



UNIVERSITY OF
SOUTH FLORIDA
College of MARINE SCIENCE

Florida Flood Hub for Applied Research and Innovation



CHUCK JACOBY - cajacoby@usf.edu

FLORIDA WATER AND CLIMATE ALLIANCE – 26 FEBRUARY 2025

Florida Flood Hub: Overview

Established by the State

Represents a 1st in Florida

Hosted by the University of South Florida College of Marine Science

Collaborates with the Resilient Florida Program

Focuses on some of the state's most pressing environmental challenges

Informs science-based policy, planning, and management

Bridges gaps among scientists, policymakers, practitioners, and the public
(audience includes 67 counties, 411 municipalities, 1,800 special districts)

Enhances resilience – prepare for, withstand, and rebound from floods and other natural hazards

Improves forecasting for floods – goal is to forecast compound flooding



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Florida Flood Hub: Team

Tom Frazer – Director, Dean of the College of Marine Science

Chuck Jacoby – Strategic Program Director

Audra Ames – Executive Administrative Specialist

Dyllan Furness – Director of Communications

Heidi Brockhaus – Scientific Liaison

Lacey Lingelbach – Scientific Liaison

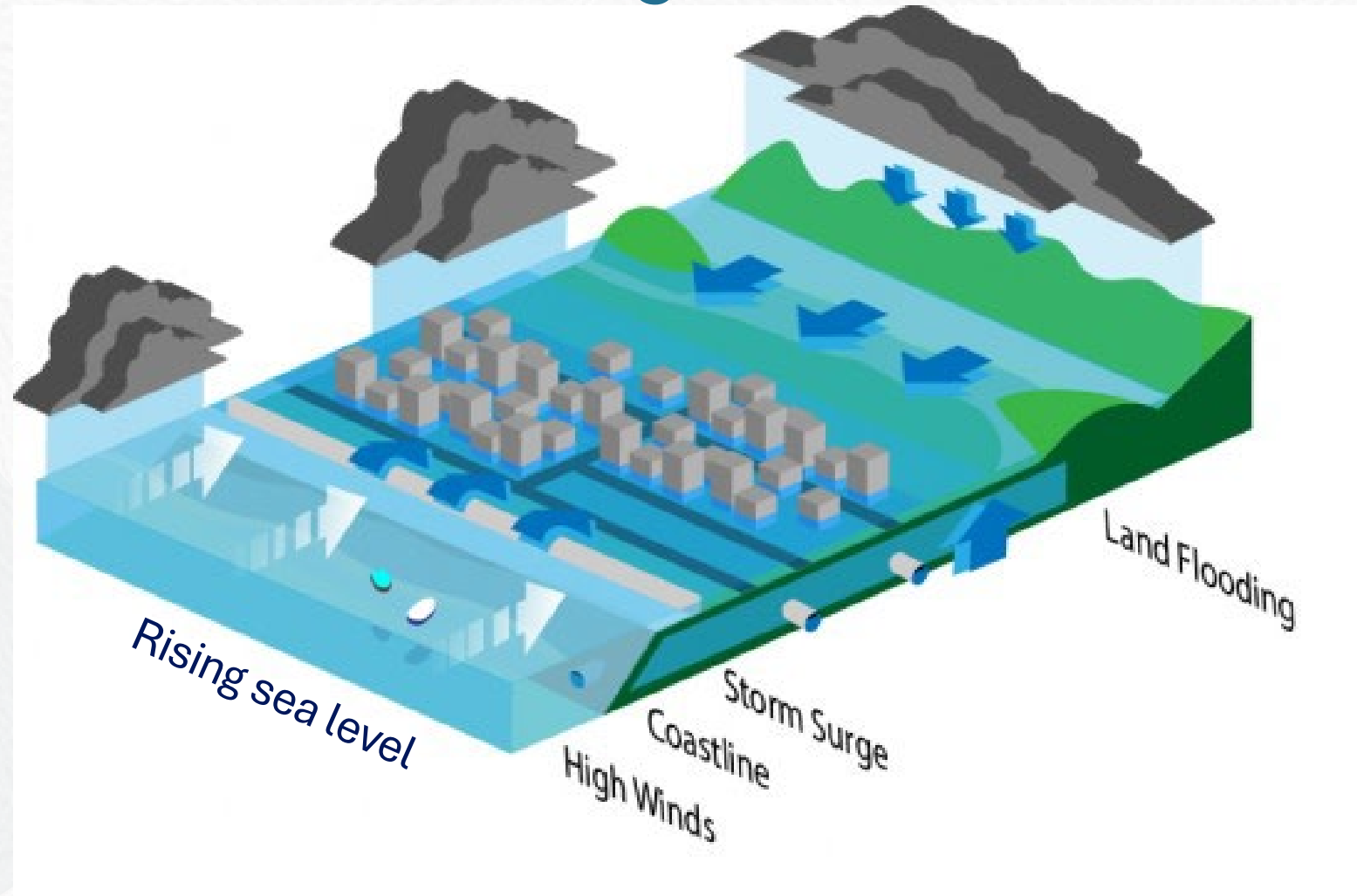
Natalie Yingling – Scientific Liaison



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Florida Flood Hub: Initial target



