FloridaWCA
WORKSHOP REPORT

Hybrid Webinar/ Workshop #35
Statewide Resiliency and the Florida Flood Hub

Wednesday, February 26, 2025

In-person Workshop: 9:00 AM – 4:00 PM

Hybrid Webinar: 10:00 AM – 12:00 PM

In collaboration with and hosted by

Florida Flood Hub for Applied Research and Innovation

St. Petersburg, Florida

Workshop Report prepared by

Darlene Velez, Research Coordinator

UF Water Institute

CONTENTS

EXECUTIVE SUMMARY

The Florida Water and Climate Alliance (FloridaWCA) is a stakeholder-scientist network committed to the co-development of locally relevant, applied climate science and tools for the water sector in Florida. Founded in 2010, the FloridaWCA brings together scientists, water resource managers and public water suppliers at local/regional/state levels to address challenges of climate change impacts on Florida's water sector. Our mission is to foster partnerships to co-develop and share actionable climate science, data and decision support that promotes sustainability in the water sector through applied research, learning and outreach. FloridaWCA achieves its mission by facilitating: 1) interdisciplinary research projects and applications; 2) 1 in-person workshop and 2 webinars per year to promote knowledge exchange and networking opportunities; and 3) online access to data and information through FloridaWCA.org and the FloridaWCA listserv.

FloridaWCA Steering Committee (Feb 2025): Tirusew Asefa (TBW), Tom Frick (SJRWMD), Tracy Irani (UF), Carolina Maran (SFWMD), Vasu Misra (FSU), Jasmeet Judge (UF), Mark Rains (USF/ DEP), and FloridaWCA Coordinator – Darlene Velez (UF)
Workshop Technical and Facilitation Support: Ed Carter (SJRWMD), Paloma Carton de Grammont (UF), and Sarah Marc (UF).
Flood Hub Workshop Planning Support: Tom Frazer, Chuck Jacoby, Audra Ames, and Lauren Bell.

Workshop Goals

1. To share knowledge on the recent advances in resiliency efforts and resources available across the state. This included updates on Resilient Florida Program, Florida Silver Jackets Program, and the Florida Flood Hub with deep dive into the collaborative work being done through the Flood Hub's Sea Level Rise and Rainfall Workgroups.
2. To identify additional data products and tools that end-users felt would be valuable for the Flood Hub and their workgroups to develop.
3. Provide networking opportunities for attendees to build connections and find synergies.

Workshop Summary

The 35th FloridaWCA workshop was the first in-person workshop since 2020 and the first ever FloridaWCA event that included a hybrid webinar component. This event was planned in coordination with and hosted by the Florida Flood Hub. Over 120 people joined via zoom for the featured presentations and another 39 gathered in person taking advantage of opportunities for additional networking and engagement during the afternoon workshop session.

The workshop started with a series of presentations in the morning highlighting the resiliency efforts across the state, including updates on Resilient Florida Program, Florida Silver Jackets Program, and the Florida Flood Hub with deep dive into the collaborative work being done through the Flood Hub's Sea Level Rise and Rainfall Workgroups. Those attending in person continued the conversation in the afternoon with an in-depth presenter panel questions and answer session discussing Flood Hub workgroup data products and tools, communication about and access to Flood Hub products, and a variety of resources and coordination opportunities for future work. Workshop attendees then split into break out groups to provide feedback on data products and tools that would be useful for the Flood Hub and their workgroups to develop.

Resources

- All Workshop materials including the Hybrid Webinar Recording, Mentimeter Poll results, and presentation slides are available on the FloridaWCA workshop website.
- You can access grant opportunities for vulnerability assessment planning or project implementation at the Resilient Florida Program website or contact Resilience@FloridaDEP.gov.
- The Florida Flood Hub website will be updated with workgroup products when able and provides contact information for their team including newly hired scientific liaisons who will be engaging with key stakeholders.
- DEP has a web map showcasing the Comprehensive Statewide Flood Vulnerability and Sea Level Rise Datasets.
- Go to the Florida Silver Jackets website to learn more and sign up for their newsletter and join them for their quarterly webinars.

Figure 1: In-person workshop attendees getting settled in for hybrid presentations.

Figure 2: In-depth presenter question and answer panel during the afternoon session.

Figure 3: Breakout groups reporting back to the room what data products and tools they would like to see.

WORKSHOP SUMMARY – FEBRUARY 26, 2025

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Welcome and Introductions

Figure 4: Map of Florida with dots representing attendee location and sector.

The morning started off with a networking breakfast for in-person attendees provided by the Florida Flood Hub. After breakfast, Darlene Velez, FloridaWCA coordinator, opened the workshop by introducing FloridaWCA Steering Committee Members, and reviewing a map of Florida that attendees used to indicate what sector and location they were from (Figure 4). Chuck Jacoby, Florida Flood Hub's Strategic Program Director, welcomed the attendees and introduced Flood Hub staff.

Darlene then went over the agenda, goals of the meeting, and set expectations for in-person attendees for the hybrid webinar session.

