# Joint Hurricane Testbed Administrative Update

Brian Zachry – NOAA/NWS/NCEP/National Hurricane Center

Jason Sippel – NOAA/OAR/AOML Hurricane Research Division

The JHT is funded by the US Weather Research Program in NOAA/OAR's Weather Program Office

75th Interdepartmental Hurricane Conference

# Joint Hurricane Testbed (JHT)

- Bridges gap between hurricane research & operations
- Began in 2001 under the USWRP
  - Currently in year 2 of the 10th round of projects
- Our Mission: successfully **transfer** new technology, research results & observational advances from research groups to operational centers
- Testing is done at the National Hurricane Center, Central Pacific Hurricane Center or at their institutions

# JHT Staff and Funding

- Brian Zachry: JHT Director, NHC Science and Operations Officer, Acting Technology & Science Branch Chief
- Jason Sippel: JHT Assistant Director and HRD Meteorologist
- Alan Brammer: JHT R2O Facilitator/Programmer

- Current funding for FY19-22:
  - Roughly 600K for current projects
  - ½ time support for JHT Facilitator/Programmer
  - 0.2 FTE support and HRD for admin support
  - ~15K for JTTI project support (real-time demonstration and evaluation)

- FY23 funding round is just around the corner

# JHT Project Overview

- Round 8 (FY15-17): 8 projects completed
  - 5 accepted for operational implementation
  - 1 deferred until additional evaluation can be conducted
  - 2 not accepted for operational implementation
- Round 9 (FY17-19): 6 projects in total (awaiting decision letters)
  - 5 projects completed
  - 1 project in no-cost extension
- Round 10 (FY19-22): 3 new projects in progress
  - 2 projects FY19-21
  - 1 project FY19-22

# NHC Procedure for Operational Decision

- JHT staff receive final project reports from PI(s)
- Distribute interim and final project reports to NHC forecaster points of contact (POCs), TSB Chief, HSU Chief, and JHT Staff for comments and feedback
- Collect feedback from project POCs from real-time demonstrations
- Author NHC Operational Implementation Reports for each project
- Brief NHC Director on each project and JHT staff recommendation
- NHC Director makes final decision and signs recommendation report
- Send final decision reports and formal letter to PI(s)
- NHC/TSB adds JHT transitions to O&M and annual development priorities

# Metrics for Operational Implementation

- **Forecast or Analysis Benefit:** expected improvement to operational forecast and/or analysis accuracy
- **Efficiency:** adherence to forecaster time constraints and ease of user's needs in forecast process
- **Compatibility:** IT compatibility with operational hardware, software, data, communication, etc.
- **Sustainability:** availability of resources to operate, upgrade, and/or provide support

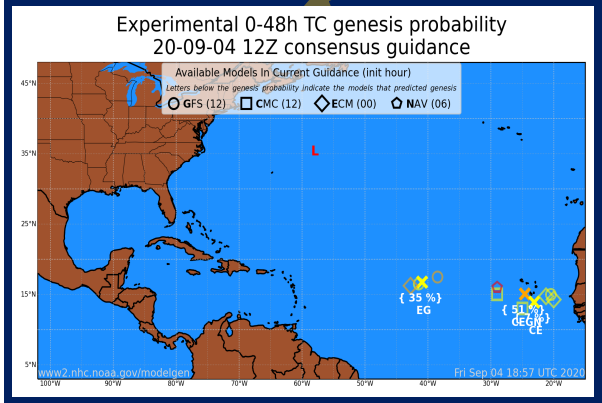
# JHT Operational Implementation Summary

