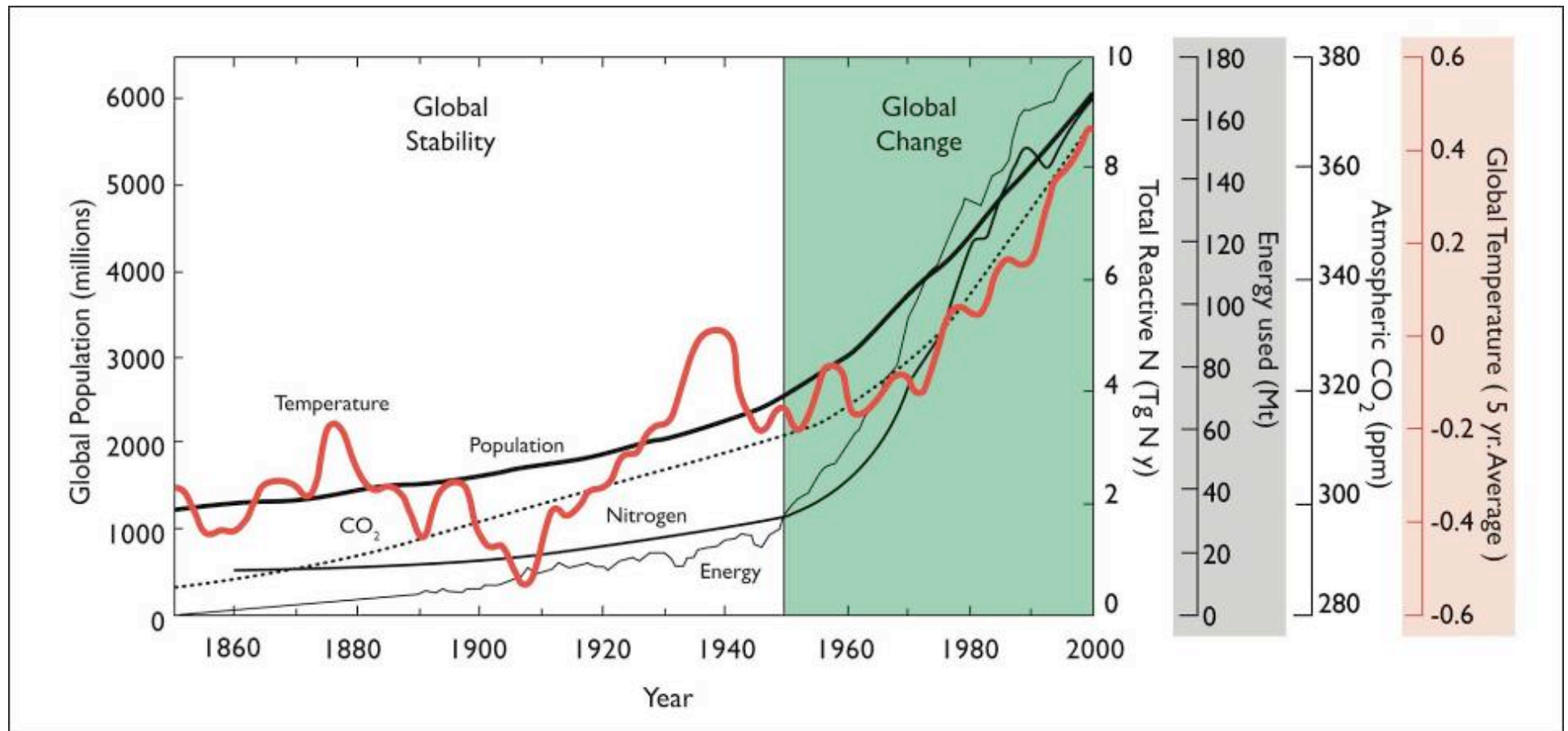
Overview

- New Mexico and Climate Change: Background
- NM EPSCoR RII Phase 3: Climate Impacts on New Mexico's Mountain Sources of Water
 - Research Infrastructure
 - Cyberinfrastructure
 - Human Infrastructure





