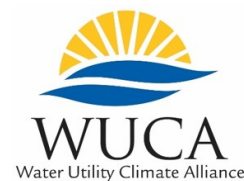


Building Resilience to a Changing Climate:

A Technical Training in Water Sector
Utility Decision Support



In collaboration with



Date & Time: Wednesday, May 29, 2019, 8:00am – 5:00pm
Thursday, May 30, 2019, 8:00am – 4:00 pm

Location: Tampa Bay Water Administrative Office Building
Main Level Board Room
2575 Enterprise Road
Clearwater, FL 33763

Training Mission

Create a practitioner community active in climate adaptation consisting of smart users and consumers of climate information.

Training Objectives

- Enhance understanding of the capabilities and limitations of climate science and learn best practices for using it in long-term water, wastewater, and stormwater utility planning;
- Learn about planning methods for addressing uncertainty when incorporating climate science into utility decision-making processes; and
- Learn communication strategies to address institutional barriers and generate engagement around utility climate adaptation and resilience building.

Agenda – May 29, 2019

Time	Item
8:00 a.m.	Registration & Coffee Available
8:30 a.m.	Welcome, Agenda Review, and Training Participant Introductions <i>Laurina Kaatz, Climate Program Director, Denver Water (DW) and Chair, Water Utility Climate Alliance (WUCA)</i> <i>Tirusew Asefa, Ph.D., Manager, Planning & System Decision Support, Tampa Bay Water (TBW), WUCA, Florida Water and Climate Alliance (FloridaWCA)</i> <i>Matthew Jordan, General Manager, TBW</i> <i>Lisette Staal, Coordinator, University of Florida Water Institute (UF Water Institute) and FloridaWCA</i> Welcoming remarks from the WUCA Chair and TBW training host, review of the training agenda and pre-training survey results, and participant introductions.

Time	Item
9:30 a.m.	<p>Group Exercise: Decisions for the Decades: Understanding Deep Uncertainty</p> <p><i>Michelle Miro, Ph.D., Associate Engineer, RAND Corporation</i></p> <p>Interactive game-based exercise on decision-making under conditions of deep uncertainty followed by facilitated group discussion about how uncertainty affects the types of long-term planning decisions participants are supporting utilities in making.</p>
10:45 a.m.	Break
11:00 a.m.	<p>Decision-Making in the Face of Uncertainty: Tampa Bay Water</p> <p><i>Tirusew Asefa, TBW/WUCA/FloridaWCA</i></p> <p>A stage-setting case study presentation depicting how and why TBW has changed its planning process to integrate climate science and other uncertainties into long-range supply system planning and decision-making.</p>
11:30 a.m.	<p>Practical Considerations for Climate Analysis and Adaptation</p> <p><i>Laurina Kaatz, DW/WUCA</i></p> <p>This session sets the stage for the upcoming training sessions and helps participants establish effective mechanisms to meet their informational needs.</p>
12:00 p.m.	<p>Climate Science and Modeling for Water Sector Professionals</p> <p><i>Joel Smith, Principal Associate, Environment and Natural Resources, Abt Associates</i></p> <p>Discussion of the capabilities and limitations of climate models and climate projections for applied decision making. The session includes a discussion of what information climate science is currently capable of providing to support decision making at a local and regional scale. Time will be reserved for questions and answers.</p>
12:40 p.m.	Lunch (Sponsored by WUCA)
1:35 p.m.	<p>Climate Science and Modeling for Water Sector Professionals: Florida</p> <p><i>Vasu Misra, Ph.D., Associate Professor of Meteorology, Center for Ocean-Atmospheric Prediction Studies (COAPS), Florida State University</i></p> <p>Discussion of Florida and Southeast specific limitations of climate models and climate projections for applied decision making, as well as efforts to overcome. Time will be reserved for questions and answers.</p>
2:05 p.m.	<p>A Practical Look at Downscaling, Bias Correction, and Translating Climate Science into Hydrology</p> <p><i>Julie Vano, Ph.D, Project Scientist, National Center for Atmospheric Research (NCAR), Hydrometeorological Applications Program</i></p> <p>This session presents the range of techniques used to downscale and bias correct climate projections, reviews capabilities and limitations of downscaled data, and offers potential applications and limitations of turning projections into hydrologic impacts. Time will be reserved for questions and answers.</p>