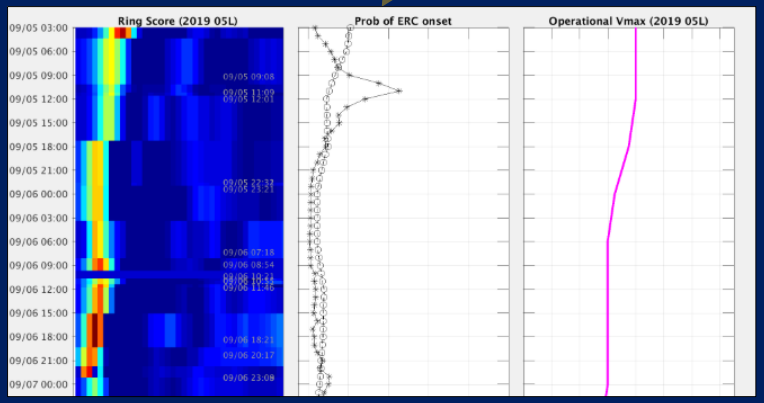
- 98 projects supported in 10 funding rounds
  - 59 accepted for operational implementation
  - 24 not accepted
  - 6 deferred
  - 4 projects ongoing (3 current round and 1 NCE)

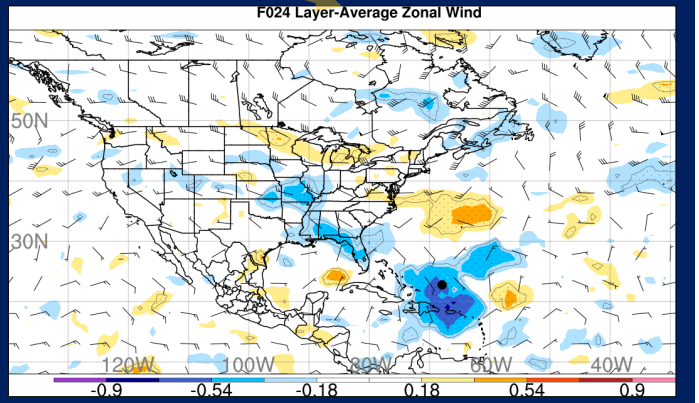
- Currently writing NHC Operational Implementation Reports for FY17 and previously deferred projects