Global change



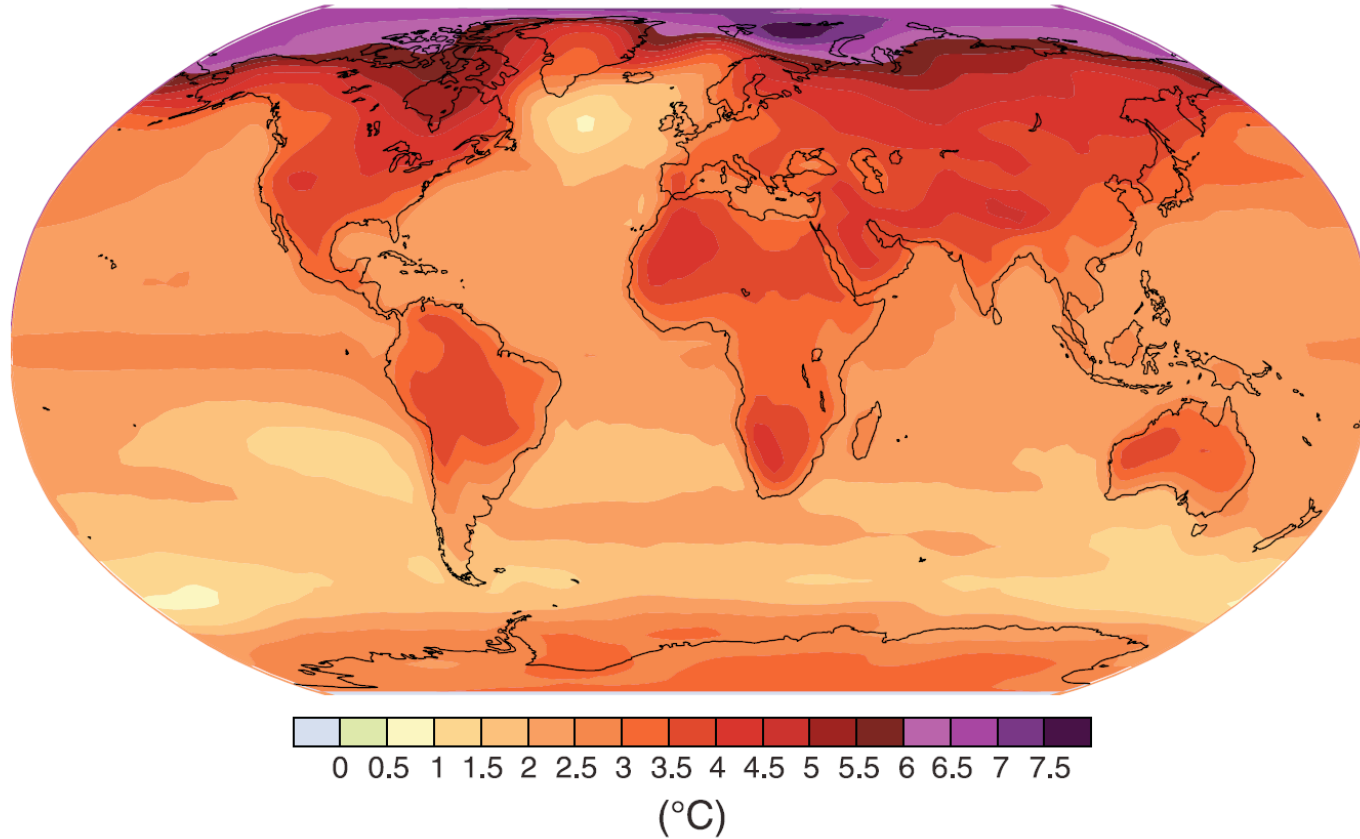
Smith, Knapp, Collins. In press.



