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

What is the FWCA?

Floridawca.org

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

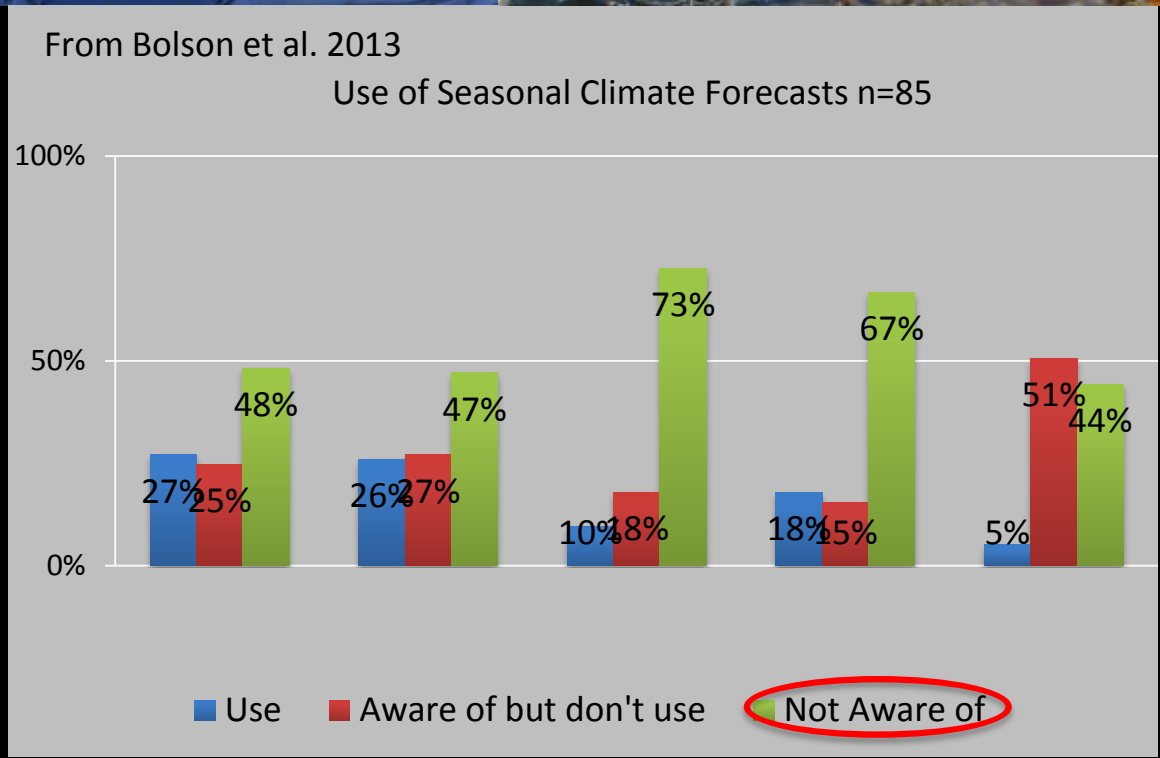
Why the FWCA formed?


Source: Scott Fisher, Sun-Sentinel, May 30, 2007


Source: Google Earth


Source: Arianna Prothero WLRN
10th and Alton in Miami Beach.