Hybrid Webinar Session

For the first time, FloridaWCA opened an option for those not able to attend in-person to join virtually for the presentation's session of the workshop. Darlene Velez facilitated the webinar and over 120 virtual attendees joined the 39 in-person attendees to hear from the speakers listed below.

A recording of this session can be found here: Hybrid Webinar Recording.

Featured Speakers with Links to Presentation Slides:

- **Tirusew Asefa,** System Decision Support Manager, Tampa Bay Water– *FloridaWCA Overview and Looking Back*
- **Mark Rains,** Chief Science Officer and Professor, USF School of Geosciences – *Resilient Florida Program Overview*
- **Chuck Jacoby,** Strategic Program Director, USF College of Marine Science – *Florida Flood Hub for Applied Research and Innovation Overview*
- **Wes Brooks**, Chief Resiliency Officer, State of Florida – *State Resiliency Program Update and Resources*
- **Gary Mitchum,** Associate Dean and Professor, USF College of Marine Science – *Flood Hub Sea Level Rise Workgroup Update*
- **Jayantha "Obey" Obeysekera,** Director and Research Professor, Sea Level Solutions Center, Institute of Environment, FIU – *Flood Hub Rainfall Workgroup Update*
- **Stephanie Verhulst,** Biologist, US Army Corp of Engineers – *Florida Silver Jackets: Collaboratively Working Towards Resiliency*

Tirusew Asefa, System Decision Support Manager at Tampa Bay Water and Chair of the FloridaWCA Steering Committee presented an overview of the alliance, highlighting some of the progress and successes that the alliance has achieved over the last 5 years since the last in-person workshop. Darlene followed up with a poll to get a better understanding who was attending the webinar and some of changes/ advances that were seen over the last five years in water and climate science, as well as resiliency efforts in Florida. Poll results can be found here: Mentimeter Poll Results.

Figure 5: Highlight slide of FloridaWCA accomplishments over the last 5 years.

Mark Rains, Florida's Chief Science Officer, Professor at USF School of Geosciences**,** and FloridaWCA Steering Committee Member presented an overview of the Resilient Florida Program including some history and the responsibilities charged to the program from legislation to collect flood vulnerability and sea level rise data, develop an annual resilience plan, and implement resiliency projects.

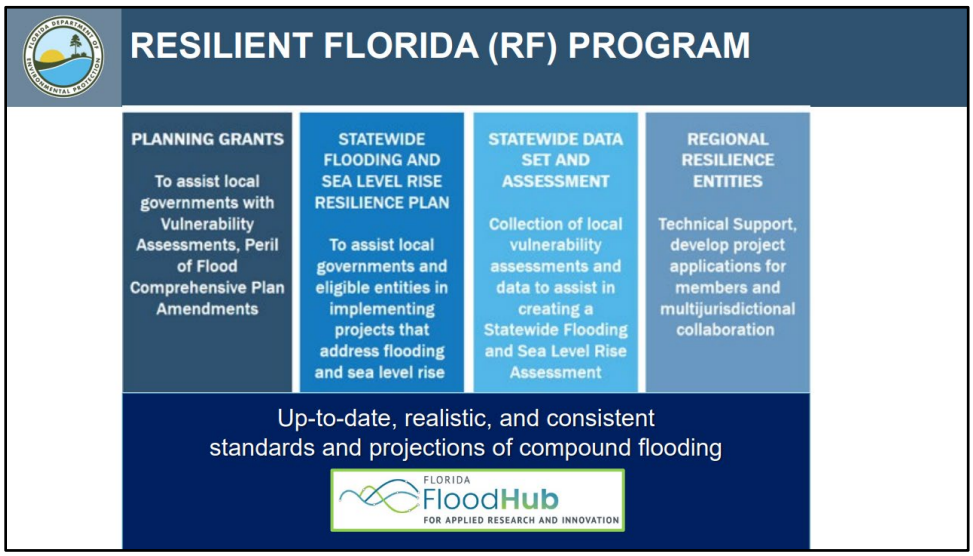

Figure 6: Slide of Resilient Florida Program responsibilities charged by legislation.

Chuck Jacoby, Strategic Program Director of the Florida Flood Hub for Applied Research and Innovation at the USF College of Marine Science presented an overview of the Florida Flood Hub including its history and initial target of understanding compound flooding, the Flood Hub team which now includes three new scientific liaisons, and workgroup focuses and approach for Sea Level Rise, Rainfall, and Comprehensive Modeling.

Figure 7: Slide of Florida Flood Hub workgroups to better understand compound flooding.

Wes Brooks, Chief Resiliency Officer for the State of Florida presented additional details about the Resilient Florida Program and where to find associated data sets, reports, tools, and grant resources for planning and project implementation.