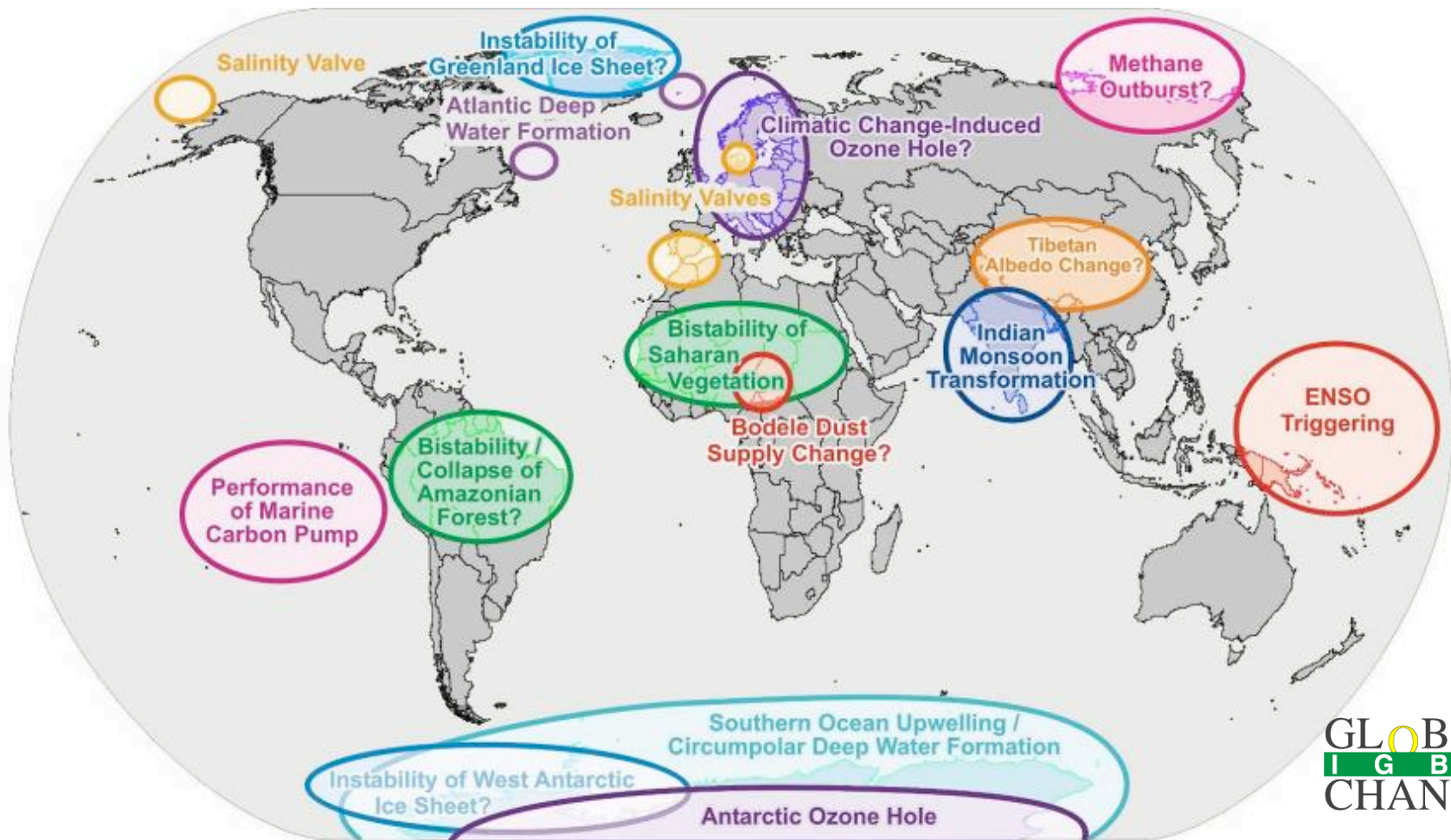
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Critical areas in the Earth's system