Florida Flood Hub: Workgroups



Sea Level Rise Workgroup



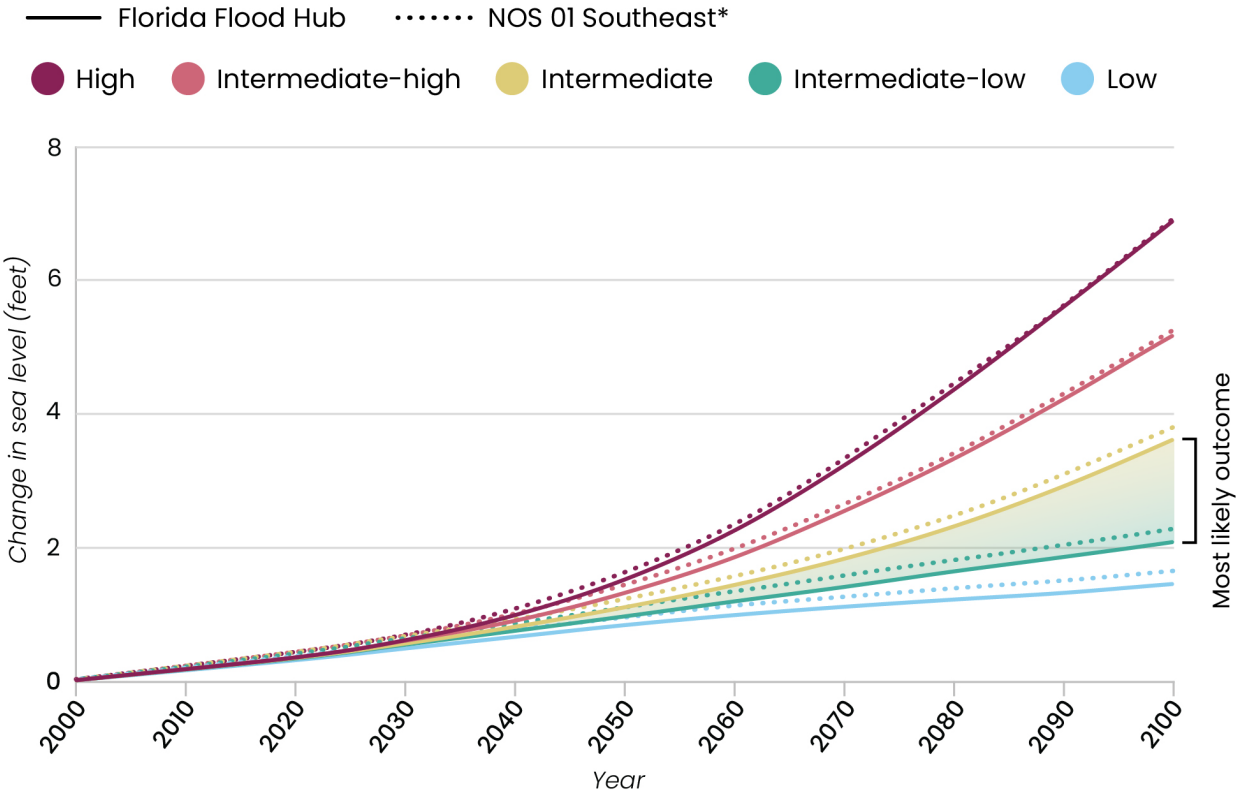
Rainfall Workgroup



Comprehensive Modeling Workgroup

Sea Level Rise Workgroup: Comparison to 2022 report

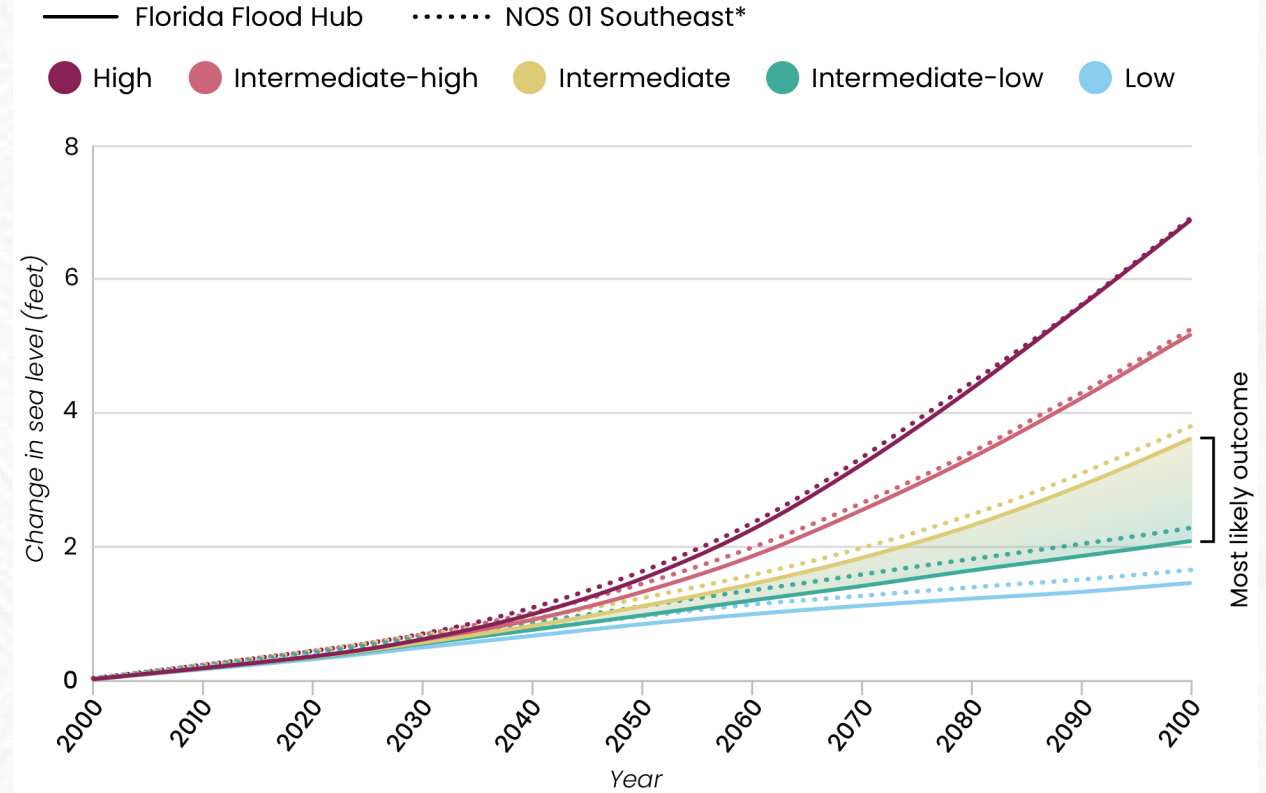
Comparison of sea level rise scenarios:
Florida Flood Hub and NOAA Technical Report NOS 01 (2022)



READ THE FULL REPORT: <https://shorturl.at/T9DME>

*Global and Regional Sea Level Rise Scenarios for the United States:
Updated Mean Projections and Extreme Water Level Probabilities Along U.S. Coastlines

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Florida Flood Hub: Workgroups



