

FloridaWCA WORKSHOP REPORT

Workshop #19

Thursday, December 20, 2018

10:00 AM – 4:00 PM

Hosted by

Orlando Utilities Commission (OUC)
Orlando, Florida

Workshop Report prepared by
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Executive Summary

Florida Water and Climate Alliance (Florida WCA) is a stakeholder-scientist partnership committed to increasing the relevance of climate science data and tools to support decision-making in water resource management, planning and supply operations in Florida (<http://floridawca.org/>). The FloridaWCA brings together interested stakeholders (public water supply utilities, local governments, water management districts and academic institutions) to increase the relevance and usability of climate change and variability data and tools to the specific needs of public water supply utilities and resource managers and planners. Initiated in 2010 by the UF Water Institute, the FWCA partnership includes the UF Water Institute, Southeast Climate Consortium (SECC), the Florida Climate Institute (FCI), and UF/IFAS Center for Public Issues Education, six major public water supply utilities, representatives of local governments, and three water management districts. Initially supported through [two NOAA funded projects and](#) interim funding provided by FloridaWCA partners, currently, Tampa Bay Water supports the FloridaWCA workshops and website. *Detailed information on the FloridaWCA is available the [FloridaWCA website FloridaWCA.org](#).*

Network Goal: Unfold the need for, and enhance the usability of, climate change and variability data and tools in the planning and operations of Florida's public water supply utilities by creating spaces for sharing knowledge from the multiple perspectives and enhancing collaborative research. FloridaWCA participants are interested in impacting relevant research agendas in the technical and social sciences; understanding policy, management, operations and application of planning tools and understanding new policy changes at the state/local level that would affect the utilities; and the FloridaWCA network sustainability.

Steering Committee: Tirusew Asefa (TBW), Kevin Morris (PRMRWSA), Rob Teegarden (OUC), Ed Carter (SJRWMD), Vasu Misra (FSU), Tracy Irani (UF) and Chris Martinez (UF); Workshop Coordinator – Lisette Staal (UF Water Institute)

Workshop Goal: Provide an environment for stakeholder-scientist exchange of current research and tools to address climate variability and change issues. Focus on topics that that may help inform scientists' research that would result in an actionable science of use to practitioners.

Summary of Workshop Outcomes

Activities of interest and follow-up actions for workshop participants related to research, networking and sustainability include the following:

1) RESEARCH /RESOURCES

- [IPCC 1.5 degree Special Report](#) – mentioned by Ed Carter, SJRWMD – “An IPCC special report on the impacts of global warming of 1.5 °C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global FloridaWCA Workshop Summary- Thursday, December 20, 2018

response to the threat of climate change, sustainable development, and efforts to eradicate poverty.”

- [Remote Sensing “Ocean Color Web”](#) – mentioned by John Stamm, USGS – “NASA's OceanColor Web is supported by the Ocean Biology Processing Group (OBPG) at NASA's Goddard Space Flight Center. Our responsibilities include the collection, processing, calibration, validation, archive and distribution of ocean-related products from a large number of operational, satellite-based remote-sensing missions providing ocean color, sea surface temperature and sea surface salinity data to the international research community since 1996.”