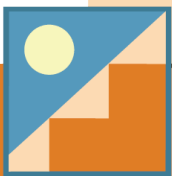
Geographical pattern of surface warming



Critical areas in the earth system

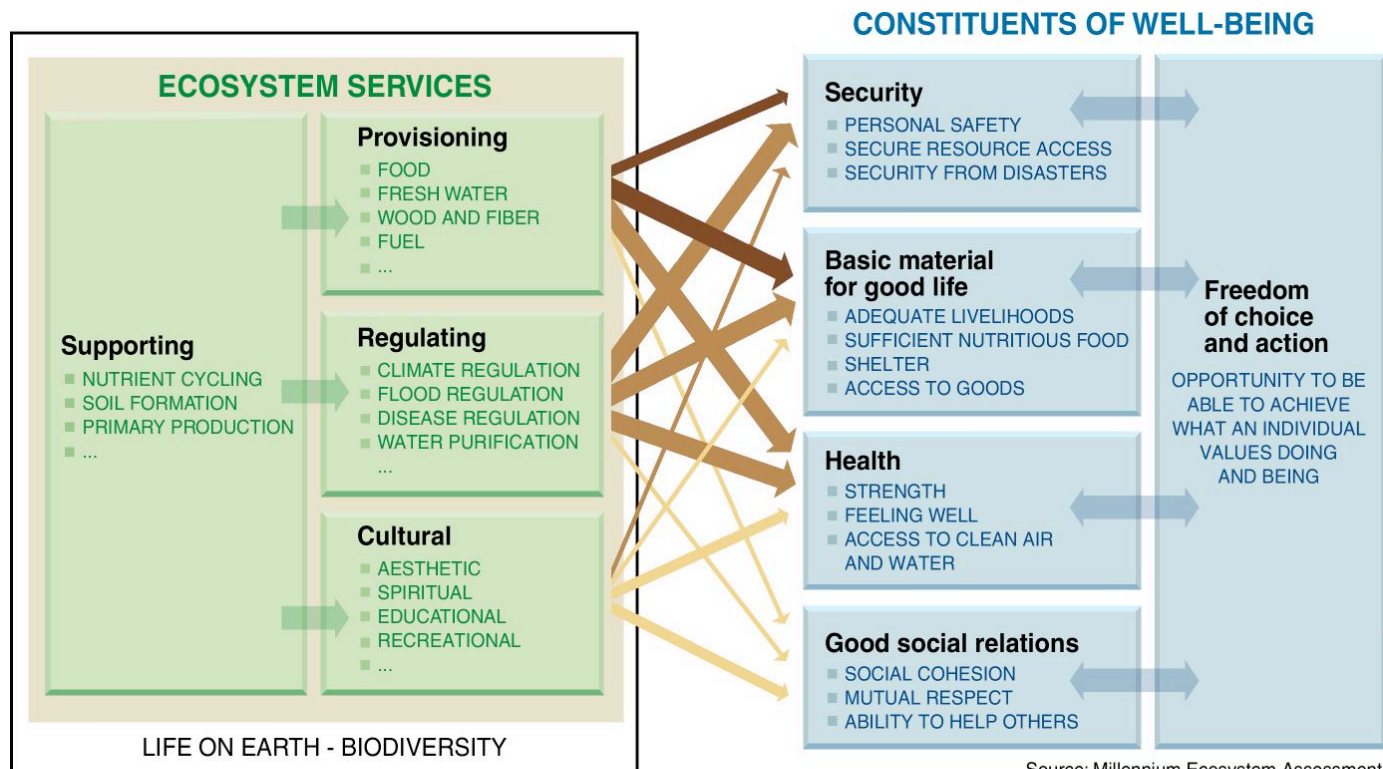


GLOBAL
I G B P
CHANGE



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Coupled human & natural systems



Source: Millennium Ecosystem Assessment

ARROW'S COLOR
Potential for mediation by socioeconomic factors

- Low
- Medium
- High

ARROW'S WIDTH
Intensity of linkages between ecosystem services and human well-being

- Weak
- Medium
- Strong



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New Mexico climate change challenges



ABQJOURNAL[®]
ALBUQUERQUE JOURNAL - ONLINE EDITION

Climate Change Could Cause Permanent Drought

By John Fleck / Journal Staff Writer 4/05/2008

Lincoln National Forest Managers Plan for Early Fire Season

Associated Press / ABQ Journal 3/09/2009

US FOREST SERVICE

Southwestern Region

Drought Increases Bark Beetle Infestation Throughout
New Mexico

US Forest Service/ Southwest Region 2/21/2008



New Mexico EPSCoR

New Mexico climate change challenges: relevant recent research and events

An Overview of Potential Economic Costs to New Mexico of a Business-As-Usual Approach to Climate Change.

New Report, February, 2009, Climate Leadership Initiative, U of Oregon

- *Could cost NM \$3.2 billion annually, \$3430 per household, as of 2020*
- *Dr. Janie Chermak, UNM served as NM Economist*

Sustainable Water Deliveries from the Colorado River in a Changing Climate

Barnett and Pierce, Proc. Nat. Acad. Sci., Early Edition, April, 2009

- *Reduced runoff by 10% could cause water delivery schedule to be missed 58% of the time by 2050*
- *Need for study in NM, no good model predictions of reduced runoff amounts*

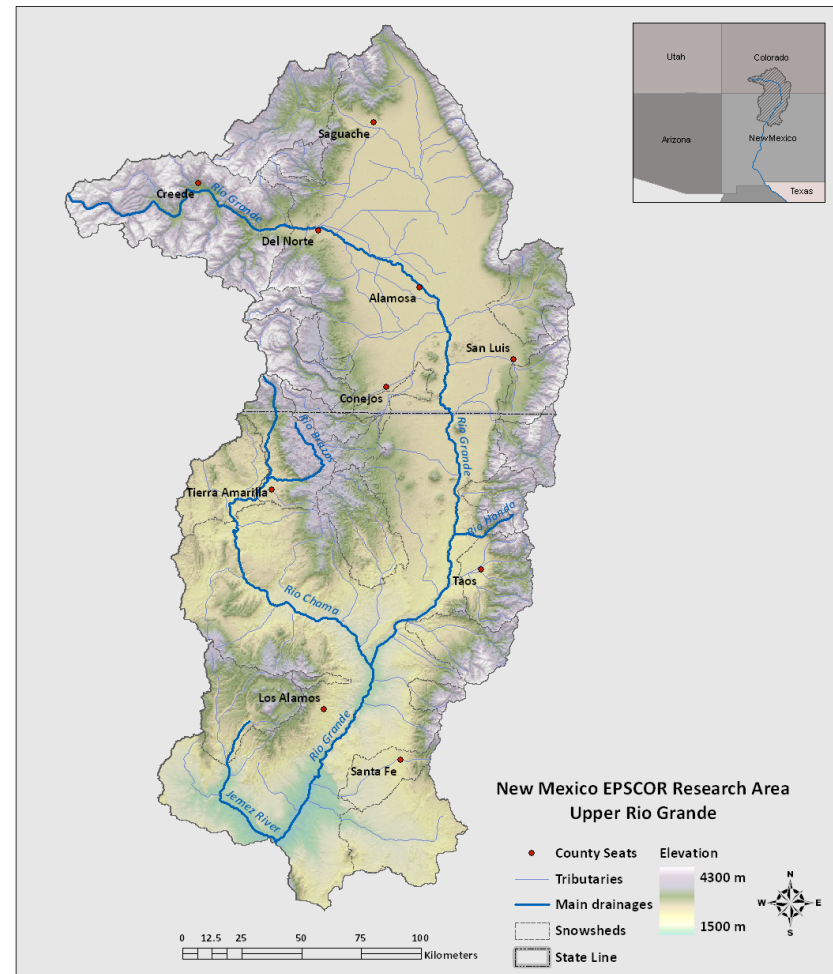
[Available in pdf from www.nmepscor.org]