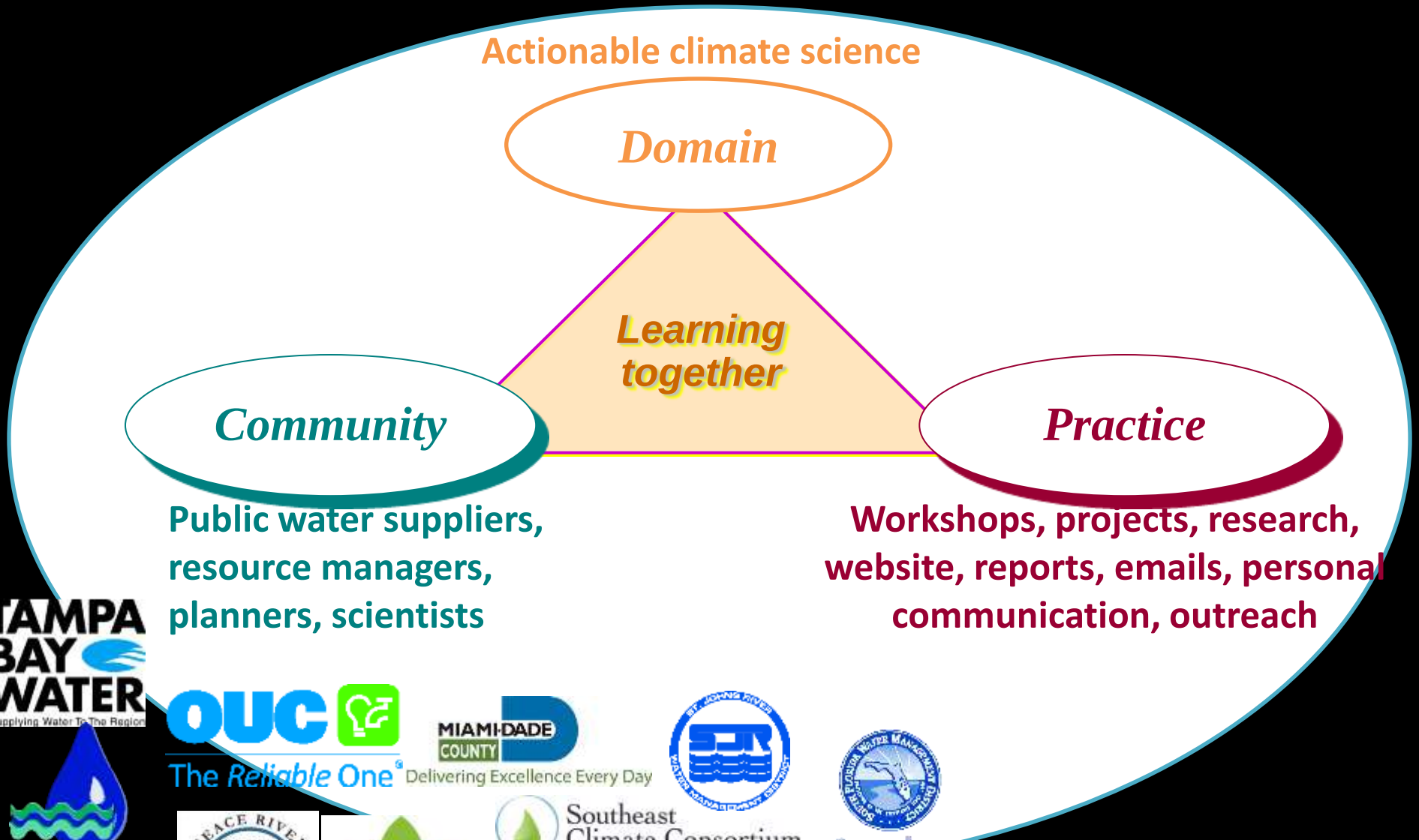
Source: The Palm Beach Post, June 15th, 2011



FWCA Goal

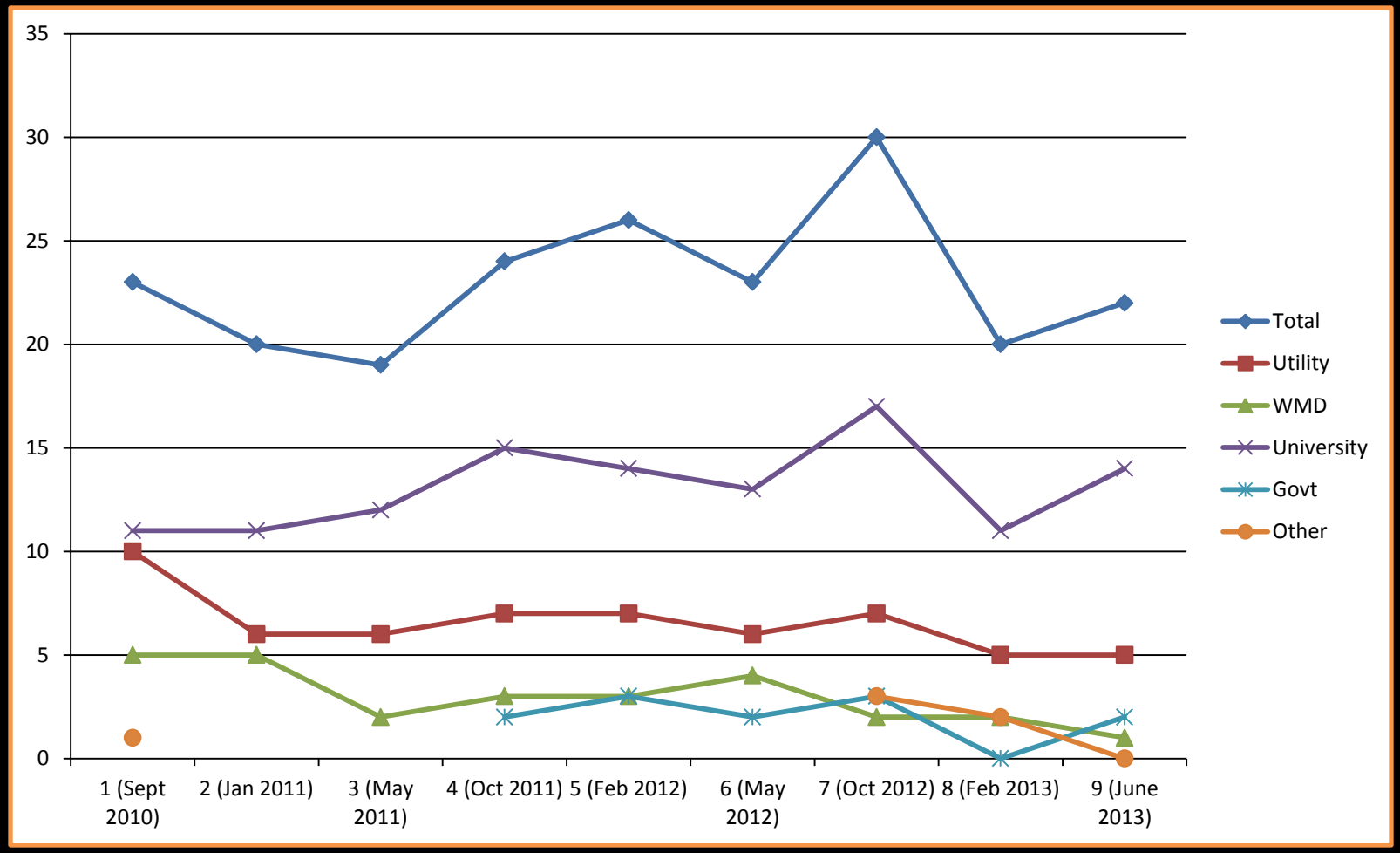
- To increase the relevance and usability of climate change and variability data and tools for water suppliers and resource managers
  - Understand the context/situation
  - Assess tools
  - Evaluate practical applicability of information
  - Use quantitative climate information for planning and decision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