2) POTENTIAL LINKAGES AND SYNERGIES -

- **“Extreme Rainfall workshop”** being held in the spring (scheduled for May 16, 2019 at FIU) -Dr. Jayantha Obeysekara, FIU – “A workshop on the subject of developing a statewide series of climate scenarios for the state of Florida. The effort will identify and assemble experts, scientists and modelers, familiar with the climate information, and key stakeholders from local governments and agencies (state and federal), familiar with the needs and requirements for climate scenarios in project planning and operations.”
- [HYPERION](#)– mentioned by Dr. Jayantha Obeysekara, FIU – “A varied and growing group of users now require accurate climate projections, particularly high-resolution projections and projections incorporating meteorological and hydrologic extremes, for all manner of impacts, adaptation, and vulnerability assessments. There has recently been explosive growth in the number of regional climate datasets to address these needs, with varied accuracy in different metrics and incomplete validation. However, with little guidance on how to choose among them, a usability gap continues to exist between their production and their use in addressing outstanding questions in climate science. Decision makers (particularly water managers) often have difficulty using these datasets as well, and have loudly called for "actionable science" and "co-production" of science: The core idea being that stakeholders and scientists should be engaged in a two-way exchange about each others' needs and capabilities. These circumstances have arisen largely because no standardized procedure exists for validating regional climate datasets and communicating their associated credibility information. To address this need, our project proposes a series of seven tasks that will build a stakeholder-driven assessment capability, explain why certain biases arise in regional climate modeling systems, and better understand human impacts on the climate system.”
- [“Keeping History Above Water \(St. Augustine\)”](#) (KHAW)– Michael Cullum, City of St. Augustine
- [Florida Chamber of Commerce Environmental permit school](#) – Chuck Drake
- [Restore America’s Estuaries](#) (RAE) – Management Focus – Jan Maldrup-Poulson

- USAID project support letter for project in the Philippines with Palm Beach – Chris Petitt/Tirusew Asefa

3) SUSTAINABILITY/PROPOSALS

- [South East Climate Adaptation and Science Center \(SECASC\)](#) - 1) RFP Followup- Wendy Graham. Kristy Lewis and Mauricio Arias interested. Call for Proposals is delayed. 2) Potential for capacity building workshop for the SECASC— working group/ expand to ecology focus?
- [Water Utility Climate Alliance \(WUCA\)](#) – partnering for two day workshop in Tampa – Tirusew Asefa to lead. Carolina Maran, Broward County, expressed interest in participating and in planning. Steering Committee will help with planning. Tentatively scheduled for either the week of May 20th or May 27th.
- One Water – Rob Teegarden
- FloridaWCA steering committee to be scheduled for late January. (Scheduled for January 16th)

Workshop Summary- Thursday, December 20, 2018

The 19th workshop since the FloridaWCA began was hosted by OUC and was attended by 26 participants from 18 organizations (*see Appendix 1 for participant list*).


Workshop Goal: Provide an environment for stakeholder-scientist exchange of current research and tools to address climate variability and change issues with a focus on increasing local relevancy to utilities and water resource managers. Explore topics that that may help inform scientists’ research that would result in an actionable science of use to practitioners.


Specific Workshop Objectives:


1. Research and Planning – Share information on the state of climate science and action useful to local water supply and resource planning and operations.
2. Community – Share current activities and explore interests based on shared strengths and resources of the represented institutions
3. Collaboration – Explore opportunities to partner on activities of interest to the Participants


Session 1: Welcome, FloridaWCA and Participant Introductions

After a brief introduction of the goals of the Florida Water and Climate Alliance focusing on both the regional relevance and use of climate science, Lisette Staal (facilitator, UF Water Institute), referred to some key points regarding the state of the climate in the recent publication of the [Fourth National Climate Assessment – Volume II](#). For an interactive introduction, she asked the participants to meeting within a small group, introduce themselves, and talk about one of several key points identified. In particular, she asked participants to ask themselves about how they might be impacted and how their work might impact the key issue.


State of the Climate 

Now what 


So what does that mean
to me/us 




Now what?



1. Changes in Water Quantity and Quality
2. Deteriorating Water Infrastructure at Risk
3. Water Management in a Changing Future
4. Coastal Environments Are Already at Risk
5. Social Challenges Intensified
6. Urban Response to Climate Change
7. Land-Cover Changes Influence Weather
8. Climate Impacts on Land and Ecosystems
9. Climate Change Affects Health