New Mexico EPSCoR

EPSCoR RII-3: Climate Impacts on New Mexico's Mountain Sources of Water

Mission: “Provide the critical gap infrastructure, computational support, and education and outreach opportunities to foster excellence in climate change research and education.”



EPSCoR RII-3: Climate Impacts on New Mexico's Mountain Sources of Water

I. Research Infrastructure

- climate and hydrology observational networks
- in-situ hydrometeorology and in-stream sensors
- infrastructure development seed grants
- multi-disciplinary model development
- innovation working groups

II. Cyberinfrastructure

- data acquisition, processing, storage
- high performance computing
- interoperability
- collaboration technologies
- NM climate change web portal

III. Human Infrastructure: Education

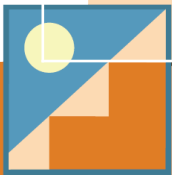
- teacher professional development institute
- undergraduate research opportunities program
- climate change research training group
- junior faculty leadership training
- NSF Days

IV. Human Infrastructure: Outreach

- climate change exhibit
- climate change seminar series
- climate change science cafes
- Town Hall meeting
- web content

V. Diversifying the Human Infrastructure

- place based, locally relevant science education
- strategic student recruitment (BS, MS, PhD)
- diversity approach embedded throughout
- programmatic collaboration and networking



I. Research Infrastructure

1. Climate and hydrology observational networks

- Update: Additions and upgrades to SNOTEL, SCAN, & RAWS stations underway
- NMSU, State Climatologist position



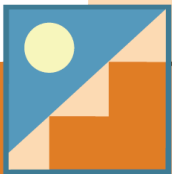
I. Research Infrastructure

1. Climate and hydrology observational networks: NMSU

- Update: most/all instrumentation and materials purchased, fabrication has begun
- Field site selection, permissions almost completed
 - Summer 2009 install:
 - 3 met stations in MRGCD south valley
 - 4 USDA/NRCS Soil Climate Analysis Network (SCAN) sites
 - 3 USDA/NRCS SNOTEL sites + 6 enhanced SNOTEL sites

1.a Socioeconomics and Acequia research: NMSU, UNM

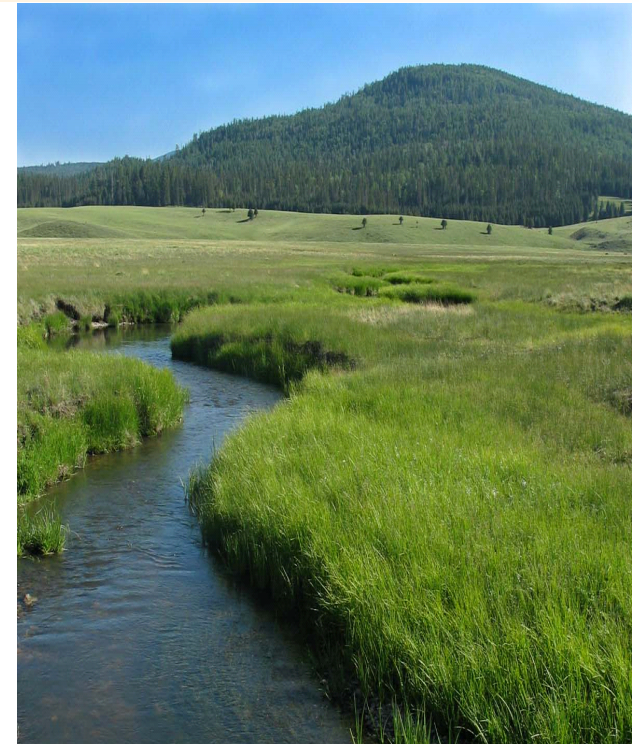
- Update: most instrumentation purchased for Rio Hondo site
- Summer 'focus groups' on Rio Hondo with Taos Valley Acequia Association collaborator