A climate learning network

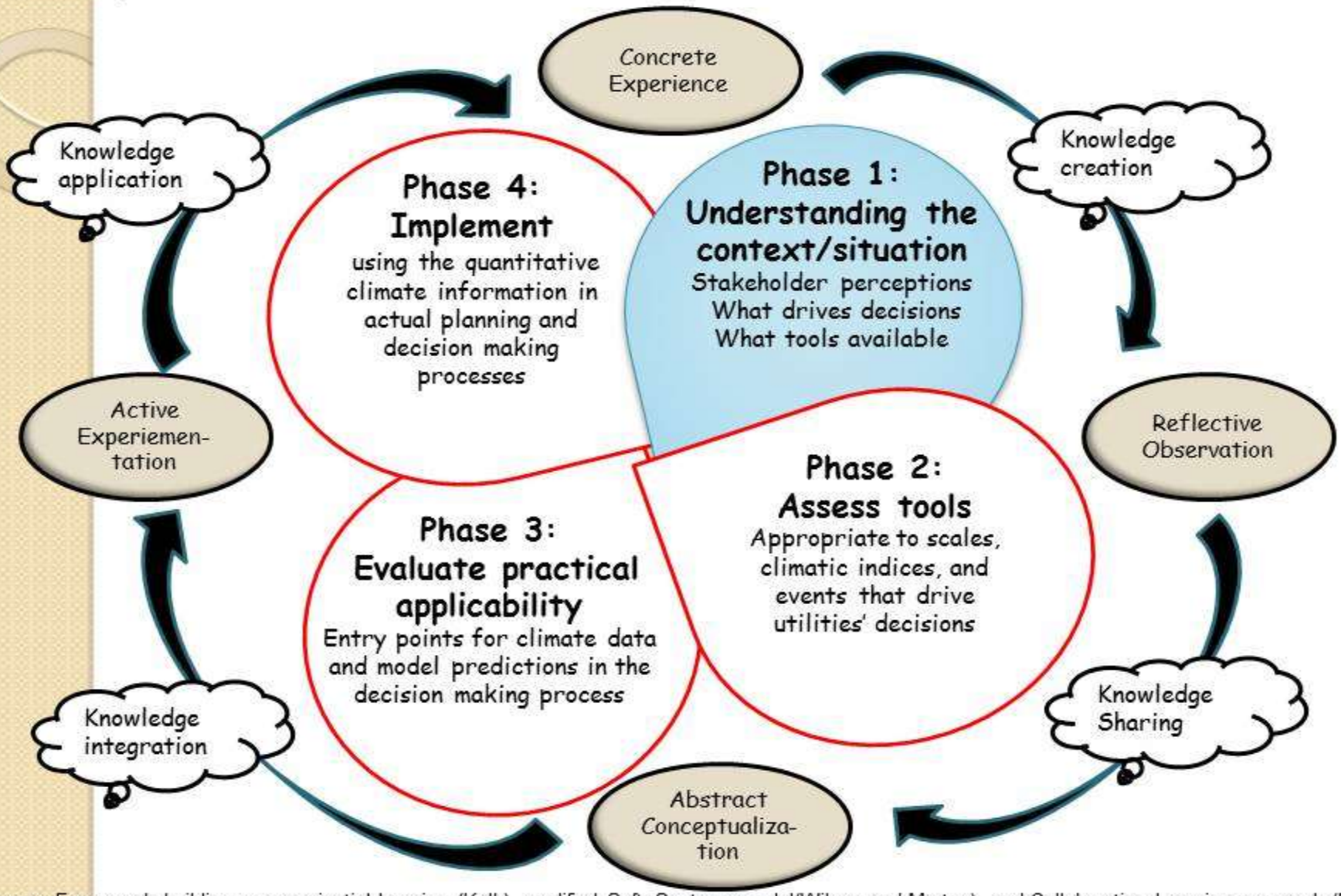


Based on: Wenger, Etienne, Communities of Practice presentation at UF, May 2009

Workshop Participants

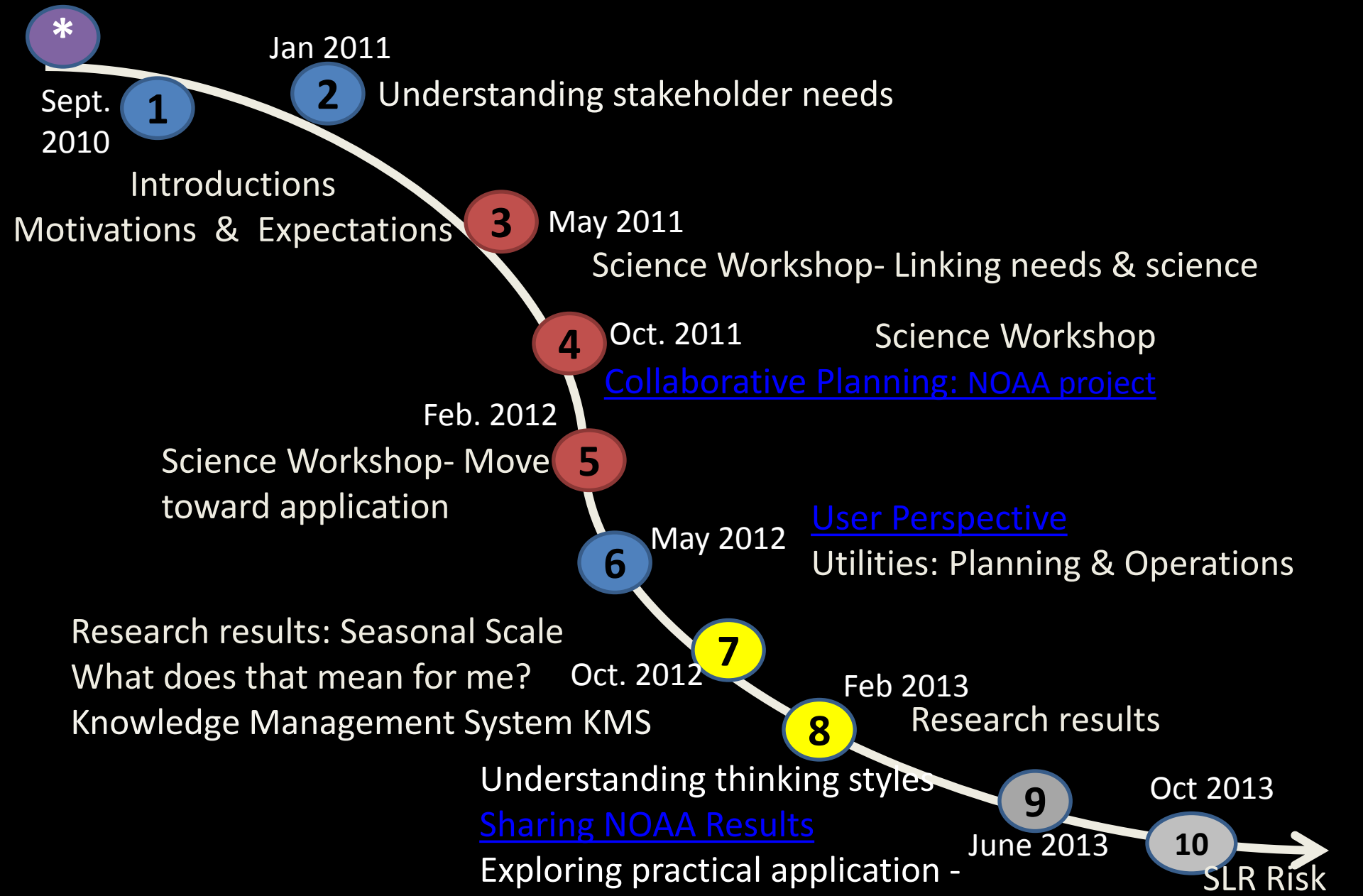


Florida Public Water Utilities Climate Impacts Working Group Conceptual Framework



