



# Joint Hurricane Testbed (JHT) 2009 Update

Transitioning Research to Operations

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# **Joint Hurricane Testbed**

## ***Mission Statement***

The mission of the Joint Hurricane Testbed is to **transfer** more rapidly and smoothly new technology, research results, and observational advances of the United States Weather Research (USWRP), its sponsoring agencies, the academic community and other groups into improved tropical cyclone analysis and prediction at operational centers

# Summary of JHT projects 2001-2009

- **1) Number of projects supported: 50**
  - 40 completed, 30 accepted for operational implementation
  - Number of projects rejected: 5
  - Number of projects completed but pending further investigation (decisions deferred): 5
  - Number of projects in process: 10
- **2) Implementation**
  - Number of numerical modeling related projects implemented by EMC/NCO: 10
  - Number of projects implemented by NHC: 16.5
  - Number of projects accepted but not yet fully implemented by NHC: 3.5

Note:

- 1) Implementation is defined for a project that is completed, accepted, and fully installed on NCO or NHC operational systems and runs or executed on operational time frame.
- More projects were "implemented" on some platform for testing

# JHT Process

- **Principal Investigators apply for funding through NOAA**
- **A seven member Steering Committee rates all proposals**
- **Funded projects are tested during one or two hurricane seasons in conjunction with NHC/ Environmental Modeling Center points of contact**
- **At the project's end, each are evaluated by NHC/EMC staff**
- **Implementation of successful projects are then carried out by NHC/EMC staff/Pis**

## Factors Considered in NHC Decisions on Operational Implementation

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

# 2009 Current Activities

## Testing of 4<sup>th</sup> round projects

- Collaboration with PI
- Programming
- Establishing data flow
- Generating output for forecaster use/evaluation

# Current Activities

## 4th Round Project Focus Areas

Primary Area of Focus	# of Projects
Improvements to dynamical models (for track, intensity, and precipitation forecasts)	5
Statistical intensity forecast guidance	1
Enhancements to observed data, assimilation	0
Tropical cyclone structure/wind/wave distribution	2
Track forecast guidance	1
Enhancements to operational environment	1
<b>Total</b>	<b>10</b>

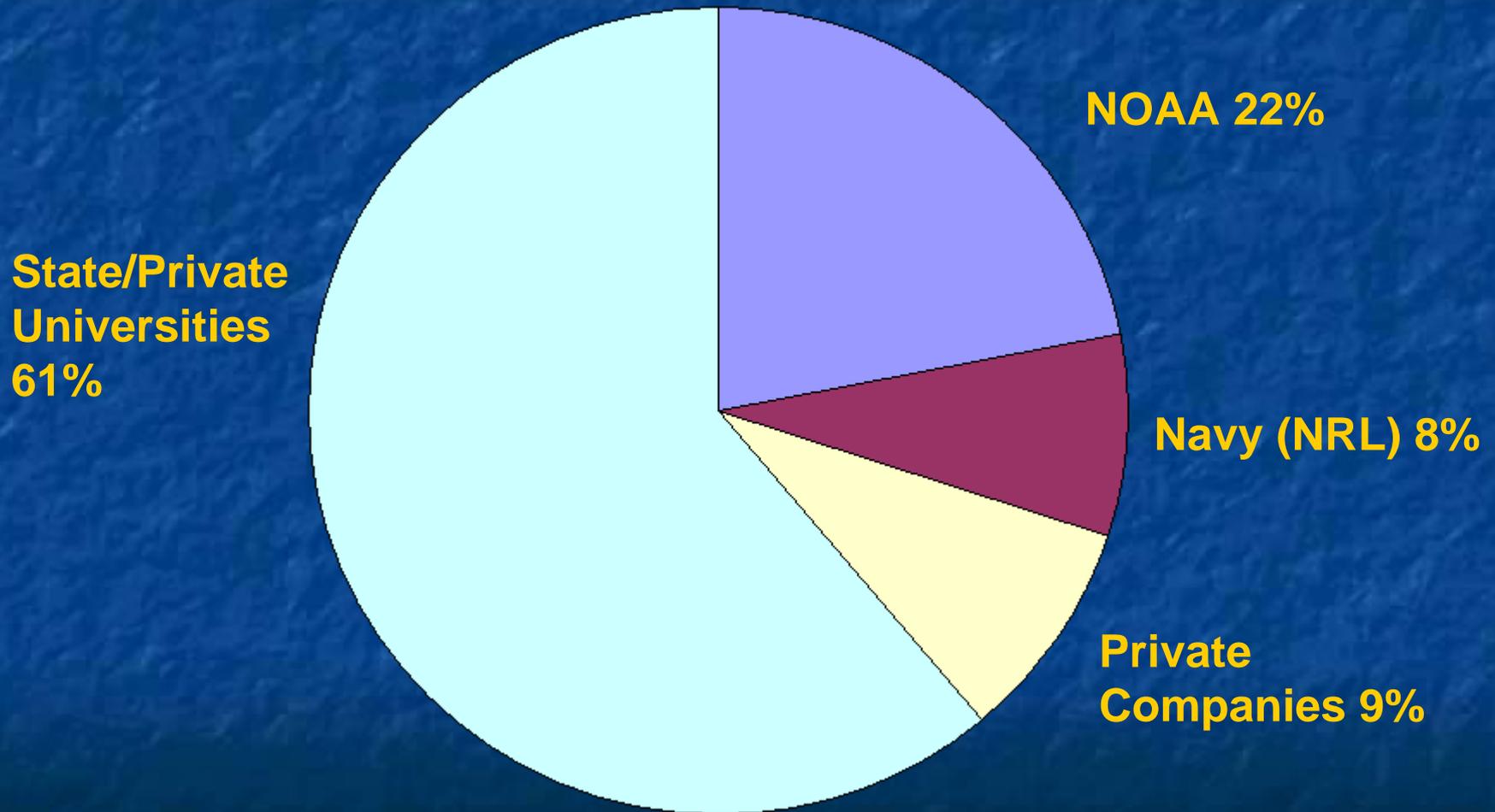
# ■ Preparation for 5<sup>th</sup> round projects