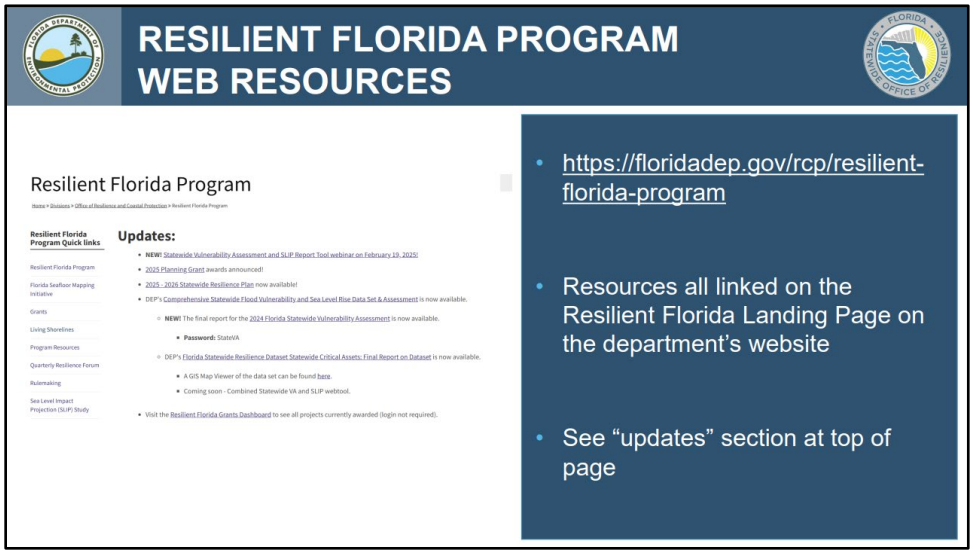

Figure 8: Slide of the Resilient Florida Program website resources that are intended to become a one-stop-shop for state resiliency data, tools, and grant resources.

Gary Mitchum, Associate Dean and Professor at USF College of Marine Science and Chair of the Sea Level Rise Workgroup presented in detail the current projections of sea level change for Florida, methodologies used, and ongoing work to address exceedance probabilities, high tide flooding, historical tide gauge time series, and assessment of potential recent sea level rise acceleration.

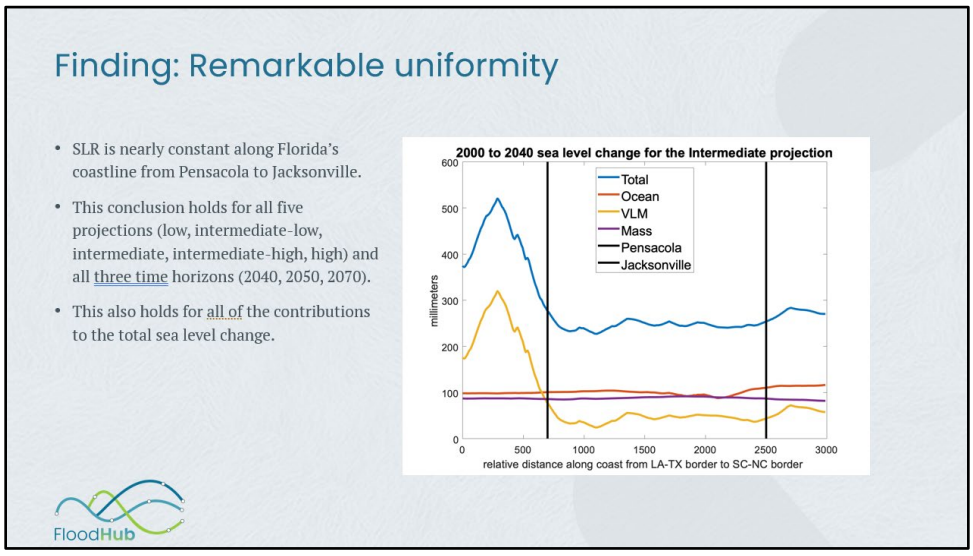

Figure 9: Slide showing uniformity of sea level rise projections from Pensacola to Jacksonville.

Jayantha "Obey" Obeysekera, Director and Research Professor of the Sea Level Solutions Center at FIU's Institute of Environment and Chair of the Rainfall Workgroup presented in detail the importance of rainfall projections for flooding predictions, data sources available, approach, and scaling used.

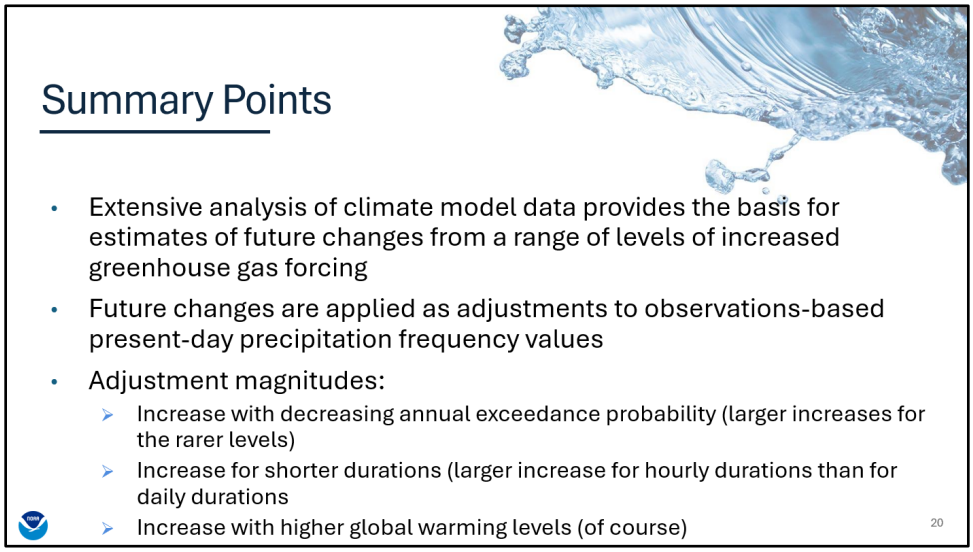

Figure 10: Summary point slide for the Rainfall Workgroup.