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

Community Building → Actionable Science



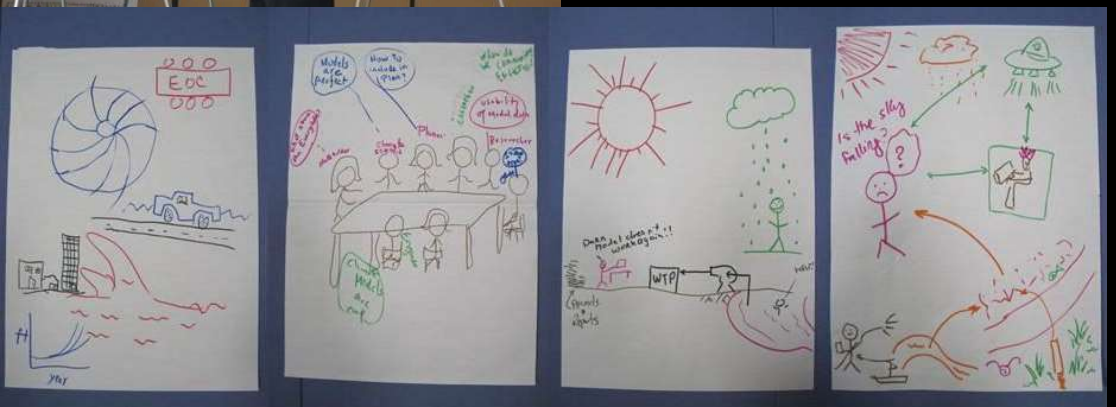
Mechanisms for input and feedback

DURING WORKSHOPS

- ✓ Participatory activitie
- ✓ Introductions
- ✓ Looking back & ahea
- ✓ 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

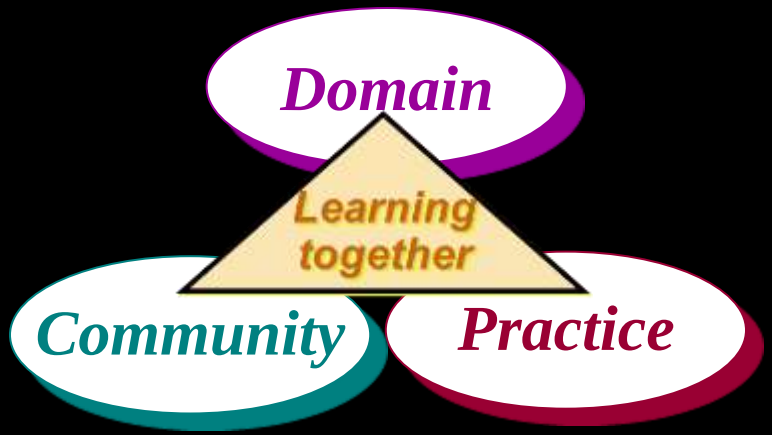


9. Following today's discussions, what do you perceive as key opportunities for using climate information in operations and planning processes?

- 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
- Na
- ID decisions being made to see where info fits in. Perhaps in master plans?
- workshops and conversations like today
- na
- na
- na
- to make more informed decisions for water supply use and infrastructure needs
- Useful for long-term water supply planning
- Na
- 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



FLORIDA Water & Climate Alliance

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 *"We have a long way to go to connect."* *"All utilities are different. Multiple sources are critical to flexibility and potential use of climate information."*	• Existing planning and operations processes • Political considerations • Uncertainty in climate information • Availability of information • Credibility of information *"Still not clear which decisions would be based on climate information or who would use the information or how they would use the data."* *"Too complicated with minor benefits to our operations management group, which is focused on flood management."*	• Communications between practitioners and researchers • Sharing case studies • Improved understanding of potential of climate information • Identify decisions being made to see where information fits *"Workshops and conversations like today's."* *"I don't see it yet."* *"NA"*

