A WEBINAR ON CLIMATE SERVICES TO THE WATER SECTOR, JOINTLY BETWEEN THE AMS COMMITTEE ON CLIMATE SERVICES (CCS), AND THE AMS CERTIFIED CONSULTING METEOROLOGISTS (CCM), September 16, 2009

Climate Information and the Water Sector

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AMS Webinar
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Colorado
University of Colorado at Boulder
Western Water Assessment

"Long term, I'm worried about global warming—short term, about freezing my ass off."

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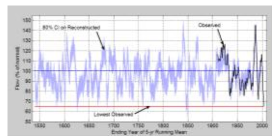
Cognitive Challenges

Within the water resources engineering community, the **stationarity assumption** is a fundamental element of professional training



Time scales of climate change exceed typical planning and infrastructure design horizons and are remote from human experience

Confusion in conceptually melding **the burgeoning climate change impacts literature**

CCSP SAP 5.1, Chapter 5, "Decision Support for Water Resources Management" 2

Integrated Frameworks

Develop an ongoing, iterative process between developers and users

- Identify *Current AND Potential* Users of Water Information
- Know the User: Climate Literacy
- Assess User Needs: What and Why?
- Informational Gaps
- Sources of Uncertainty
- Decision-Making Context: Exacerbating Factors

EXAMPLES

Dealing with Drought in Colorado, Informing the Governor's Climate Action Plan, Governor's Drought Plan, and the Colorado Impacts and Adaptation Report
NOAA NWS River Forecast Centers, Engaging Current and New Users in Developing Online Climate Tools for CBRFC; Developing a framework for engaging water resource users
Department of Interior Climate Training, Scoping a Process for Engaging Federal Resource Managers and Technical Users of Climate Information with Climate Scientists

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Climate Information Needs

- Manage for climate **variability** and climate **change**
- Need **seasonal** and **short-term** climate forecasts: 2-mos, 12-mos, 24-mos
- **Downscaled** data
- Information tailored to **regions**
- Streamflow volume forecasts conditioned on climate forecasts
- Water is managed for **extremes**: Worst-case, Best-case, Median and Mean; percentiles and terciles don't mean as much
- **Demand** projections

CAUTION: User needs change as climate literacy evolves; and different users need different things

Lowrey et al., In Press, JAWRA

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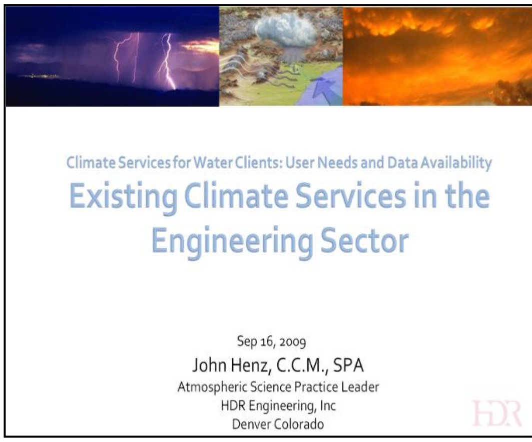
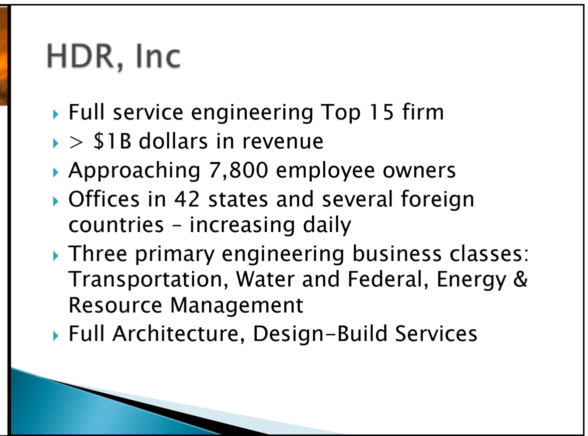
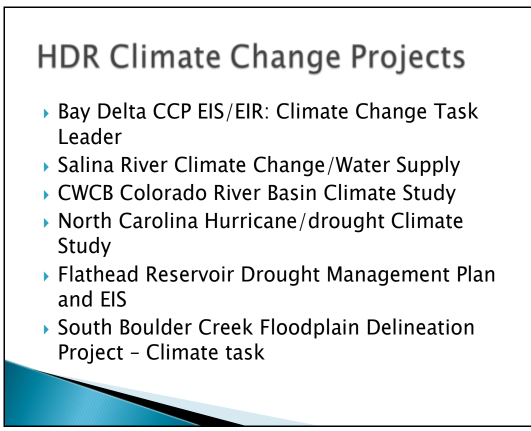
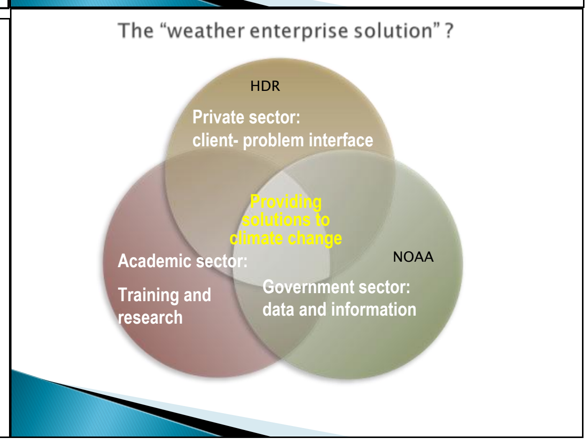
Kristen Averyt's presentation, entitled "Climate Information and the Water Sector" addressed 1) cognitive challenges, 2) integrated frameworks, and 3) climate information needs. She noted that climate variability and change have disrupted the notion of stationarity of the precipitation record, which is one of the staple assumptions of the water community in making predictions. She noted that it is important to bring together tool developers and users in an iterative process. This takes time, because trust is also essential to the relationship, and that takes time to build.