Stephanie Verhulst, Biologist with the US Army Corp of Engineers presented a update of Silver Jackets Collaboration quarterly webinars and team meetings and summary of their projects including: basin-level flood assessment inventory, hydrologic and hydrodynamic modeling, vulnerability assessment, and resiliency projects like UF 41 strategic planning in Collier County and incorporating corals in hazard mitigation grant program funding.

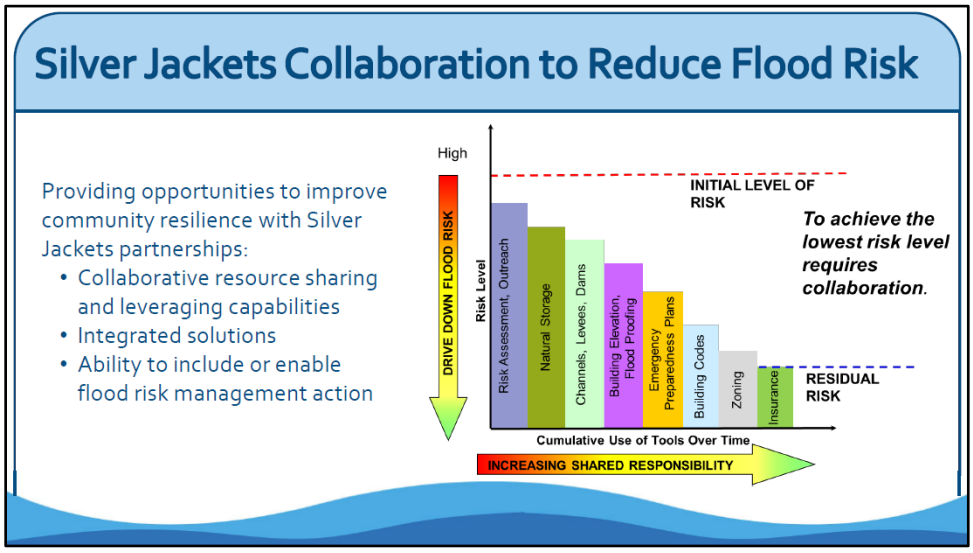

Figure 11: Slide of the ways the Silver Jackets Collaboration helps improve community resilience through resource sharing, integrated solutions, and enabling flood risk management action.

Presenter Panel Questions and Answer Session

At the beginning of the afternoon workshop session, the presenters joined a panel to answer any additional questions from the in-person attendees. Discussion included the following themes:

- Data incorporation into Flood Hub products
    - How are existing data sets being incorporated into the work done at the Flood Hub
    - NOAA buoy data incorporation and adding new gauges to fill gaps to improve
    - Tidal amplitude changes on various timeframe cycles: daily, monthly, yearly, every 6 years so need to be cautious how you are interpreting accelerations to change.
    - Using data from federal, state and local sources
    - A lot of curation to get data in one place, with correct units, and a standard quality control so that you are really using the best available data and that takes a lot of time to set up and be able to reliably import and then be able to share that data.
    - Best quality control is to have data being looked at by an expert and not just AI computer quality control.
- Strategies to respond to changing flood conditions and vulnerable assets
    - Should we and how do we manage coastal retreat
    - Elevation of properties
    - Improved community recovery and response to big events
    - Nature based solutions
    - Real-time forecasting is a great tool to adjust for changing conditions on the short term to help minimize the long term capital investment.
- How does your work help get decision-makers on board for advancing resiliency efforts
    - Have Flood Hub do their thing… do the science, find the uncertainties, improve understanding, develop tools, respond to state program needs to help keep Flood Hub work applicable.
    - Chief Science Officer and Chief Resiliency Officer are in constant discussion with Flood Hub. They are responsible for communicating Flood Hub consensus on a topic to policy makers in a way that is informed by the science done but using their judgment on what things to elevate when given the political
    - Many decisions for resiliency are done at the local level and state uses a lot of funding to help influence and implement the actions needed at local level.
- Communication
    - How do we talk to people about the different data products and tools being released and the federal level (Atlas 15) vs state level (Flood Hub Products)?
        - Product is not prescriptive and is meant to provide best available
        - Request to have user document laying out specifics and appropriate/ potential uses of products
        - Scientific liaisons are being hired and will help communicate between Flood Hub and end users about products, and bring back recommendations for what is needed by the end users.
    - Currently have consultants working on dashboards for flood hub website to improve accessibility of Flood Hub data and tools.
    - To stay updated on Flood Hub activities: website which should be delivered in April will be the best place to get information and you can always email Flood Hub team with any specific questions.
- How do you take into consideration future conditions in planning efforts

- "1000 yr storm" statistics used.. have these ever been updated with changing conditions? Frequency of these storms are changing, guidelines are still 50 years old.
- Planning efforts may need to also incorporate strength and frequency of storm/ flooding events.
- Hard to plan for things you don't know are coming, need to take into account risk vs cost analysis on planning efforts. All planning efforts are revised versions of the previous planning efforts, future land use, climate conditions, etc should be a part of that.
- Now that we know that there are unknowns we can not predict so flexibility and adaptive management will be key
- We can not design our world to achieve zero risk, but can plan to the best of our ability with a known level of risk and plan to adjust over time.