I. Research Infrastructure

2. In-situ hydrometeorology, in-stream sensors, & lab instruments

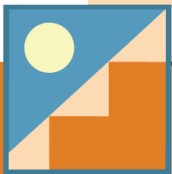
- Update: Field season preparations well underway.
 - Valles Caldera meeting was first week of May for site inspection and Year One research objectives: [Parmenter (VCNP), Crossey (UNM), Dahm (UNM), Martinez (NMHU), Pullin (NMT), Wilson (NMT)]
- Update: NMHU major equipment purchases completed
 - 1. Ion Chromatograph System
 - 2. Total Organic Carbon Analyzer
 - 3. Graphite Furnace Atomic Absorption Spectrometer
- On site training for Edward Martinez and up to 5 students began in May
- Update: NM EPSCoR scientists to attend CUAHSI optical sensor workshop in Vermont



I. Research Infrastructure

3. Infrastructure development seed grants

- Increase impact of NM EPSCoR research on critical student populations at non-PhD granting institutions
 - Update: RFP to be developed in fall 2009



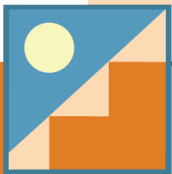
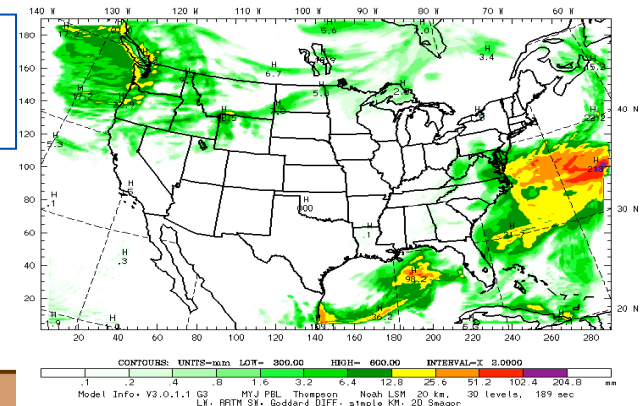
I. Research Infrastructure

4. Multi-scale multi-disciplinary model development

- Update: Climate modeling new lead Investigator, Joseph Galewsky, E&PS UNM
 - Downscaling from global to regional, Precipitation processes in mountainous terrain
 - Encanto test runs last fall with his weather simulation
- Update: High Performance Computing Post Doc position this fall

20km ARW WRF, GFS-init -- NCAR/MMM Init: 00 UTC Tue 17 Mar 09
Fcst: 18 h Valid: 18 UTC Tue 17 Mar 09 (11 MST Tue 17 Mar 09)
Total precip. since h 0
Total precip. since h 0

NCAR WRF model
Used for downscaling
Grad student training



New Mexico EPSCoR

I. Research Infrastructure

5. Innovation working groups

- week-long working groups
 - 8-12 individuals
 - 3-5 full days
 - 2+ NM academic institutions
- outcome: synthesis papers and cross-cutting program proposals



- Update: IWG Call for Proposals issued mid-May to all EPSCoR scientists, due June 1 for Management Team Review
 - [Full RFP is available in pdf from www.nmepscor.org]



II. Cyberinfrastructure

1. Data acquisition, processing and storage
2. High Performance Computing
3. Interoperability
4. Collaboration Technologies
5. NM Climate Change Web Portal

- Update: Post-doc HPC programmer
- Tri-state meeting CI group began work on data exchange and interoperability standards
 - Connectivity to instrumentation
 - Data exchange and visualization
 - Interfaces for machine-machine
 - Data sharing policies



■ Collaboration technologies tested (SVN)



New Mexico EPSCoR

III. Human Infrastructure: Education

1. Teacher Professional Development Institute

- Annually, 9th grade teachers in an intensive field experience - paired with development of classroom curriculum in climate change



- Update: The Northern Network
- 2009 Summer Institute at Valles Caldera
- 5-days, June 8-12
 - morning field courses
 - afternoon – data and curriculum development for next school year
- 14 teachers recruited from northern NM schools
- 4 math-science pairs (8 teachers)



III. Human Infrastructure: Education

New EPSCoR Partnership with The Northern Network

- “The Northern New Mexico Network is a non-profit consortium of 28 school districts in northern NM whose goal is to exert collective action *to improve the quality of life in rural northern New Mexico by being an advocate and catalyst for the improvement of education.*”
- Long term relationship with the northern school districts
- Teacher Professional Development emphasis
- ‘Circuit Riders’ in place for on-site STEM teacher support throughout school year
- Some financial support from NM PED Math and Science Bureau
- Apply for NSF MSP (Math Science Partnership) in August 09



III. Human Infrastructure: Education

2. Undergraduate Research Opportunities Program

- Aimed at the non-PhD granting schools undergrad students
- 9 weeks summer research with EPSCoR scientists
- Program Manager, Mike Pullin, NMT