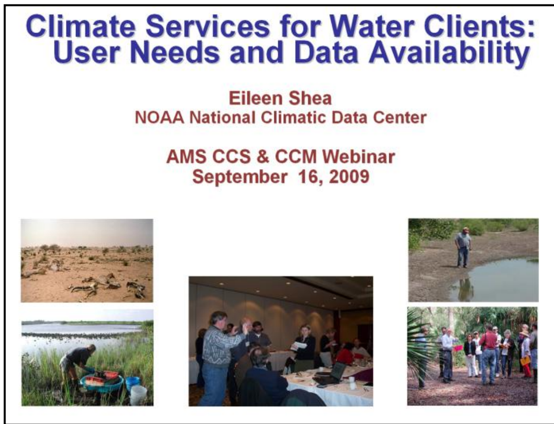


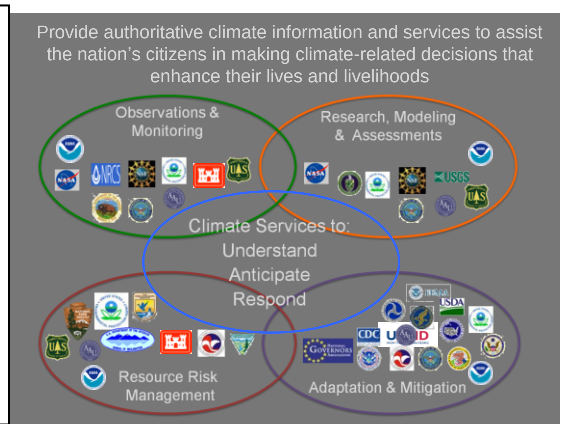


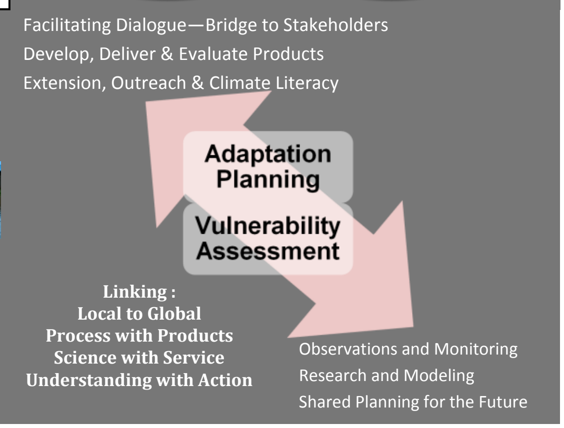




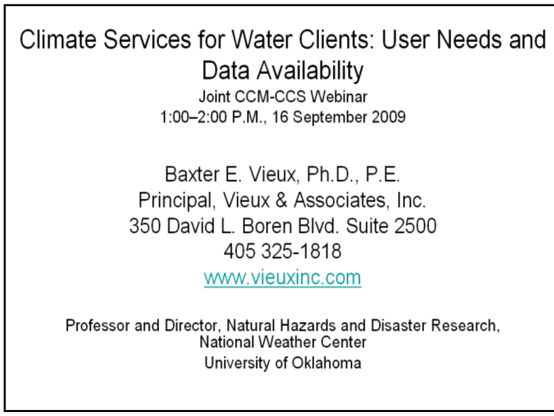
John Henz's presentation, entitled "Existing Climate Services in the Engineering Sector", provided insight into the climate services provided by the engineering company employing him. These services ranged from the development of drought management plans for reservoirs, predictions of climate impact on river water supplies, to assessing the climate change impacts on EIS/EIR studies. He offered ways the weather enterprise members can work together rather than compete in climate services. Eileen Shea of NOAA agreed and provided examples.