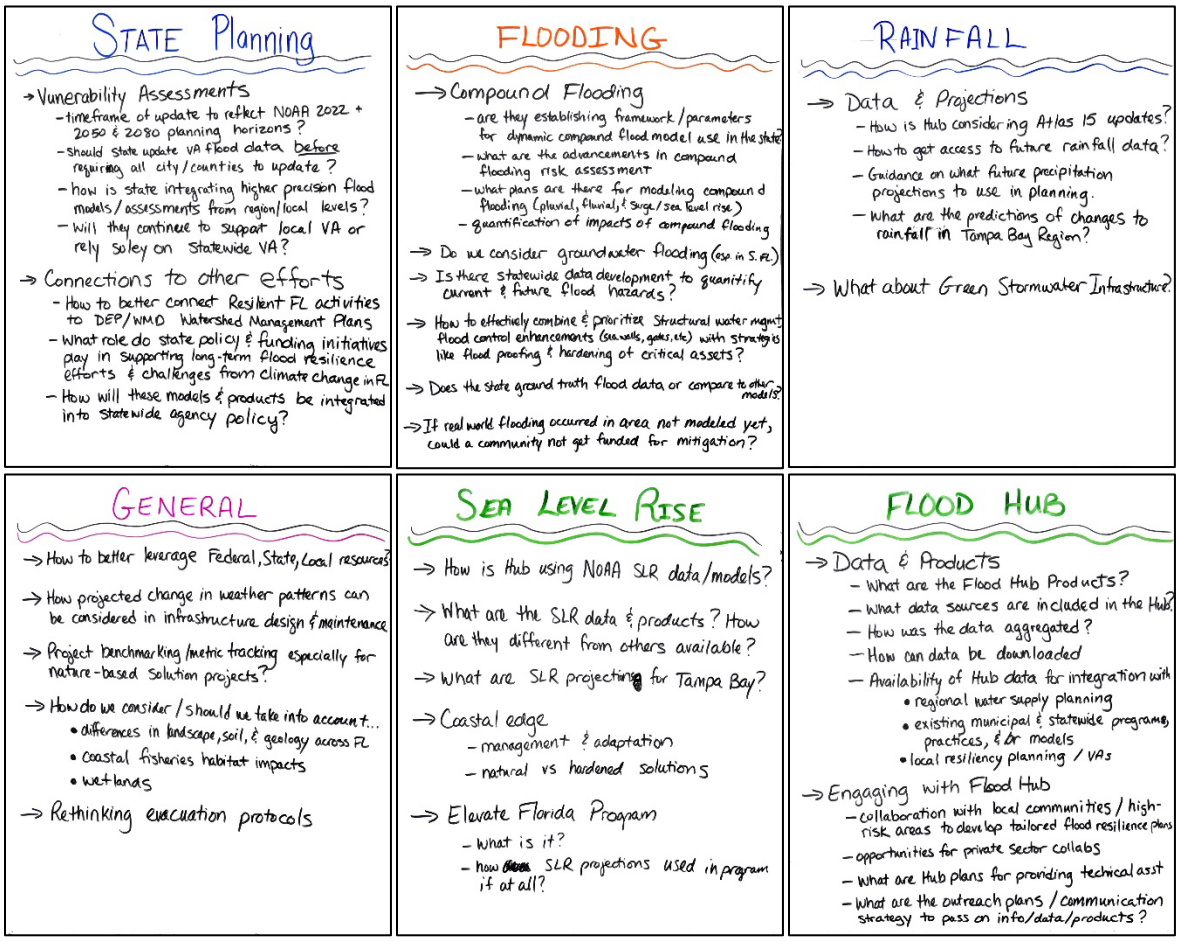

Figure 12: Images of flip charts that listed the questions that were submitted by attendees via survey before the workshop to help guide panel discussion. Questions were organized by general topic.

Data Products and Tools Workshop

Attendees and presenters were broken out into groups to provide feedback to the Flood Hub and Resilient Florida Program on what their needs were as future end users of the data products and tools created by the program. A summary of key themes are listed below and images of flip charts notes from the breakout groups can be found in Appendix 3.