Sea Level Rise Workgroup



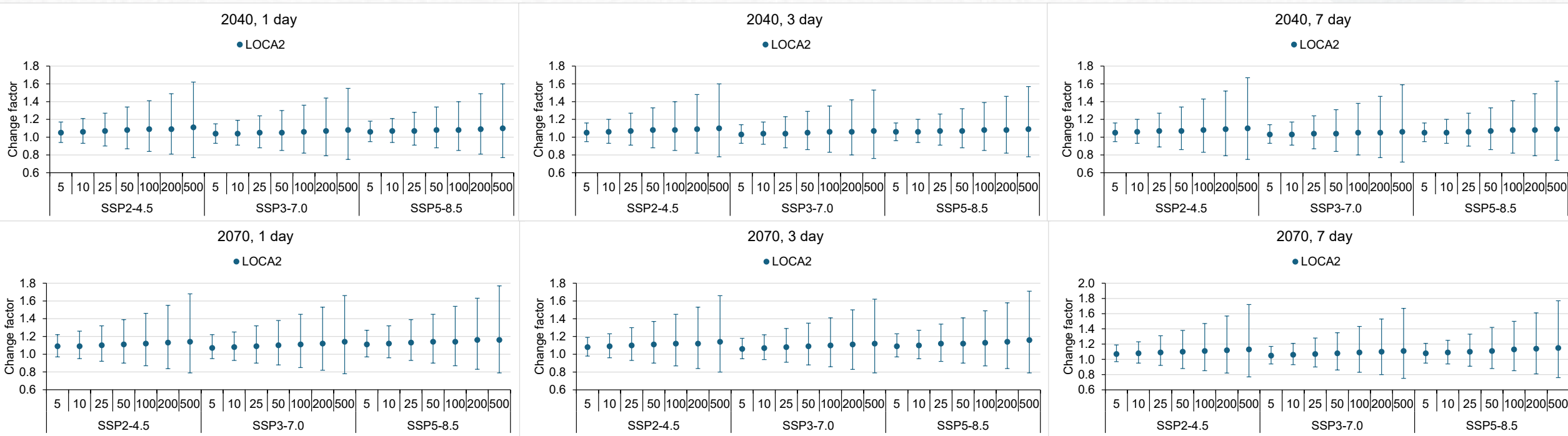
Rainfall Workgroup



Comprehensive Modeling Workgroup

Rainfall Workgroup: LOCA2 (27 models) in CMIP6

Median, 17th & 83rd percentiles



Florida Flood Hub: Workgroups



Sea Level Rise Workgroup



Rainfall Workgroup



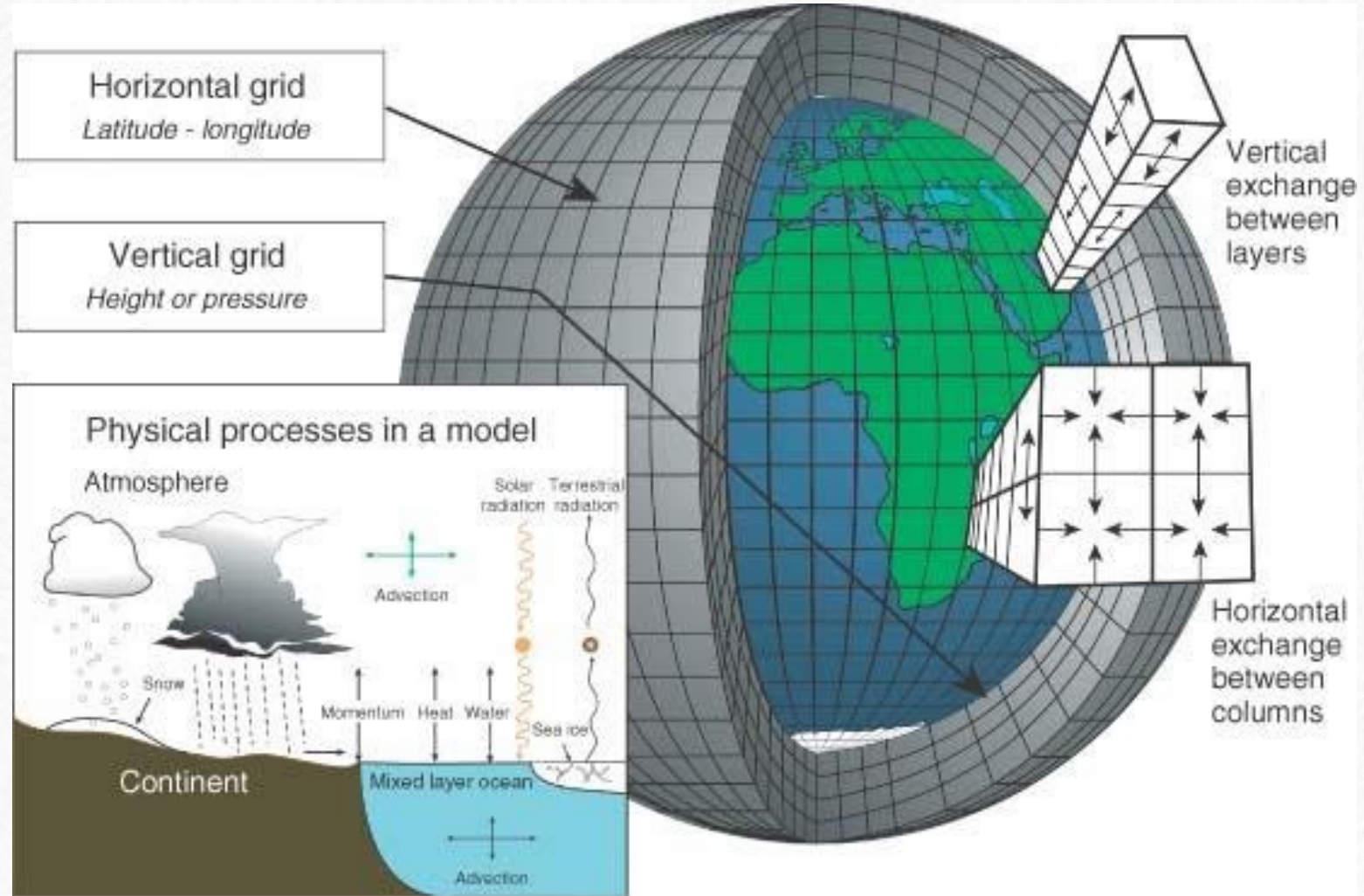
Comprehensive Modeling Workgroup

Modeling Workgroup: Core approach

Improve on resolution of global climate models
(100 km × 100 km grid cells ⇒
10–25 km × 10–25 km grid cells)