- 2009 UROP Update:
 - Student recruitment, selection completed
 - 10 students from 4 institutions:
 - San Juan, NMHU, ENMU, N NM College
- Research experiences at 4 institutions:
 - NMSU, Hydrometeorology
 - NMSU, Acequia hydrology
 - UNM-EDAC, Env. Data management
 - NMT, Aquatic chemistry
 - NMHU, Grazers and Water Quality



III. Human Infrastructure: Education

3. Climate Change Graduate Research Training

- LANL Institute Advanced Studies (IAS)



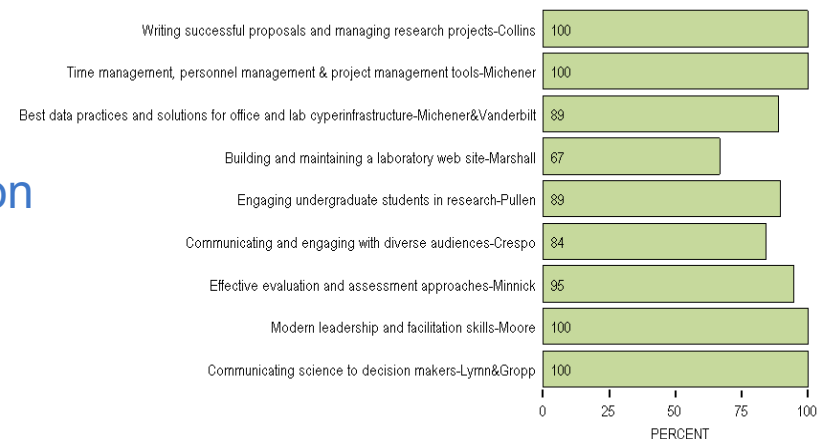
- Update: “Simulating the Spatial-Temporal Patterns of Anthropogenic Climate Change”
- A workshop in the EPSCoR Bridging Disciplines, Bridging Scale Series, July 2009, Santa Fe
- Topic: climate model downscaling methods
- Output: journal paper on method comparison
- Audience: 15 – 20 faculty and graduate students in earth and climate science



III. Human Infrastructure: Education

4. Junior Faculty Leadership Training

- **UPDATE: January 6-8, 2009**
 - Held in residence at Sevilleta
 - 19 faculty from 5 NM institutions
 - NNMC, NMT, ENMU, NMSU, UNM
- Presentations to enhance leadership skills and to increase competitiveness for national funding
 - Nadine Lynn (ESA) and Robert Gropp (AIBS) on interacting with policy makers
 - Carl Moore on leadership and facilitation
 - Very high rates of program satisfaction among participants



RATINGS OF '4=VERY GOOD' AND '5=EXCELLENT'



New Mexico EPSCoR

IV. Human Infrastructure: Outreach

Climate change exhibit at the New Mexico Museum of Natural History and Science

- >200,000 annual visitors
- “Science on a Sphere” interactive

Climate Change Seminar Series

Climate Change Science Cafés

Town Hall Meeting in 2011

- UPDATE:
- Climate Change Education Coordinator hired
- Guest exhibit curator contracted, Dr. David Gutzler
- Science on Sphere product selected and in production, exhibit design underway



New Mexico EPSCoR

V. Diversifying the Human Infrastructure

1. Place based, locally relevant science education

- Teacher professional development and Science Cafés

2. Strategic student recruitment

UROP, Mike Pullin did an excellent job

3. Diversity embedded throughout

- Town Hall, Faculty Leadership training, meetings, etc.

4. Collaboration and networking

- AGEF, ADVANCE, AIHEC, AISES, etc

5. Update on Personnel

- Hiring Outreach, Education and Diversity Coordinator
- Marnie Carroll, Dine College, Dir. Of Environmental Institute, will lead a permanent NM EPSCoR working group on diversity