Moving forward- next 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

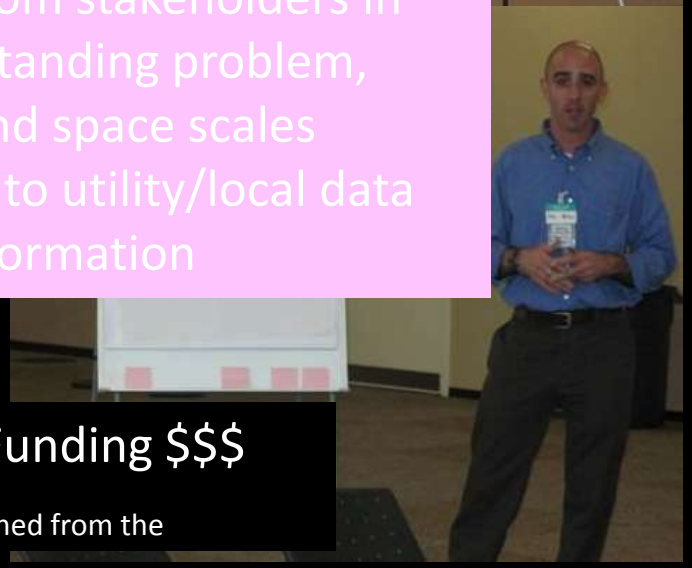
- Reliable predictive tools (emphasis on accuracy)
  - 3-12 months= operations
  - 20 years = permitting
  - 20-50 years = capital planning
- Policies/regulations that are suited / unique to each region

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 $$$

Collaborative Development of Public Water Supply Utility Relevant Climate Information for Improved Operations and Planning

Workshops 4, 5

1) Develop a collaborative "Working Group"

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.

This work 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

Utility relevant climate tools

- SEASONAL 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**

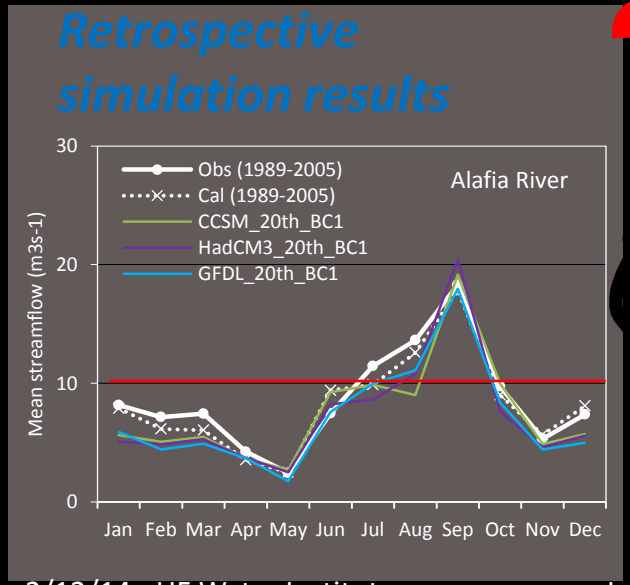
Improve access to existing information

Workshops 4, 5

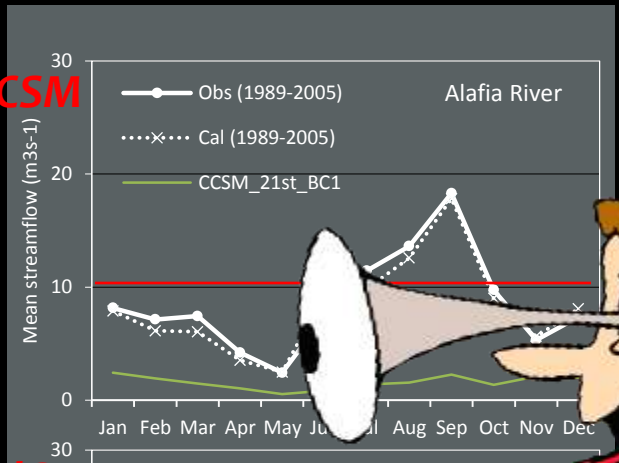
Workshop 7,8

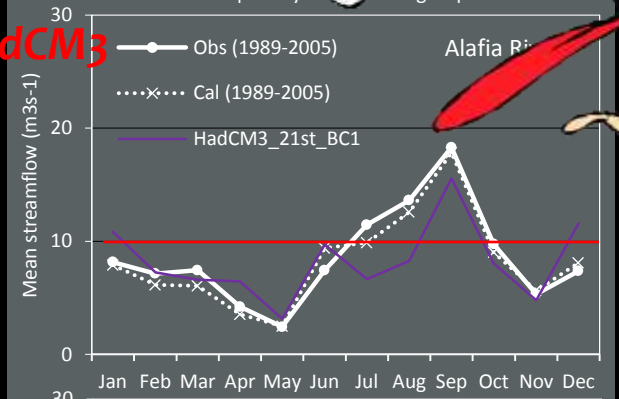
Translated the range of possible climates to a range of possible stream flows