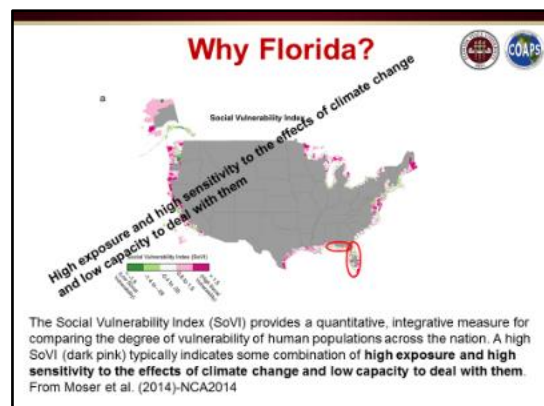
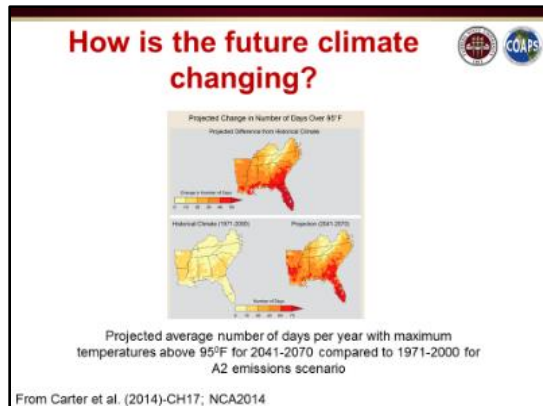


So what?

How is/could your work be impacted?
How does/could your work have impact?

Session 2: State of Climate in Florida: Status of science, research and tools useful to local water supply and resource planning (moderator: Tirusew Asefa, Tampa Bay Water)

- [“Perspectives on working with the National Climate Assessment.”](#) (Esther Mullens, Ph.D., Assistant Professor, Department of Geography, CLAS, UF)
- [Framing the Future: Climate Change Impacts and Resilience.](#) (Tracy Irani, Ph.D., Professor and Department Chair, Family Youth and Community Science, University of Florida/IFAS)
- [“National and State-wide Update on Sea Level Rise and Climate Change.”](#) (Jayantha Obeysekera, Ph.D., P.E., Director, Sea Level Solutions Center, Florida International University)
- [“Collaborating on Regional Resiliency in Tampa Bay.”](#) (Heather Young, Senior Environmental Planner, Tampa Bay Regional Planning Council.
- [“Resiliency, Adaptation and Sustainability in the City of St. Augustine.”](#) (Michael Cullum, P.E., Public Works Director, City of St. Augustine.)
- [“Climate Science Informing Social Impacts.”](#) (Vasu Misra, Ph.D. Associate Professor of Meteorology, Center for Ocean-Atmospheric Prediction Studies(COAPS), Florida State University)



Discussion: FloridaWCA is challenging itself to explore the broader social, policy, and communication issues involved with planning and ultimate implementation of climate adaptation approaches, methods and tools. Throughout the morning sessions participants were encouraged to consider the usefulness of the information, research, tools and approaches to their diverse situations. During the discussion several key messages resonated across the range of participants and may serve to inform potential FloridaWCA activities. 1) Florida is especially vulnerable to climate variability and change impacts for several reasons including geography, demography, and economy; 2) Florida is “different” from the overall “Southeast” and global climate models miss Florida's characteristics; 3) needs tools/data for our own purposes; 4) Community Resilience is an important focus for planners and require innovative and locally applicable tools; 5) Framing information and messages is undergoing change and important to consider; and 6) Local specificity and case studies are important and needed.

Session 3: Climate and Ecology: Status of science, research and tools useful to local water supply and resource planning (Moderator: Kevin Morris, Peace River Manasota Regional Water Supply Authority)

- [“Watershed Sustainability in a Changing World: Case studies from around the world and prospects for Florida.”](#) (Mauricio Arias, Ph.D., Assistant Professor, Department of civil & Environmental Engineering, University of South Florida)
- [“Florida Red Tide: a disturbance of unknown duration.”](#) (Kristy Lewis, Ph.D., Assistant Professor, Department of Biology, University of Central Florida)
- [“Alternate Methodologies for Computing Evapotranspiration at a 2-kilometer resolution for Florida.”](#) (John Stamm, Ph.D., P.G., U.S. Geological Survey, Caribbean-Florida Water Science Center)
- [“Florida’s Bio-economy: Potential of recycling nutrients and carbon to monetize your community’s sustainability goals.”](#) (Rob Teegarden P.E., Water Policy & Research Officer, Orlando Utilities Commission)



