Early lessons learned from the Florida Water Climate Alliance on the integration of climate information into water resource decision-making



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Overview

- 1) What is the FWCA and why was it formed?
- 2) Who participates and how?
- 3) Lessons learned



Community Building $\leftarrow \rightarrow$ Actionable Science

What is the FWCA?



Floridawca.org

A climate learning network that convenes scientists and practitioners in iterative knowledge co-production

Why the FWCA formed?



50% 48% 47% 27%25% 26%7% 10%8% 18%5%

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Source: The Palm Beach Post, June 15th, 2011

Violebnem

Use Aware of but don't use



44%

5%

FWCA Goal

- To increase the relevance and usability of climate change and variability data and tools for water suppliers and resource managers
 - Understand the context/situation
 - Assess tools
 - Evaluate practical applicability of information
 - Use quantitative climate information for planning and decision making



A climate learning network



Based on: Wenger, Etienne, Communities of Practice presentation at UF, May 2009

Workshop Participants





Sources: Framework building on experiential learning (Kolb), modified Soft Systems model(Wilson and Morten), and Collaborative Learning approach (Daniels)

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Community Building \rightarrow Actionable Science



Mechanisms for input and feedback



DURING WORKSHOPS

- Participatory activitie
- Introductions
- Looking back & ahead
- **Presentations**
- Facilitated discussion
- Evaluation & reports

BEYOND WORKSHOPS

- Workshop Planning Teams
- Task forces
- Research
- **Executive Advisory** Board
- **Project Team**
- **Proposal teams**
- Website and email
- **Facilitation Team**
- Studying the process and outcomes









9. Following today's discussions, what do you perceive as key opportunities for using climate information in operations and planning processes?

- Linking low frequency climate variability with planning processes.
- Continue to integrate what is known in to daily-short term planning
- If needed to optimize with additional objective functions
 - Assist with planning process
- ID decisions being made to see where info fits in. Perhaps in master plans?
- workshops and conversations like today
- - to make more informed decisions for water supply use and infrastructure needs
- Useful for long-term water supply planning
- Incorporating uncertainty of climate projection
- I don't see it yet
- Prediction to minimize damage

Learning about Community Building Outcomes → Participants → Engagement →

- Shared Interest
- Who is at the table?
- Building Identity
- Managing Diversity
- Rigorous Science
- User Perspective and Context
- Communication
- Sustainability- time, commitment, funding, providing added value





Learning about actionable science/ co-production

User experience	Barriers to using climate science information in decisions	Bridges to using climate science information in decisions
 Diverse needs for information across utilities Complex decision contexts Need to improve understanding of decision context among researchers exists 	 Existing planning and operations processes Political considerations Uncertainty in climate information Availability of information Credibility of information 	 Communications between practitioners and researchers Sharing case studies Improved understanding of potential of climate information Identify decisions being
<i>"We have a long way to go to connect."</i>	<i>"Still not clear which decisions would be based on climate information or who would use the information or how they</i>	made to see where information fits <i>"Workshops and conversations</i>
"Δll utilities are different	would use the data."	like today's."
Multiple sources are critical to flexibility and potential use of	"Too complicated with minor benefits to our operations	"I don't see it yet."
climate information."	management group, which is focused on flood	"NA"
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Moving forwardnext steps identified

- Move toward using research results/ applications research
- See more case studies like Peace River study
- Focus on SLR
- Focus on S. Florida progress (where they are investing significant resources)
- Invite speakers and elected officials to workshops
- Increase participation (more utilities)
- Disseminate results and communicate with public
- \$\$\$

Thank you

Workshop 1

UTILITIES NEED

Lakyd

- Reliable predictive tools (emphasis on accuracy) 3-12 months= operations 20 years = permitting 20-50 years = capital planning
- Policies/regulations that are suited / unique to each region

Need

WMD NEED

- To Understand Utility needs
- Regulations that recognize climate

ACADEMICS NEED

Direction/focus Help from stakeholders in understanding problem, time and space scales Access to utility/local data and information

ALL NEED - Funding \$\$\$

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Collaborative Development of Public Water Supply Utility Relevant Climate Information for Improved Operations and Workshops 4,5 Planning

- Develop a collaborative "Working Group" 1)
- 2) Identify the appropriate spatio-temporal scales, climatic indices, and events that drive utilities' decisions

3) Evaluate the practical applicability of current climate data, models, tools at these scales

4) Evaluate the usefulness of these data for minimizing current and future risks associated with climate in decision making processes. J. Bolson - Early lessons learned from the 2/12/14 - UF Water Institute k, is, funded under a grant from the Sectoral Applications Research Program (SARP) of the National Oceanic and Atmospheric Administration NOAA) Climate Program Office.

Workshops 4, 5

NOAA-Project Components

Technical/Science

□Knowledge management system

Building the working group

2/12/14 - UF Water Institute Symposium Utility relevant climate toolsSEASONAL SCALE PREDICTIONS

- LONG TERM CLIMATE PROJECTIONS
- SEA LEVEL RISE



Technical/Science Roadmaps

Utility relevant climate tools

- SEASONAL SCALE PREDICTIONS Diagnose seasonal predictability and forecast skill in Florida
- LONG TERM CLIMATE PROJECTIONS Evaluate the ability of downscaled reanalysis data on climate and hydrologic patterns in Florida

SEA LEVEL RISE

Improve access to existing information



Workshops 4, 5

Workshop 7,8

Translated the range of possible climates to a range of possible stream flows

Hydrologic predictions highly variable across GCMs



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Workshop 7,8

Cannot plan for one specific outcome, but need to plan to be resilient within a range of potential outcomes.



Emerging Issues

- Forecast Skill : Can we trust the climate information? What's the risk of being wrong?
- Communication: Cautious about discussing climate science with policy & decision makers
 - Beyond climate science → Decision Science Incorporate institutional planning into the process & understand entry points
- Unique contexts \rightarrow Tailoring

Workshops 6

Visualizing the System of Actors











Workshop 6, 7

Workshop 7,8

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Presenting Research Results



Symposium

Florida WCA