

# Development of Public Water Supply Utility Relevant Climate Information for Improved Operations and Planning: Implementing a collaborative working group process in Florida

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### CONTEXT AND PROBLEM

“..... Utilities need information they can act on.” Workshop participant

**Is the state-of-the-art-climate science and technology useful to the Public Water Supply Utilities in Florida?**

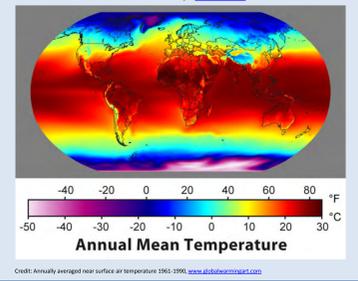
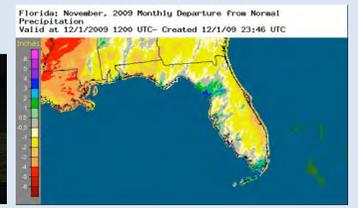
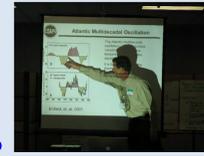
The UF Water Institute, the Florida Climate Institute and the UF IFAS Center for Public Issues Education are partnering to form a “Public Water Utilities Climate Impacts Working Group” focused on increasing the relevance and usability of climate change and variability data and tools to the specific needs of public water supply utilities in Florida.

As a first step, stakeholders from six major public water supply utilities, three Water Management Districts and academic partners came together in a workshop on September 22, 2010 to explore:

**Will “working together” help improve climate information, data and tools for public water suppliers ?**

The impacts of climate variability and climate change on water supply reliability, and adapting to changing hydrologic conditions is becoming a particularly pressing challenge for major public water suppliers in Florida. The Florida utilities face:

- a push toward the use of alternative water supplies
- environmental, social, fiscal and regulatory challenges.
- implementing both short and long range solutions complicated by risks and uncertainties.



“We have active research communities, but in isolation of each other...Even though the issues are specific, we need to get our respective research communities talking with each other” Workshop participant



### PARTNERS

**Public water supply utilities:**

- Gainesville Regional Utilities
- Miami-Dade Water and Sewer Department
- Orlando Utilities Commission
- Palm Beach County Water Utilities
- Peace River Manasota Regional Water Supply Authority
- Tampa Bay Water

**Water Management Districts:**

- Saint Johns River WMD
- South Florida WMD
- Southwest Florida WMD

**Academic Community:**

- UF Water Institute
- Florida Climate Institute
- Center for Public Issues Education

### OBJECTIVES AND PROCESS

□ Develop a “Working Group” of public water suppliers, water resource managers, climate, hydrologic and social scientists focused on Florida’s public water supply utilities as users of climate science. Ensure user relevance of data, tools and information on climate variability and change through collaborative learning. The working group process will employ an iterative and participatory framework (Figure 1) based on theoretical foundations of experiential learning<sup>a</sup>, soft systems<sup>b</sup>, organizational learning<sup>d</sup>, and participatory evaluation<sup>c</sup>, that will:

- foster a shared learning and knowledge management platform
- employ a deliberate set of workshops, activities and collaborative planning
- create and integrate new knowledge
- engage all stakeholders in formative evaluation

□ Research and document the “working group process” to inform the process and the best practices for stakeholder engagement in development and use of climate science outputs.



### OUTCOMES

“The ultimate focus needs to be on a product utilities can use and rely on, not simply an academic/scientific exercise” Workshop participant

- 1) **Actively engaged community** of stakeholders sharing expertise, experience, learning.
- 2) **Enhanced regional relevance** and adaptability of climate/sea level rise data and tools to the specific needs of water suppliers in Florida.
- 3) **Jointly defined products** including relevant information, data, tools and models. Examples might include:
  - GCM downscaled forecasts
  - Rainfall predictions
  - Sea Level Rise probabilities
  - Industry relevant retrospective and future climate scenarios
- 4) **Increased use of climate science** by public water supply utilities in Florida