# FY19-22 JHT Projects

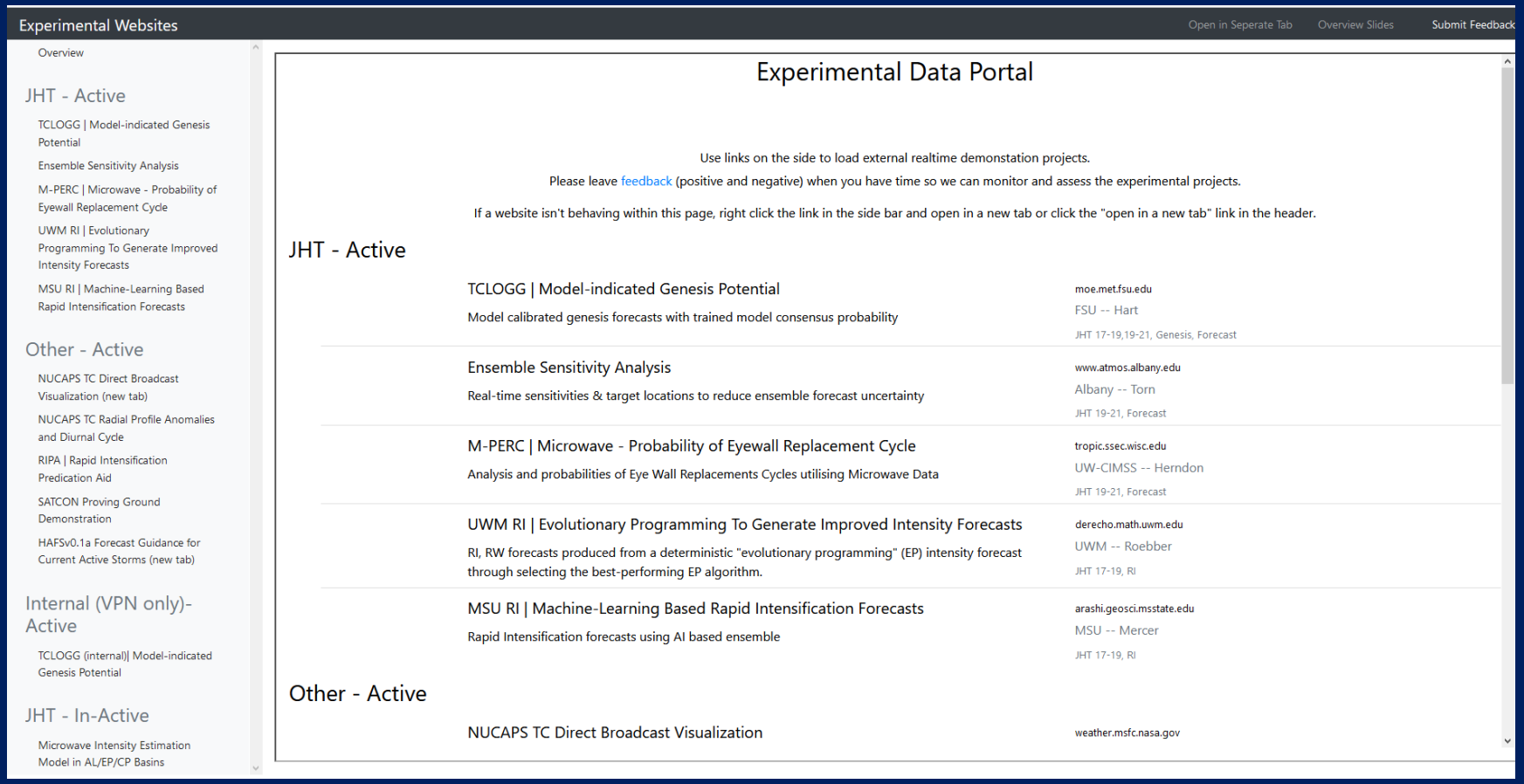
| Project Title (FY19-22) | Principal Investigator(s) |
|---|---|
| Further improvements and extensions to the tropical cyclone logistical guidance for genesis (TCLOGG) FY19-22 | Robert Hart (FSU)<br>Dan Halperin (Embry-Riddle) |
| Upgrades to the M-PERC and PERC Models to Improve Short Term Tropical Cyclone Intensity Forecasts FY19-21 | Derrick Herndon (UW Madison) |
| Transitioning Ensemble-based TC Track and Intensity Sensitivity to Operations FY19-21 | Ryan Torn (Albany) |



# NHC Internal Webpage



# Current JTTI Projects

- FY18: 1 Project in JHT Evaluation
  - Dan Halperin: Adding tropical cyclone genesis verification capabilities to the Model Evaluation Tools – Tropical Cyclone (MET-TC) software
- FY19: 2 Projects in JHT Evaluation
  - Nate Hardin & Taylor Trogdon: Generating Storm Surge Hazards using Hazard Services
  - Galina Chirokova: Use of Ocean Stability Data and Machine Learning to Improve Tropical Cyclone Situational Awareness and NHC Statistical-Dynamical Intensity Guidance

# Tropical and Marine Transition Lab (TMTL)

- Kickoff at the HRD-NHC Science Meeting (2/11) with Ken Graham and John Cortinas
- Support from OAR for construction, remodeling, IT equipment, furniture, etc.
- TMTL potential projects:
  - Various testbed and/or projects related to tropical (JHT, JTTI, HFIP, Satellite, SBES, observations, marine, etc.)
  - Short-fused operational issues or media graphics
  - Parallel AWIPS system for testing and data ingest
  - Tropical product testing with partners
  - Dream it up!
- Working to partner with GSL to establish AWIPS Cloud environments to enable an efficient R2O pathway
- Potential participants involved in lab include staff from various testbeds, AOML/HRD staff and scientists, social scientists, emergency managers, visiting scientists, core partners, private sector, university scientists, etc.

**Prototype TMTL Layout**

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