Communication:

- Need system to get updates on status and expectations
- Website dashboard: mimic Resilient Florida hub
- What value can the scientific liaisons provide to the end-users?
- Lack of communication of available products and access seems to be causing a disconnect between what FDEP is doing at state level and what local governments and consultants are doing
- Need to hold informational meeting/ strong communications when releasing new products to explain development process and applicability to end users.
- Florida Flood Hub and Resilient Florida Program need to work together to provide guidance on what and how to use all this information and products.
- Need Statewide viewer that allows for scenario comparison and planning

Reports and Documentation:

- Summary Reports
    - Rainfall trends (daily rainfall, extremes, change factors)
- Documentation
    - Explanation documentation for the tools – User Guides
    - One-pager summary for end-users
    - Supporting documentation for data available
    - Applications guide to go with data products to know how to use in vulnerability assessments, watershed modeling, etc.
- Data attributes
    - Downloadable formats (.csv)
    - Need to include temportal and spatial attributes
    - Model compatible data formats (EnDMC)
    - Need to include Metadata, quality codes, etc

Rainfall Data and Analysis:

- Comparing data: WMD data with NOAA data, Flood Hub change factors with Atlas15
- Need guidance/ standardization on what data set to use for what purpose
    - What change factor to use for stormwater planning
- Need regional change factors 2080-2100 and up to 500 year return period
- Need Coupled modeling (rainfall and groundwater)
- Visualization/ pictures of impacts along with data… incorporate into website
- Need guidance for local vulnerability assessments. Need guidance on what is best available because not only using what they can find which is lacking parameters
- Rainfall modeling
    - Talk about problems with bathtub modeling
    - Use existing modes and help make assessable models that are already out there
- Regional Planning Councils are ready to use change factors when they are released
    - Concerned on impact on results if numbers are different from other sources

    - Will need different change factors for different regions (need scalability of data)
- Need updated DEM based on updated lidar data
- How do rainfall projections make it into policy and planning at state and local levels.. is it consistent… if not how can it be consistent?
- Projected seasonal precipitation patterns for water supply planning with impervious surface
- Changes in temporal and spatial variations.
- Temporal rainfall distribution for flood risk modeling and mapping
- Vulnerability Assessment ready future rainfall data (GIS)

Sea Level Rise Data and Analysis:

- Need tailwater data and guidance to use in stormwater models for Tampa Bay downstream boundary conditions
- Need to adjust for more recent baseline than 2020
- Extreme Sea Level and how to communicate this
- Maps of salt water wedge penetration up rivers
    - Annual peak
    - State and local
- Application guidance on hot to incorporate into planning and assessment
- Asset based sea level rise impacts based on sensitivity and adaptation capacity
- Refinement of estimates at a local/ finescale level
- Sea Level Rise guidance document on Sea Level and High Tide for Vulnerability Assessments
- Landscape evolution driven by sea level rise
- Development of SLAT
    - Global vs locally translated
    - Tools for comparing different data sources
    - High resolution estuary
    - High resolution gage data

Compound Flooding/ Climate Models:

- Identify areas at risk of compound flooding
- Generation of compound flood models of hazard quantification and RTF
- Guidance on flood modeling for vulnerability assessments to incorporate minimal physical processes
- Flood depth maps (from good models!!!) to address all vulnerability assessment requirements
- Confidence intervals to help with uncertainty conversations.

APPENDIX 1: AGENDA

FloridaWCA Workshop #35
Statewide Resiliency and the Florida Flood Hub
Wednesday, February 26, 2025

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- Provide networking opportunities for attendees to build connections and find synergies.

Workshop Agenda:

9:00 am	**Check-in and Networking Breakfast (provided by the Florida Flood Hub)**
9:30 am	**Welcome and Introductions (Darlene Velez)**
10:00 am	**Hybrid Presentations (Virtual option via Zoom)**

- **Tirusew Asefa,** System Decision Support Manager, Tampa Bay Water– *FloridaWCA Overview and Looking Back*
- **Mark Rains,** Chief Science Officer and Professor, USF School of Geosciences – *Resilient Florida Program Overview*
- **Chuck Jacoby,** Strategic Program Director, USF College of Marine Science – *Florida Flood Hub for Applied Research and Innovation Overview*
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- **Stephanie Verhulst,** Biologist, US Army Corp of Engineers – *Florida Silver Jackets: Collaboratively Working Towards Resiliency*

