



**Moderator:**

Brad Udall, Western Water Assessment

**Panelists:**

Dave Brandon – Former HIC at Colorado Basin River Forecast Center

Alan Hamlet – Climate Impacts Group

Holly Hartmann – CLIMAS

Brad Udall

Key Question:

How Do We Better Connect:

- User Needs Assessments
- Research
- Experimental Products
- Operations

Comments from Park City NWS Hydrology Meeting

- Users: researchers approach us with all these great ideas; we’re interested, and we have no way to evaluate...
- Researchers: we have all these great ideas with fabulous skill and yet no one wants to implement...
- Operations: we’re swamped. Running two systems in parallel is beyond our resources...

One Park City User

- “We’re open sponges for information. That can be good and bad. We want to know what is out there. We deal with lots of universities. We’re not meteorologists. If someone shows us the AMO, we say, “wow, how do we use it.” You could probably sell us anything. We’re on the downstream end, we appreciate research, but we don’t know how to use it. We probably don’t fully understand what you’re doing. Please help us understand the pitfalls.

Dave Brandon

Holly Hartmann

**Evaluating Societally Relevant Research and Products**

Concerns for Climate Science Enterprise

- Changed decisions & decision processes
- Enabling system-wide change (transferability, scalability)
- Public support for climate research

Project Objectives Affect...

- Metrics
- Structure of stakeholder interactions
- Research products
- Perceptions of climate science enterprise
- Research funding

**Objective: Economic Efficiency**

Metrics: Cost/benefits. Return on Investment.

Stakeholder Interaction Structure: Consultant-client relationship with high-value clients (e.g., hydropower).

Research Products: Customized Decision Support Systems. System optimization rules. Transfer to agencies.

Perceptions: Science serving special interests. Increasing competitive imbalances.

Research Funding: By clients through private sector.

**Objective: Agency Impact**

Metrics: Policy and regulatory impact.

Stakeholder Interaction Structure: Work with agencies. Important role for policy analysts/scientists.

Research Products: Traditional products. Refereed/peer review of methodology and results. Hold up in court.

Perceptions: Science serving special interests, agendas. Increasing regulatory burden.

Research Funding: By managed sector, perhaps public.

**Objective: Societal Equity**

Metrics: Breadth/diversity of applicability, accessibility, usability. Sectoral ‘market’ penetration.

Stakeholder Interaction Structure: Engagement with diversity of stakeholders: including those *affected* by changing supplies and policies. Important role for social scientists. *Potentially huge demand on researchers’ time.*

Research Products: Diverse. Non-traditional, but not “dumbed down”.

*Note: data << information << knowledge << wisdom*

Perceptions: Science providing useable information and practical tools. Increasing capacity to adapt to climate variability.

Research Funding: Public.

**User needs: research, proto-services, operations**

*Relevance*

- Volume, peaks, timing, low flows, “downstream” variables.....
- Single-value, probabilistic, return intervals, time to next event
- Time of availability, formats (data, graphics, etc.)
- Expansion with gridded products

- Bottom Line: Unique suites of needs

Q: How to deal with ‘science enterprise’ needs for transferability, scalability, equity?

*Accessibilty*

- Physical: ease of access, equal access
- Conceptual

Reinforce basic principles

Construct barriers to improper use (e.g., no single-value forecasts)

Ancillary information, supporting tools

Q: Is NOAA really committed to equitable decision support? Requires \$\$ for basic analysis, non-traditional products, webtools.

*Credibility*

- Agendas: real and perceived
- Realistic expectations: existing and anticipated products/services
- Skill assessments: transparent, customized
- Assessment: research, experimental, transitional, operational

Q: What are reasonable expectations for transition from research to operations? Research, experimental, transitional, operational.

*Naturalized Flows*

Alan Hamlet

Discussions