Avoid issues with downscaling

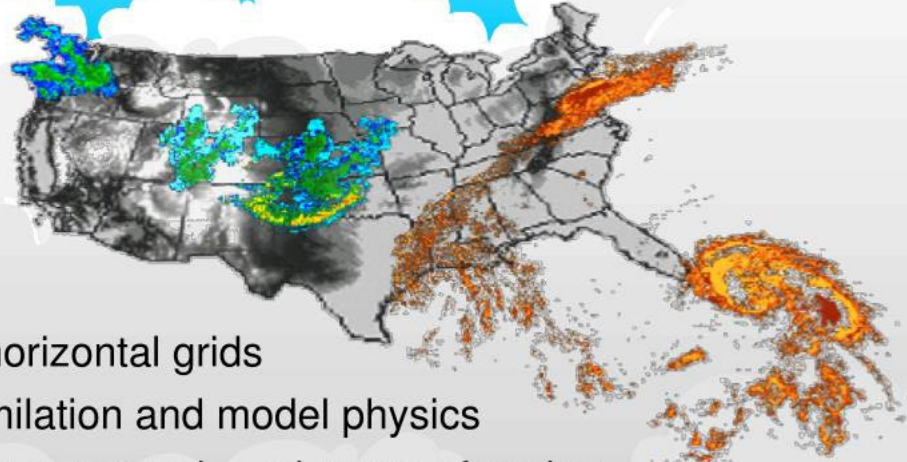
Community Earth Systems Model ⇒
input to Regional Climate Model ⇒
boundary conditions for a Weather Research and
Forecasting Model