12:00 pm	**Lunch (provided by the Florida Flood Hub)**
1:00 pm	**Workshop**

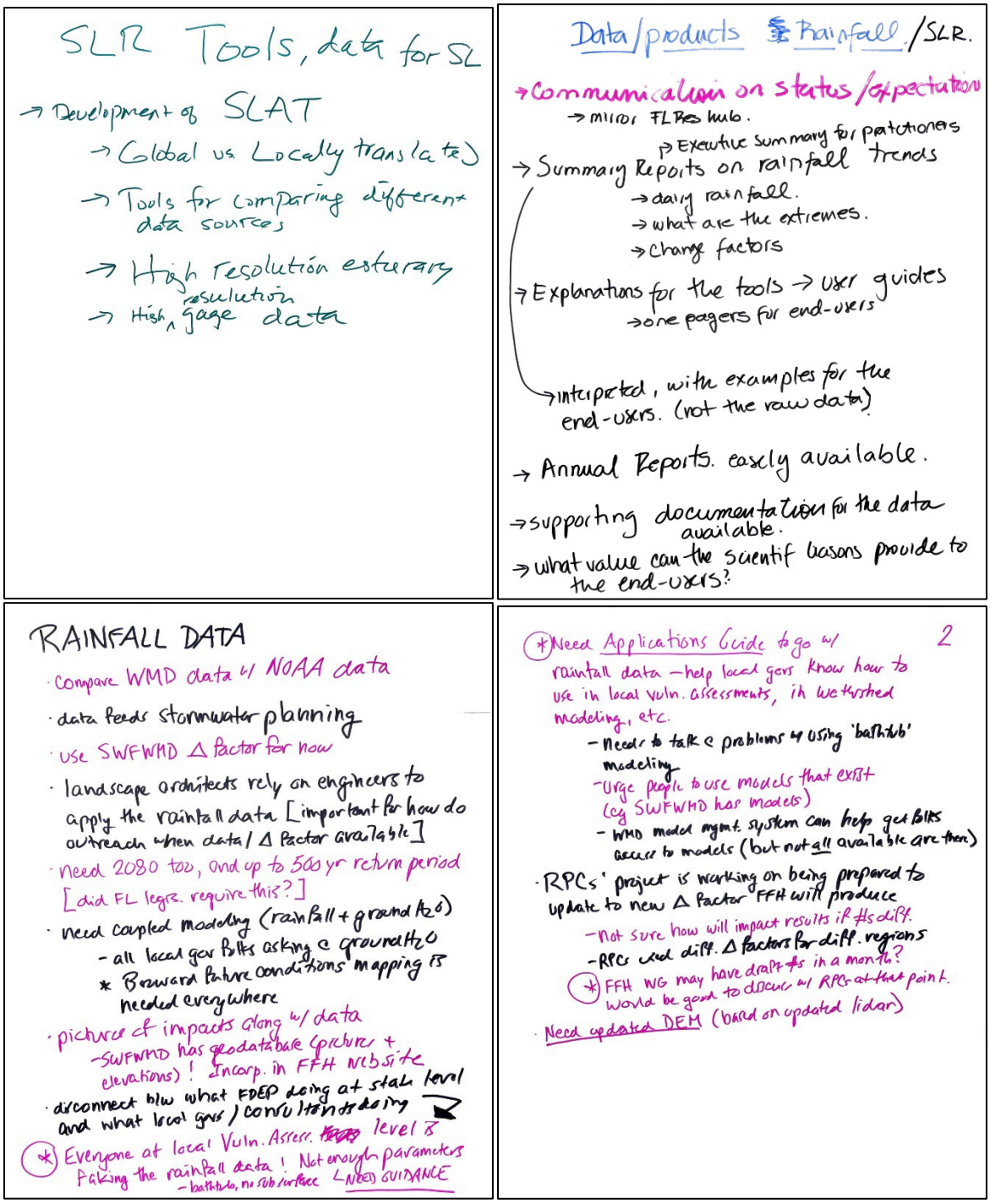
- Presenter Q&A Panel
- Identify Data & Tool Needs

3:00 pm	**Wrap up and Next Steps**
3:30 pm	**Adjourn to Optional Tour**

APPENDIX 2: IN-PERSON WORKSHOP PARTICIPANTS

First Name	Last Name	Organization
Alannah	Irwin	City of Boynton Beach, FL
Anne	Coglianese	City of Jacksonville, Planning and Development Dept
Ashley	Mott	Tampa Bay Regional Planning Council
Brian	Cook	Applied Sciences Consulting, Inc.
Carolina	Maran	SFWMD
Catherine	Earp	AtkinsRealis
Cathleen	Jonas	Water Use Permitting Senior Manager
Ceyda	Polatel	USACE Jacksonville District
Chuck	Jacoby	Speaker, USF
Darlene	Velez	UF Water Institute
Diane	Quigley	Stantec
Ed	Carter	SJRWMD
Gary	Mitchem	USF College of Marine Science
Heidi	Stiller	NOAA Office for Coastal Management
Heidi	Brockhaus	Florida Flood Hub
Jayantha "Obey"	Obeysekera	FIU Sea Level Solutions Center
Jenifer	Rupert	ECFRPC
JoEllen	Wilson	Bonefish & Tarpon Trust
Josh	Sheldon	East Central Florida Regional Planning Council
Kate	Wesner	American Flood Coalition
Katie	Mastenbrook	Florida Sea Grant
Kayla	Caselli	City of Tampa
Kyle	Olejniczak	Dewberry
Lacey	Lingelbach	Florida Flood Hub
Manuel	Castaño	Moffatt & Nichol
Mark	Rains	USF School of Geosciences, Chief Science Officer
Matthew	Goolsby	Clearview Land Design
Muthukumar	Narayanaswamy	The Water Institute
Nicole	Mytyk	SWFWMD
Olivia	Walker	Southwest Florida Water Management District
Pacia	Diaz	AARC Consultant, LLC
Paloma	Carton de Grammont	UF Water Institute
Stephanie	Verhulst	USACE
Tirusew	Asefa	Tampa Bay Water
Tom	Frick	SJRWMD
Tricia	Kyzar	UF - CCS/CLCP
Wes	Brooks	Chief Resiliency Officer, State of Florida
Whitford	Remer	City of Tampa
Young Gu	Her	University of Florida

APPENDIX 3: BREAKOUT GROUP FLIPCHART NOTES



SLR Tools, data for SL

→ Development of SLAT
  → Global vs Locally translated
  → Tools for comparing different data sources
  → High resolution esturary resolution
  → High gage data

Data/products Rainfall /SLR.