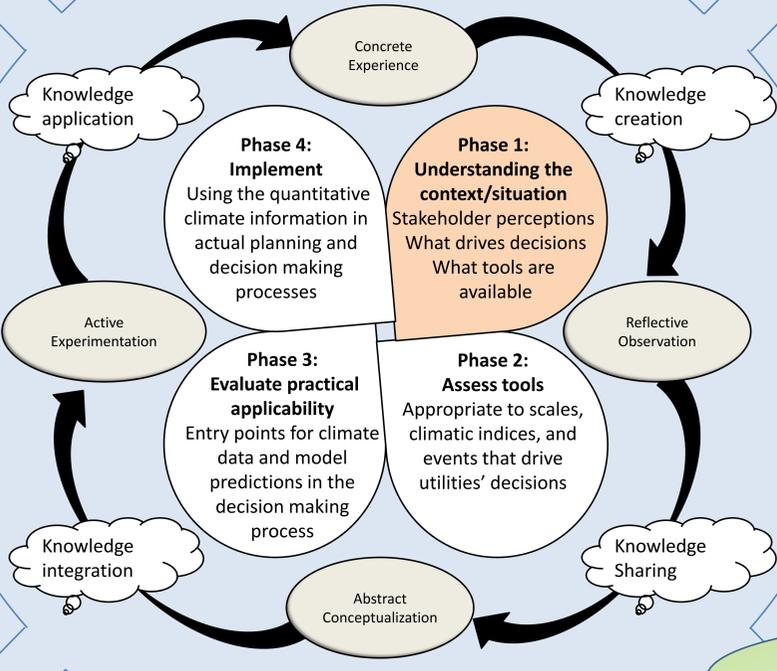


Figure 1: Framework guiding the working group process

“One size does not fit all..... we need different solutions for different parts of the state.” Workshop participant

“I would suggest to get the technical process grounded but somewhere in there you need some policy discussion or you’ll have a nice plan on a shelf....” Workshop participant



PROGRESS	Table 1: Key needs expressed by Public Water Supply Utilities during the initial workshop, September 22, 2010.			PRODUCTS
	Variability in rainfall, temperature, extreme events	Probabilities of sea level rise	Access to science and technology	Information and communication for decision-making and policy
Working to understand <ul style="list-style-type: none"> <li>▪ water supply utility needs</li> <li>▪ climate tools already available and being used</li> <li>▪ current efforts</li> </ul>	<ul style="list-style-type: none"> <li>▪ Historical records</li> <li>▪ Accurate predictions</li> <li>▪ Projections at 3mo, 6 mo, 1 year.</li> <li>▪ Climate related Socioeconomic and demographic projections</li> </ul>	<ul style="list-style-type: none"> <li>▪ Degree and timing of impact of sea level rise on well fields</li> <li>▪ Projections of sea level rise over time with probabilities</li> </ul>	<ul style="list-style-type: none"> <li>▪ Reliable predictive tools, predictions and uncertainty analysis</li> <li>▪ Strengths/limitations of current climate models</li> <li>▪ Realistic science based scenarios at 10, 20, 30 + years</li> </ul>	<ul style="list-style-type: none"> <li>▪ Water Supply Development funding</li> <li>▪ Policies/regulations suited to each region</li> <li>▪ Regulations to fully achieve benefits of conjunctive use</li> <li>▪ Continued dialogue</li> </ul>

### PRELIMINARY FINDINGS AND NEXT STEPS

- 1) Utilities are interested in addressing uncertainties and risks posed by climate variability, change and sea level rise.
- 2) Needs vary in intensity and urgency by utilities’ location, water source, as well as environmental, social, fiscal, political and regulatory contexts.



“I hope we can get some focus on the effects that climate change will have at a local scale.” Workshop participant

“It was valuable to listen to different viewpoints and issues... in how utilities will have to deal with climate change.” Workshop participant

- 4) A working group could help shape the development and implementation of science-based climate information for operational and longer-term planning and management decisions confronting utilities, water resource managers and policy makers. It could also help stakeholders anticipate future climate conditions and improve adaptive capacity. The group should:
  - focus on substance
  - produce tangible and useful outputs
  - identify issues of particular relevance to the utilities
  - encourage participation and collaboration
  - ensure a transparent process

**References:**  
<sup>a</sup> Checkland, P. (1981), *Systems thinking, systems practice*, John Wiley & Sons, Chichester.  
<sup>b</sup> Kolb, D. A. (1984), *Experiential learning: Experience as the source of learning and development*, Prentice Hall, Englewood Cliffs, NJ  
<sup>c</sup> Royse, D., B. A. Thyer, and D. K. Padgett (2010), *Program evaluation: An introduction*, Brooks/Cole Pub Co  
<sup>d</sup> Senge, P. (1990), *The fifth discipline*, Doubleday Currency, New York, NY.

**Acknowledgements:** This poster reflects the collaborative planning efforts of many individuals in the UF Water Institute (Dr. Wendy Graham, Director), the Florida Climate Institute (a joint venture between the University of Florida and Florida State University, Dr. Jim Jones, Director and Dr. Eric Chassignet, Co-Director), the Center for Public Issues Education (Dr. Tracy Irani, Director), and several Florida Public Water Supply Utilities, and Water Management Districts.

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