Modeling Workgroup: Core approach

Weather Research and Forecast (WRF) Model

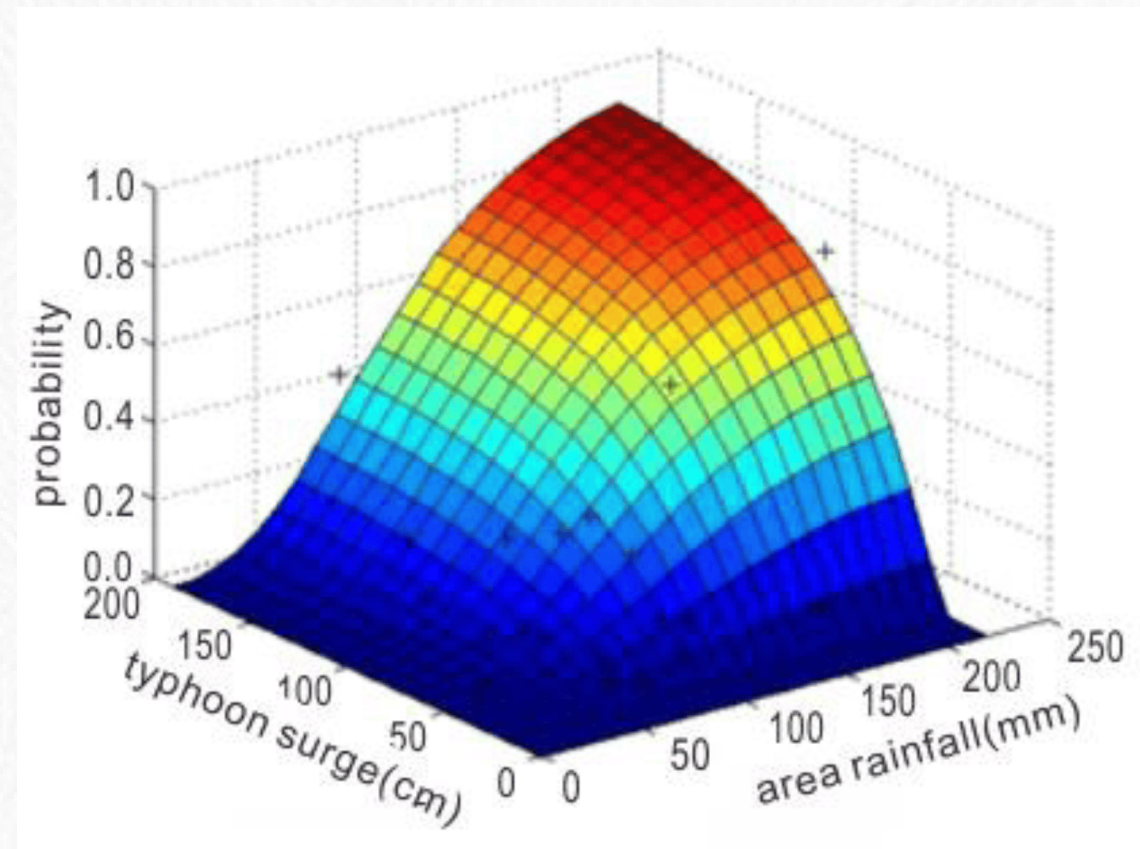
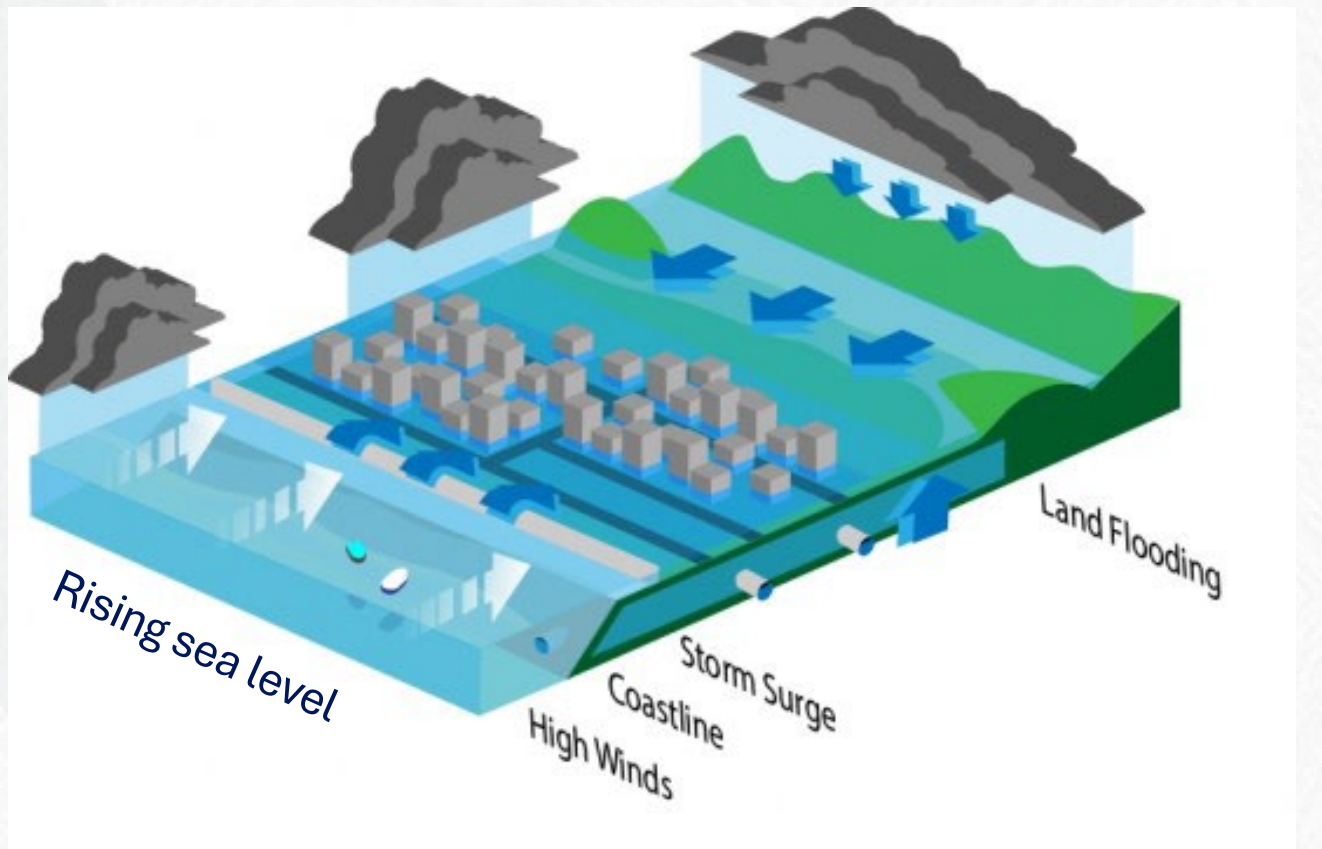
- ➔ Develop an advanced mesoscale forecast and assimilation system
- ➔ Promote closer ties between research and operations