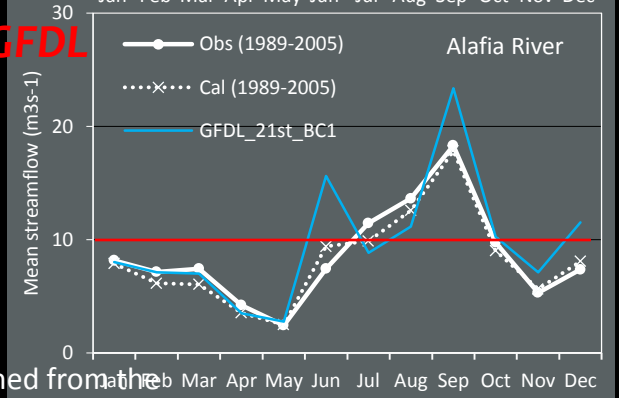
Hydrologic predictions highly variable across GCMs

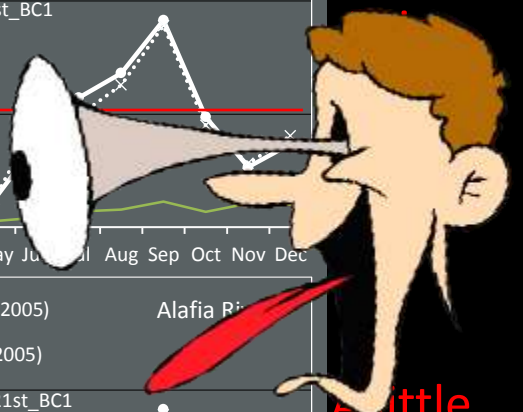


Future simulation results









A little less wet

A little more wet

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?

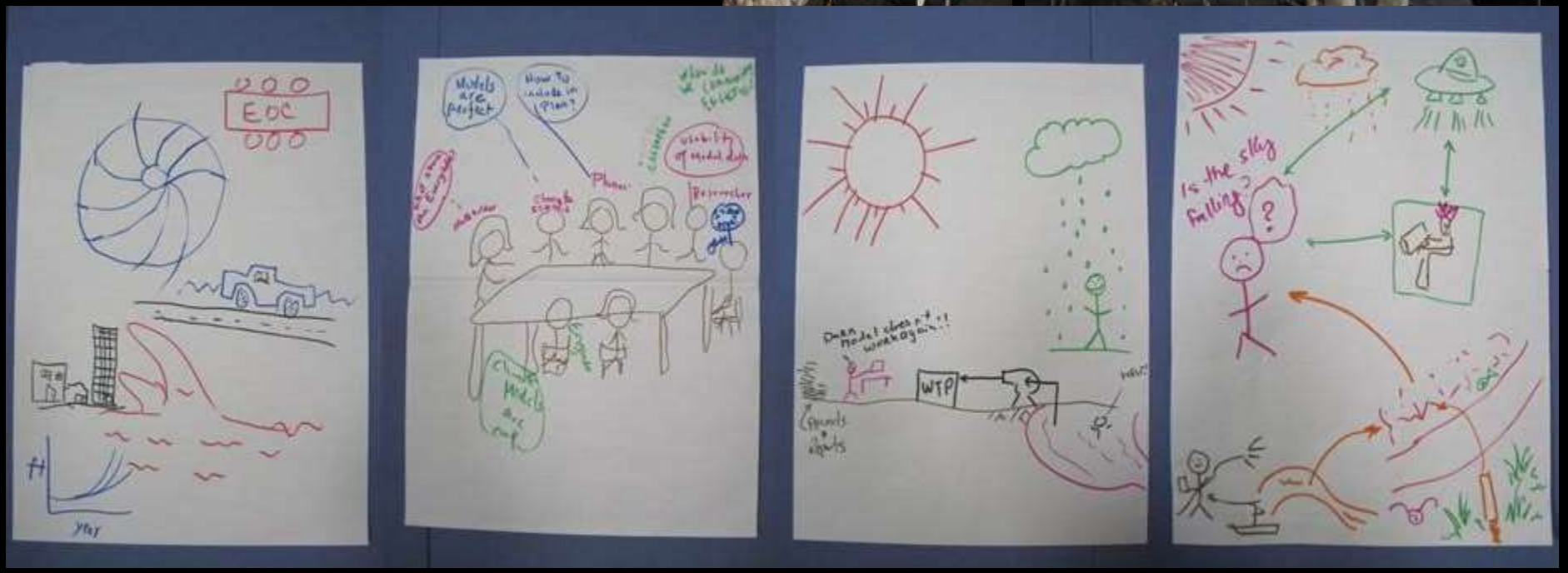
- **Communication:** Cautious about discussing climate science with policy & decision makers