Discussion: FloridaWCA is evolving and branching into ecology and interfacing with ecosystem managers to explore shared concerns to resource managers, potential science-based management actions, and land use change adaptation decisions. The afternoon session presentations provided insights to a range of ecological issues. During the discussion, again, several key messages resonated across the range of participants and can inform potential FloridaWCA activities. 1) Finding a balance of the social, economic and water needs is

important; 2) International cases may well inform Florida; 3) Important to think about 'red tide' and other ecological impacts on community and incorporate those into planning efforts; 3) need "monitoring" in the Gulf; 4) should access refined tools currently available, for example USGS evapotranspiration models; and 5) Consider Innovations and the usefulness of monetizing ecology through an approach to "Conversion to a Bio economy."



Session 4: FloridaWCA Network and Sustainability

- **ONE Water**
- **Southeast Climate Adaptation Science Centers [SE CASC](#)** - 1) RFP Followup- Wendy Graham. Kristy Lewis and Mauricio Arias interested. Call for Proposals is delayed. 2) Potential for capacity building workshop for the SECASC—working group/ expand to ecology focus.
- **Water Utilities Climate Alliance ([WUCA](#))** - partnering for two day workshop in Tampa – Tirusew Asefa to lead. Carolina Maran, Broward County, expressed interest in participating and in planning. Steering Committee will help with planning. Tentatively scheduled for either the week of May 20th or May 27th.
- **Updates** - Proposals, publications, new ideas, opportunities - Activities of interest and follow-up actions for workshop participants related to research, networking and sustainability include the following:
 - [IPPC 1.5 degree Special Report](#) – mentioned by Ed Carter
 - Remote Sensing "Ocean Color" - <https://oceancolor.gsfc.nasa.gov/>
 - Rainfall workshop being held in the spring mentioned by Dr. Jayantha Obeysekara. (scheduled for May 16th, FIU)

- Hyperion – mentioned by Dr. Jayantha Obesekara
 - KHAW – “Keeping History Above Water (St. Augustine) – Michael Cullum
 - Florida Chamber of Commerce Environmental permit school – Chuck Drake
 - Restore America’s Estuaries (RAE) – Management Focus – Jan Maldrup-Poulson
 - USAID project support letter for project in the Philippines with Palm Beach – Chris Petitt/Tirusew Asefa
- **FloridaWCA Next Steps** - FloridaWCA steering committee scheduled January 16, 2019

APPENDIX 1: List of Participants – FloridaWCA Workshop

Thursday, December 20, 2018 - Orlando Utilities Commission, Orlando, Florida

Last name	First name	Stakeholder group	Organization
Arias	Mauricio	University	University of South Florida
Asefa	Tirusew	Utility	Tampa Bay Water
Carter	Ed	WMD	SJWMD
Cullum	Mike	Govt-city	City of St. Augustine
Drake	Chuck	Consulting WMD Board	Tetra-Tech & Governing Board SJRWMD
Dunford	Chandra	Utility	OUC
Graham	Wendy	University	University of Florida Water Institute
Hwang	Jae-hoon	University	University of Central Florida
Irani	Tracy	University	University of Florida
Irizarry	Michelle	University	Florida International University
Lee	Woo Hyoung	University	University of Central Florida
Lewis	Kristy	University	University of Central Florida
Mandrup-Poulsen	Jan	Consulting	Dynamic Solutions
Maran	Carolina	Govt-county	Broward County
Misra	Vasu	University	Florida State University/Florida Climate Institute
Morris	Kevin	Utility	Peace River Manasota Regional Water Supply Authority
Mullens	Esther	University	University of Florida
Obeysekera	Jayantha	WMD	Florida International University (FIU)
Ricchino	AnnMarie	University	University of Central Florida
Ryan	Emily	WMD	SRWMD
Sahasrabudhe	Samir	Utility	OUC
Staal	Lisette	University	University of Florida Water Institute
Stamm	John	Govt-Fed	USGS Caribbean-Florida Water Science Center
Teegarden	Robert	Utility	Orlando Utilities Commission
Tyrna	Abbey	Govt-county	Sarasota County Sustainability
Young	Heather	Govt-County	Tampa Bay Regional Planning Council