→ Communication on status/expectation
  → mirror FLRes hub.
→ Summary Reports on rainfall trends
  → Executive summary for practitioners
  → daily rainfall.
  → what are the extremes.
  → change factors
→ Explanations for the tools → user guides
  → one pagers for end-users
→ interpreted, with examples for the end-users. (not the raw data)
→ Annual Reports. easily available.
→ supporting documentation for the data available.
→ what value can the scientif basons provide to the end-users?

RAINFALL DATA

- Compare WMD data w/ NOAA data
- data feeds stormwater planning
- use SWFWMD Δ factor for now
- landscape architects rely on engineers to apply the rainfall data [important for how do outreach when data / Δ factor available]
- need 2080 too, and up to 500 yr return period [did FL legis. require this?]
- need coupled modeling (rainfall + groundH2O)
  - all local gov Bills asking e groundH2O
  * Broward future conditions mapping is needed everywhere
- pictures of impacts along w/ data
  - SWFWMD has geodatabase (picture + elevations)! Incorp. in FFH website
- disconnect b/w what FDEP doing at state level and what local govs / consultants doing
- (*) Everyone at local Vuln. Assess. level is taking the rainfall data! Not enough parameters – bathtub, no subsurface ↳ NEED GUIDANCE

2

(*) Need Applications Guide to go w/ rainfall data – help local govs know how to use in local vuln. assessments, in watershed modeling, etc.
  - Needs to talk e problems w using 'bathtub' modeling
  - Urge people to use models that exist (eg SWFWMD has models)
  - WMD model mgmt. system can help get Bills access to models (but not all available are there)
- RPCs' project is working on being prepared to update to new Δ factor FFH will produce
  - not sure how will impact results if #s diff.
  - RPCs used diff. Δ factors for diff. regions
  - (*) FFH WG may have draft #s in a month? Would be good to discuss w/ RPCs at that point.
- Need updated DEM (based on updated lidar)

SLR DATA

- Tailwater to use in storm H2O models for Tampa Bay - downstream boundary condition
- adjust for more recent baseline than 2020
- ALSO, guidance for tailwater
- extreme sea level
  - need to talk e this / communicate this
- (*) FFH should collab. w/ Resilience FL Program on guidance about all of this

May the 4th B with You!

Maps of salt water wedge penetration up Rivers
- Annual Peak
- State & Local

How do rainfall projections make it into Policy & Planning
State & County

Projected Seasonal Pricipitation patterns for water supply planning.

Data in downloadable formats .csv with temporal and spatial attributes.

Model compatable data formats. (EnDMc)

Metadata!!!

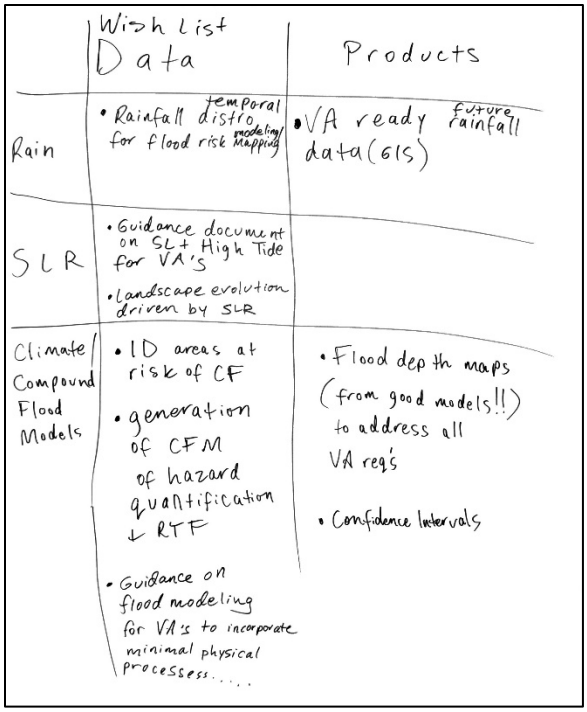
Cathleen
Tricia

Data and PRODUCTS for infill

- Regional change factors to 2080 - 2100
- Comparison of Change factors to Atlas 15, when available
- Changes in temporal and spatial variations
- Application Guidance
- Statewide Viewer that allows scenario comparison

Data and Products for SLR

- Application Guidance
- Asset based SLR impacts based on sensitivity and adaptation capacity
- Refinement of estimates at a local (finescale) level


Wish List
Data
Products
Rain
• Rainfall distro for flood risk temporal modeling/mapping
• VA ready data (GIS) future rainfall
SLR
• Guidance document on SLR + High Tide for VA's
• Landscape evolution driven by SLR
Climate Compound Flood Models
• ID areas at risk of CF
• generation of CFM of hazard quantification ↓ RTF
• Guidance on flood modeling for VA's to incorporate minimal physical processess.....
• Flood depth maps (from good models!!) to address all VA req's
• Confidence Intervals