Time	Item
2:35 p.m.	<p>Case Study: Downscaling Approaches in Florida and the Southeast United States</p> <p><i>Wendy Graham, Ph.D., Professor and Director, UF Water Institute</i></p> <p>This discussion highlights the challenge and limitation of downscaling approaches in Florida and the Southeast, efforts to overcome those limitations, and an application case study using Integrated Hydrologic Modeling for climate change impact assessment. Time will be reserved for questions and answers.</p>
3:05 p.m.	<p>Break</p>
3:25 p.m.	<p>Guiding Principles for Adaptation and Resilience Planning</p> <p><i>Joel Smith, Abt Associates</i></p> <p><i>Steve Fries, Physical Scientist, U.S. EPA Creating Resilient Water Utilities</i></p> <p>An overview of multiple approaches and decision support tools to support adaptation planning are presented. Time will be reserved for questions and answers.</p>
4:15 p.m.	<p>Case Study: Broward County – Water Resources Resilience</p> <p><i>Ana Carolina Coelho Maran, Ph.D., P.E., Water Resources Manager, Environmental Planning and Community Resilience Division, Environmental Protection and Growth Management Department</i></p> <p>Overview of Broward County's efforts to incorporate future climate conditions into water supply and flood prevention/stormwater management planning and proposed urban water resources management strategies.</p>
4:45 p.m.	<p>Key Takeaways from Day 1</p> <p><i>Ivana Kajtezovic, Planning Program Manager, TBW / WUCA</i></p> <p><i>Lisette Staal, UF Water Institute/Florida WCA</i></p> <p>Review of key takeaways regarding the state of climate science, sources of uncertainty and what it means for utility decision making. Participants will also be asked to complete an evaluation of the Day 1 sessions.</p>
5:00 p.m.	<p>Adjourn</p>

Agenda – May 30, 2019

Time	Item
8:00 a.m.	Coffee Available
8:30 a.m.	Reflections on Day 1 and Review of Day 2 Agenda <i>Lisette Staal, UF Water Institute/Florida WCA</i> Participant reflections on Day 1 of the training and review of the agenda for Day 2.
8:45 a.m.	Case Study: Peace River Manasota Regional Water Supply Authority (PRMRWSA) <i>Kevin Morris, Science and Technology Officer, PRMRWSA</i> Presentation of PRMRWSA's efforts in incorporating climate change and sea level rise projections into long-term water supply planning.
9:15 a.m.	Group Exercise: Scenario Design (Accelerated Introduction to Scenario Planning) <i>Laurina Kaatz, DW/WUCA</i> Group exercise focused on identifying and prioritizing external factors – of which climate change is one among many – that introduce uncertainty and influence long-term utility planning contexts.
11:00 a.m.	Break
11:15 a.m.	Methods for Decision-Making Under Deep Uncertainty <i>Michelle Miro, Ph.D., RAND Corporation</i> Overview of innovative methods and approaches for addressing climate and other types of uncertainty to build water utility adaptive capacity. This session provides a unique and critical opportunity for participants to examine and understand the challenges of deep uncertainty. Time will be reserved for questions and answers.
12:15 p.m.	Lunch (Sponsored by WUCA)
1:00 p.m.	Adaptation Decision-Making at Metropolitan Water District of Southern California <i>Brandon Goshi, Manager of Water Policy and Strategy, Metropolitan Water District of Southern California/WUCA</i> A real-world example demonstrating the lessons and material presented up to this point in the training. Metropolitan Water District of Southern California will discuss the evolving use of climate science and decision-making methods to address uncertainty in its long-term water resources planning.

Time	Item
1:30 p.m.	<p>Using Communications Best Practices to Engage Audiences and Address Institutional Barriers</p> <p><i>Heidi Roop, Ph.D., Research Scientist and Strategic Communications Lead, Climate Impacts Group, University of Washington</i></p> <p><i>Abby Sullivan, Environmental Scientist, Climate Change Adaptation Program, Philadelphia Water Department (PWD) / WUCA</i></p> <p>Participants will learn about tangible mechanisms and practices to effectively address institutional barriers, including developing messaging and communicating about climate science. The session will also provide examples of barriers and solutions from the experiences of Philadelphia Water Department.</p>
2:30 p.m.	Break
2:45 p.m.	<p>Bringing it All Together: Identifying Institutional Barriers and Mapping Out Strategies and Next Steps</p> <p><i>Heidi Roop, University of Washington</i></p> <p>Building on the prior session, participants will engage in an interactive exercise to explore their individual institutional barriers and communication challenges and develop potential strategies to address these challenges.</p>
3:45 p.m.	<p>Key Takeaways, Reflections and Wrap-Up</p> <p><i>Ivana Kajtezovic, TBW/WUCA</i></p> <p><i>Lisette Staal, Florida WCA/UF Water Institute</i></p> <p><i>Laurina Kaatz, DW/WUCA</i></p> <p>Review of key takeaways from the training, and participant reflections on how they intend to apply what they have learned during the training. Participants will also be asked to complete an evaluation of the Day 2 sessions.</p>
4:00 p.m.	Adjourn