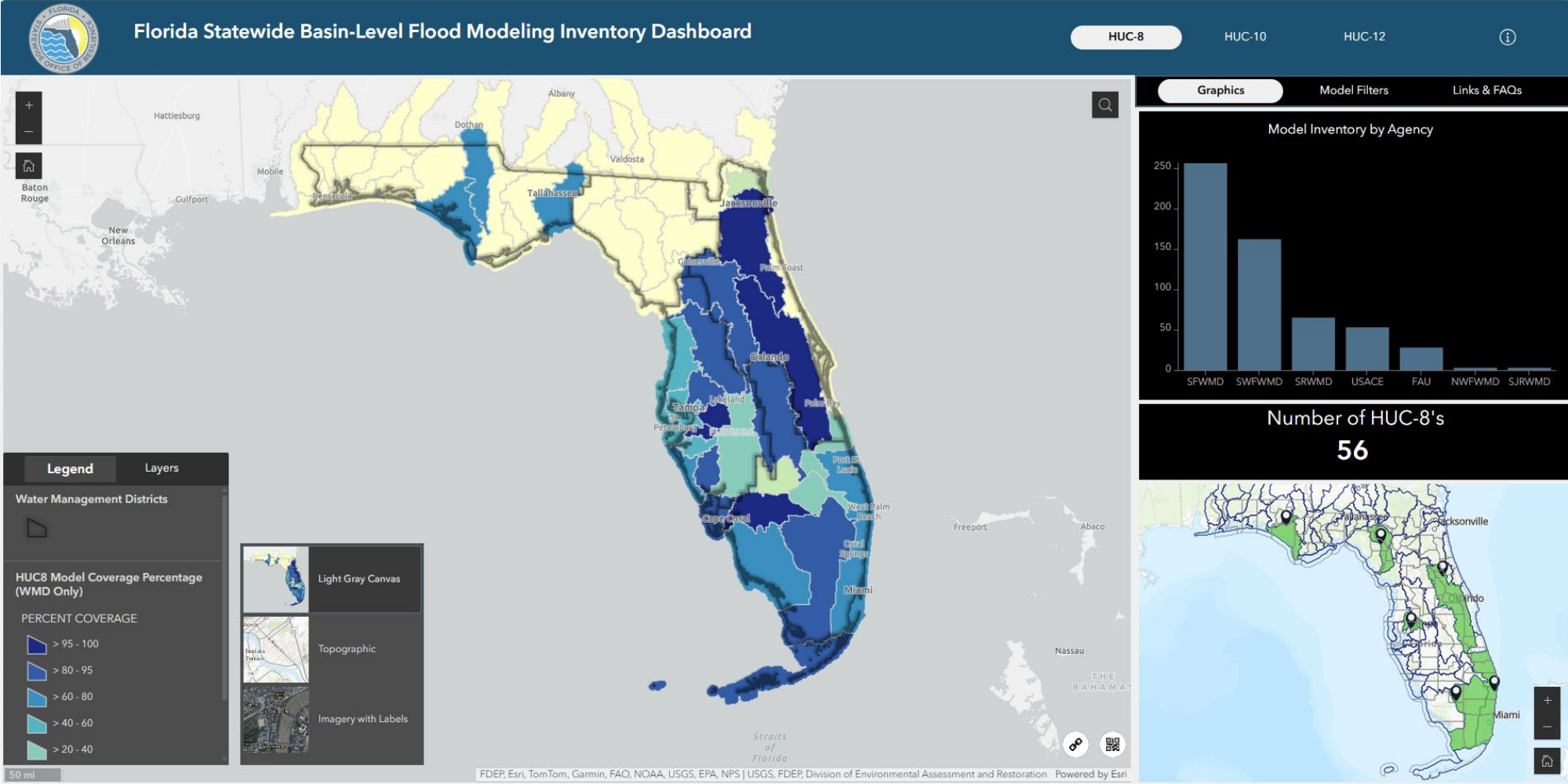
Research:

- Design for 1-10 km horizontal grids
- Advanced data assimilation and model physics
- Accurate and efficient across a broad range of scales
- Well-suited for both research and operations
- Community model support