- Beyond climate science → **Decision Science**
  Incorporate institutional planning into the process & understand entry points

- Unique contexts → **Tailoring**

Workshops 6

Visualizing the System of Actors



Workshop 6, 7

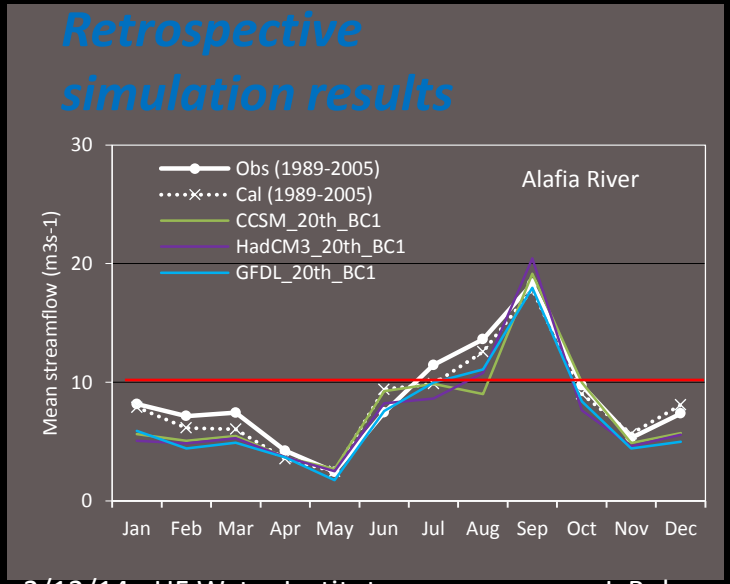
Workshop 7,8

Presenting Research Results

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

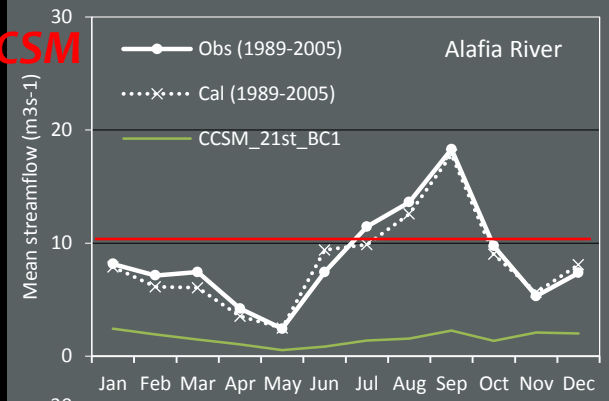
Hydrologic predictions highly variable across GCMs

Retrospective simulation results



Future simulation results

CCSM



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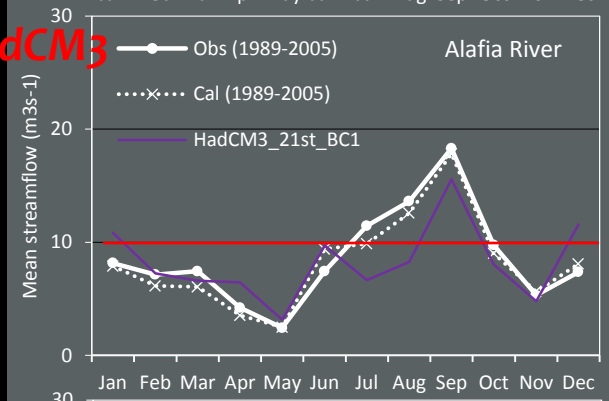

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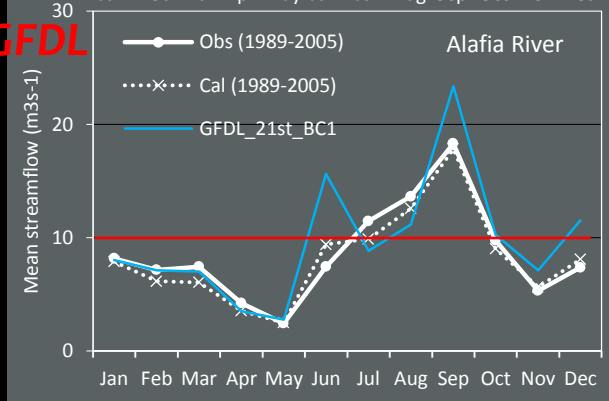
GFDL



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