Part Two: EPSCoR State Program News & Issues

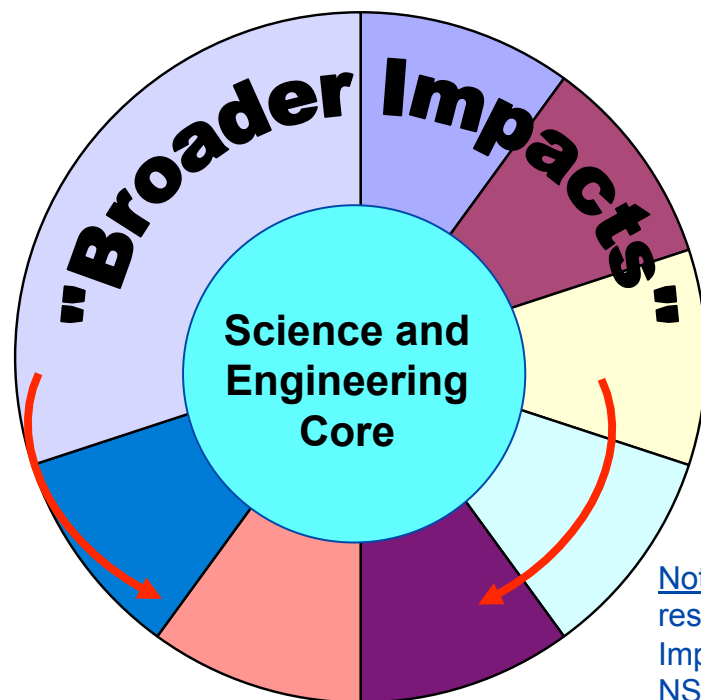
- Communications
 - Website is online www.nmepscor.org
 - New logo, posters, brochures, post cards
- Strategic Plan completed, submitted, approved
 - Available on our website (Exec summary in packet)
- Office move to Science and Technology Park
- Western Tri-State Consortium: NM, Idaho, Nevada
 - Collaborative trans-jurisdictional alliance on common themes of climate change and water resources (map in packet)
 - First Annual Meeting in Boise, Idaho in March
 - Over 100 attendees from education, outreach, science components
 - Attendees, agenda, presentations, available at our website



The “New” NSF EPSCoR

RII – Research Infrastructure Improvement Grant Program

- EPSCoR is now in the NSF Director’s Office (Office of Integrated Activities)
- New NSF Director, Dr. Henry Blount
- RII is for five years, up to \$15 M
- NSF Strategic Initiatives are now included specifically in RII RFP and tied to the American Competitiveness Initiative and America COMPETES Act
- RII award approval by Director’s Office and National Science Board



“Broader Impact” Areas

- | | |
|--------------------------|-----------------------------|
| <input type="checkbox"/> | Diversity |
| <input type="checkbox"/> | Cyberinfrastructure |
| <input type="checkbox"/> | Outreach/Communications |
| <input type="checkbox"/> | Evaluation and Assessment |
| <input type="checkbox"/> | Management Succession |
| <input type="checkbox"/> | Education |
| <input type="checkbox"/> | Sustainability/Partnerships |
| <input type="checkbox"/> | Administration/Pgm Mgt |

Note: % distribution of funding and resources for each of the Broader Impact areas will be reviewed by NSF responsible program officials for adequacy as part of an integrated proposal from the Jurisdiction

Broader Impact Criterion

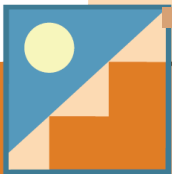
- How well does the activity advance discovery and understanding while promoting teaching, training, and learning?
- How well does the proposed activity broaden the participation of underrepresented groups (e.g. gender, ethnicity, disability, geographic, etc.)?
- To what extent will it enhance the infrastructure for research and education, such as facilities, instrumentation, networks and partnerships?
- Will the results be disseminated broadly to enhance scientific and technological understanding?
- What may be the benefits of the proposed activity to society?



New Mexico EPSCoR

Part Two: EPSCoR State Program News & Issues

- Funding: NSF EPSCoR Track 2, Cyberinfrastructure
 - Tri-State Consortium CI plan and joint proposal
 - \$2 million per year for 3 years
 - Submitted and Reviewed, June 1 announce awards
- Funding: NSF EPSCoR new C2, Cyberinfrastructure
 - \$1 million per year for 2 years; focus on MSIs
 - Stimulus set aside money, Congressionally legislated \$50 million to NSF EPSCoR for the C2 award
 - Inter- and Intra- campus connectivity
 - RFP on June 15, 2009 with submission due Sept. 15, 2009
- Funding: DOE EPSCoR State-Laboratory Partnership
 - Approximately 6 New Mexico proposals, Dine-LLNL

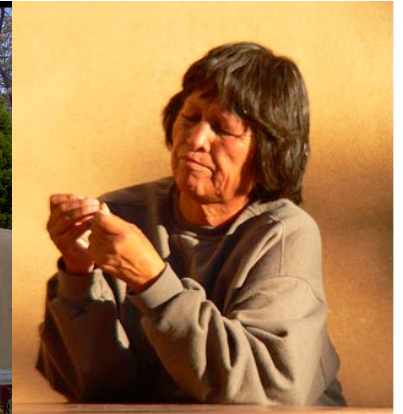


Part Two: EPSCoR State Program News & Issues

- NSF EPSCoR PD/PA meeting in DC, May 18 - 22
- NM EPSCoR External Advisory Committee, late August
- NSF Reverse Site Visit in DC, September 14
 - Up to 4 presenters (Jekowski, Michener, Mitchell, Wilson)
- EPSCoR States National Meeting in Alabama, October 20
 - Held at Perdido Beach
 - New Mexico attendees from State Committee



Thank you !



New Mexico EPSCoR