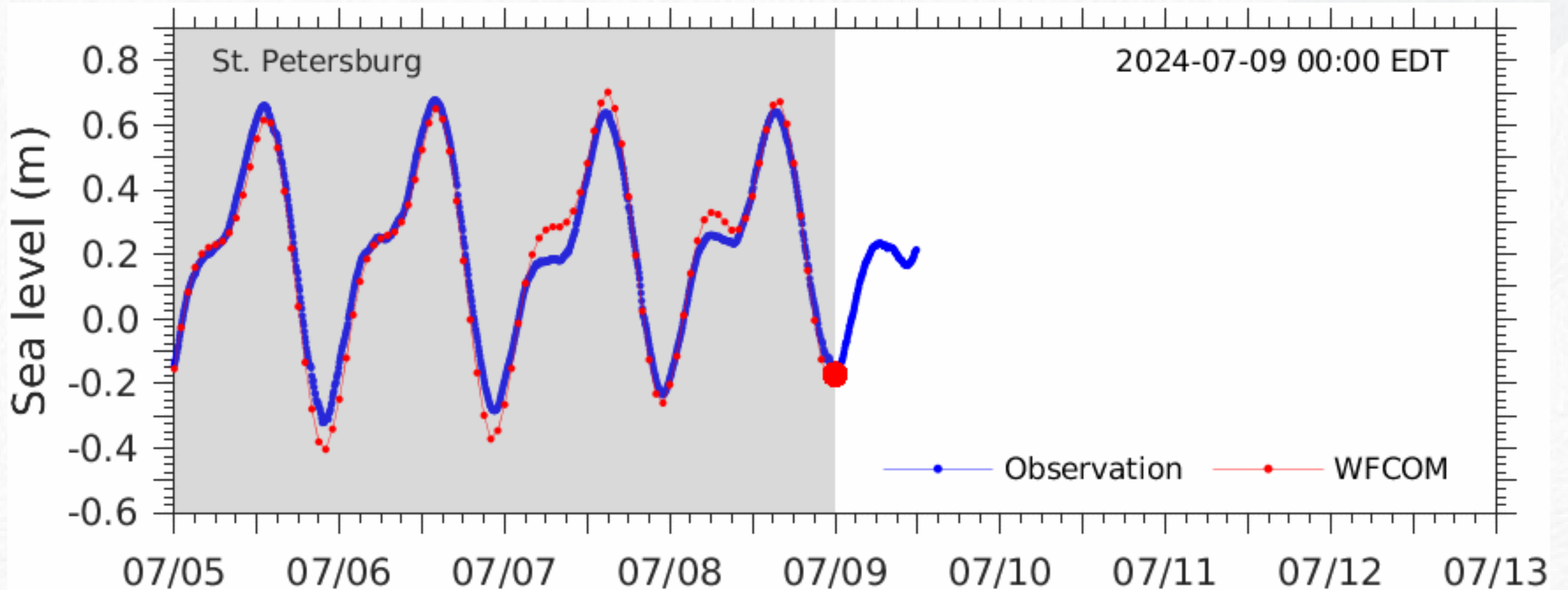
Florida Flood Hub: Compound flooding



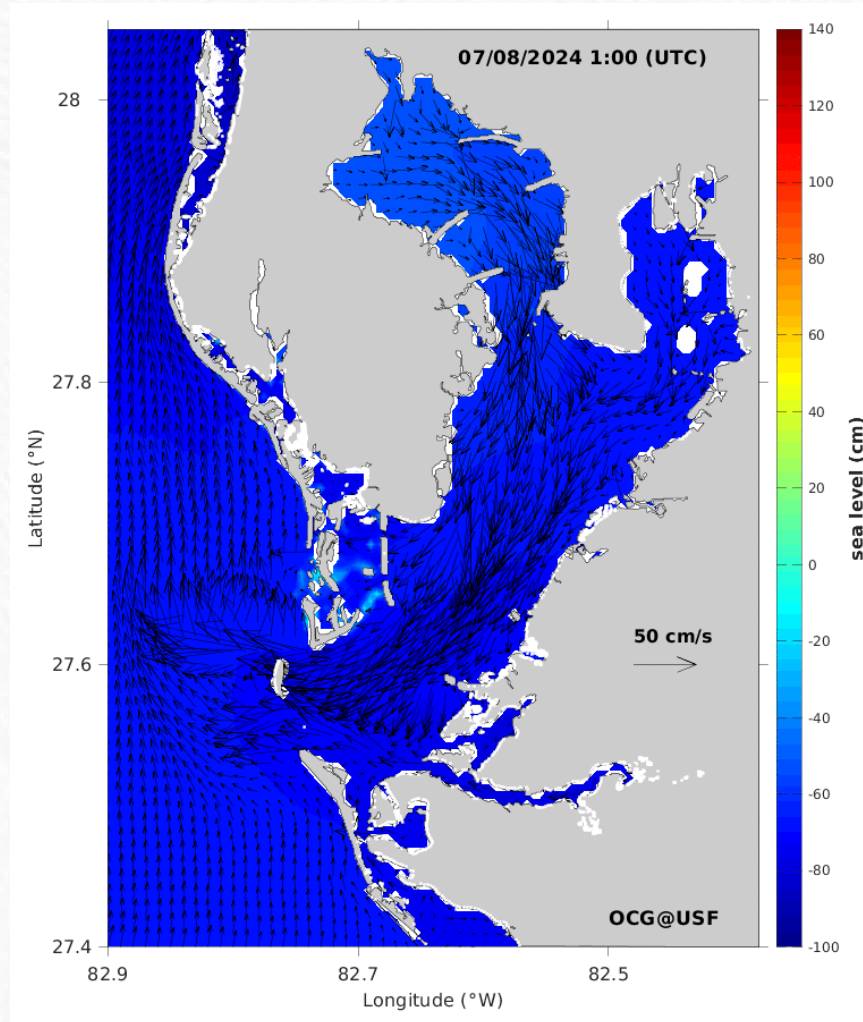
Florida Flood Hub: Modeling inventory



Florida Flood Hub: Nowcasts and forecasts



Florida Flood Hub: Nowcasts and forecasts



Florida Flood Hub: Digital twin



Questions?



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