APPENDIX 2: Workshop Agenda

FloridaWCA Workshop Agenda

Thursday, December 20, 2018

Hosted by: Orlando Regional Utilities (OUC),
Location: OUC, Safety & Training Conference Room,
Gardenia Avenue office, 3800 Gardenia Avenue, Orlando

Overall Workshop Goal: Provide an environment for stakeholder-scientist exchange of current research and tools to address climate variability and change issues with a focus on increasing local relevancy to utilities and water resource managers. Explore topics that that may help inform scientists' research that would result in an actionable science of use to practitioners.

Specific Workshop Objectives:

- Research and Planning – Share information on the state of climate science and action useful to local water supply and resource planning and operations.
- Community – Share current activities and explore interests based on shared strengths and resources of the represented institutions
- Collaboration – Explore opportunities to partner on activities of interest to the Participants

Workshop Agenda:

9:45–10:00 Check-in, Networking

10:00–10:30 **Session 1:** Welcome, FloridaWCA and Participant Introductions

10:30–12:15 **Session 2: State of Climate in Florida:** Status of science, research and tools useful to local water supply and resource planning (*moderator: Tirusew Asefa, Tampa Bay Water*)

- “Perspectives on working with the National Climate Assessment,” (Esther Mullens, Ph.D., Assistant Professor, Department of Geography, CLAS, UF)
- Framing the Future: Climate Change Impacts and Resilience,” (Tracy Irani, Ph.D., Professor and Department Chair, Family Youth and Community Science, University of Florida/IFAS)
- “National and State-wide Update on Sea Level Rise and Climate Change,” (Jayantha Obeysekera, Ph.D., P.E., Director, Sea Level Solutions Center, Florida International University)

- “Collaborating on Regional Resiliency in Tampa Bay,” (Heather Young, Senior Environmental Planner, Tampa Bay Regional Planning Council.
- “Resiliency, Adaptation and Sustainability in the City of St. Augustine,” (Michael Cullum, P.E., Public Works Director, City of St. Augustine.)
- “Climate Science Informing Social Impacts,” (Vasu Misra, Ph.D. Associate Professor of Meteorology, Center for Ocean-Atmospheric Prediction Studies(COAPS), Florida State University)

Discussion

12:15–1:00 Lunch

1:00 – 2:15 **Session 3: Climate and Ecology:** Status of science, research and tools useful to local water supply and resource planning (*Moderator: Kevin Morris, Peace River Manasota Regional Water Supply Authority*)

- “Watershed Sustainability in a Changing World: Case studies from around the world and prospects for Florida,” (Mauricio Arias, Ph.D., Assistant Professor, Department of civil & Environmental Engineering, University of South Florida)
- “Florida Red Tide: a disturbance of unknown duration,” (Kristy Lewis, Ph.D., Assistant Professor, Department of Biology, University of Central Florida)
- “Alternate Methodologies for Computing Evapotranspiration at a 2-kilometer resolution for Florida,” (John Stamm, Ph.D., P.G., U.S. Geological Survey, Caribbean-Florida Water Science Center)
- “Florida’s Bio-economy: Potential of recycling nutrients and carbon to monetize your community’s sustainability goals,” (Rob Teegarden P.E., Water Policy & Research Officer, Orlando Utilities Commission)

Discussion

2:15 – 2:30 BREAK

2:30– 3:45 **Session 4: FloridaWCA Network and Sustainability**

- Updates - Proposals, publications, new ideas, opportunities
- ONE Water
- Water Utilities Climate Alliance ([WUCA](#))
- Southeast Climate Adaptation Science Centers [SE CASC](#)

3:45 – 4:00 – FloridaWCA Next Steps