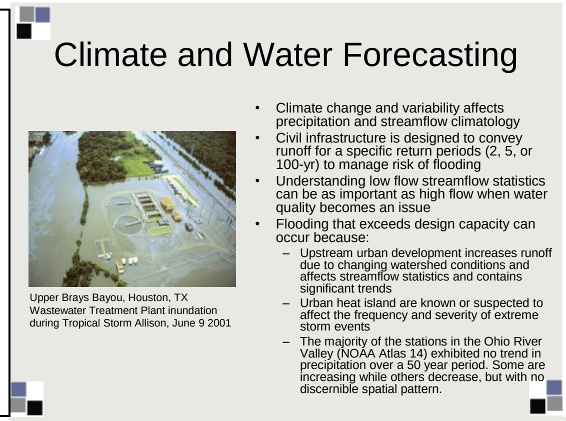


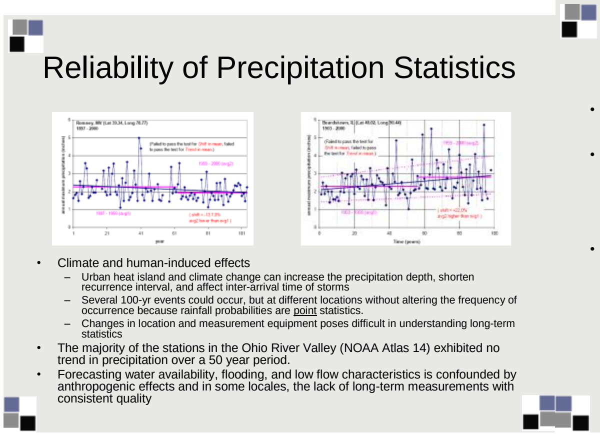


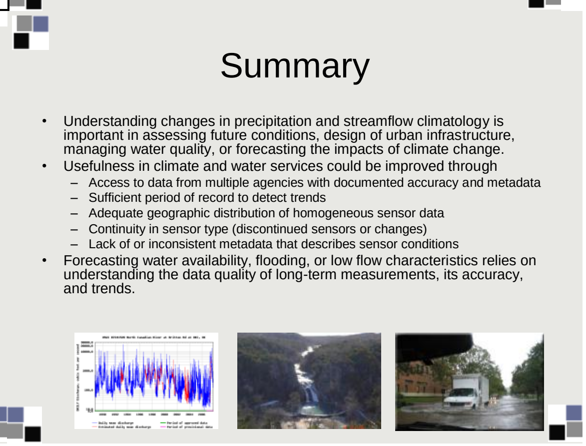


<u>Eileen Shea</u> discussed "Climate Services for Water Clients: User Needs and Data Availability". Eileen described how the various government members of the climate community (PRODUCERS of climate information in the form of observations, monitoring, research, modeling, and assessments) might, through the National Climate Service, address the needs to the USER community, including resource risk management and adaption and mitigation. She narrowed her focus even more to discuss services to the water community, noting that CCMs and other service partners address key user needs, and are in a position to develop trusting relationships with users.









Baxter Vieux's presentation discussed some of the challenges of producing forecasts for the water community. This is because water availability is profoundly affected by many different factors at the same time, e.g., human activities, trends, lack of observations, lack of metadata, etc…

AMS COMMITTEE ON CLIMATE SERVICES (CCS)

The goal of the Committee on Climate Services (CCS) is to promote the climate services enterprise through a partnership among government, private sector and academic sectors with a community focus on improving climate services to the nation. Created as a committee under the Board on Enterprise Communication (BEC), the scope of the CCS is envisioned as an ongoing process to gather the recommendations of the private and academic sectors for the direction of government climate services activities, to review those recommendations, and to present them to the government.

CURRENT MEMBERS: R. Boyles, R. Cohen, J. Dutton, C. Hakkarinen, H. Hartmann, K. Hubbard, P. Llanso, E. O'Lenic (Chair), K. Redmond , E. Shea. C. Simpson