## Draft Federal Funding Opportunity (FFO) (Mar 08)

- Centers priorities
- Evaluation criteria
- FFO published - \$1.25 million advertised (Jul 08)
- Steering Committee Review of 29 pre-applications (Sep 08)
- Steering Committee Review of 22 full proposals (Feb 09)
- Top 12 projects funded - \$1.15 million (Mar 09)
- Points of Contact established (Jun 09)
- Timelines of projects established (Jul 09)
- Projects begin (Aug 09)
- Projects finish (Jul 11)
- Decisions made on implementation (Jan 12)

# 5th Round (FY09) Funding Distribution

Actual  
Total \$1.15M



## 2009-present Major Activities

### 5th Round Project Focus Areas

Primary Area of Focus	# of Projects
Improvements to dynamical models (for track, intensity, and precipitation forecasts)	5
Statistical intensity forecast guidance	3
Enhancements to observed data, assimilation	1
Tropical cyclone structure/wind/wave distribution	2
Enhancements to operational environment	1
<b>Total</b>	<b>12</b>

# Improvements to dynamical models (for track, intensity and precipitation forecasts (5 projects)

<b>Proposal Summary</b>	<b>PIs</b>
<b>HWRF Hurricane Model Transitions to Operations</b>	<b>Tuleya (SAIC)</b>
<b>Improving HWRF-Ocean Coupled System</b>	<b>Ginis (U Rhode Island) Bender (NOAA/GFDL)</b>
<b>Improvements of Cloud and Precipitation Physics in HWRF</b>	<b>Wang (U Hawaii) Phillips (U Hawaii)</b>
<b>Improvement of Ocean Model Parameterizations for NCEP Operations</b>	<b>Shay (U Miami) Halliwell (U Miami)</b>
<b>Improving Predictability of the Atlantic Warm Pool in Ocean Model</b>	<b>Wang (NOAA/AOML) Lee (NOAA/AOML)</b>

# Statistical intensity forecast guidance (3 projects) and Enhancements to observed data, assimilation (1 project)

<b>Proposal Summary</b>	<b>PIs</b>
<b>Monte Carlo Wind Probability Model Development</b>	Kidder (CSU) & DeMaria (NOAA/NESDIS)
<b>Incorporation of Inner Core Information in Rapid Intensity Index</b>	Kaplan, Cione, Dunion (NOAA/AOML) Dostalek (CIRA/CSU) DeMaria, Knaff (NOAA/NESDIS) Lee (NRL)
<b>Secondary Eyewall Formation Index</b>	Kossin (U Wisconsin/CIMSS)
<b>Unified Dropsonde Quality Assurance and Visualization Tool</b>	Black (NOAA/AOML) & Martin (NCAR/EOL)

## Tropical cyclone structure/wind/wave distribution (2 projects) and Enhancements to operational environment (1 project)

<b>Proposal Summary</b>	<b>PIs</b>
<b>Improved Real-Time Hurricane Ocean Vector Winds from QuikSCAT</b>	Jones (U Central Florida) Uhlhorn (NOAA/AOML) Chang, Zelenak (NOAA/NESDIS)
<b>Real-time transmission of surface wave heights from NOAA aircraft</b>	PopStefanjia (ProSensing)
<b>ATCF enhancements</b>	Sampson (NRL)

# JHT Website

[www.nhc.noaa.gov/jht](http://www.nhc.noaa.gov/jht)

USWRP 

## Joint Hurricane Testbed

- [JHT Home](#)
- [Terms of Reference \(PDF\)](#)
- [Staff](#)
- [Steering Committee](#)
- [Main Activities](#)
- [Highlights - 2001 to present](#)
- [Current Projects \(2005-2007\)](#)
- [Past Projects](#)
- [Administrative Presentations and Information](#)

### Mission Statement

The mission of the Joint (National Oceanic and Atmospheric Administration - NOAA, Navy, and National Aeronautics and Space Administration - NASA) Hurricane Test Bed is to transfer more rapidly and smoothly new technology, research results, and observational advances of the United States Weather Research Program (USWRP), its sponsoring agencies, the academic community and other groups into improved tropical cyclone analysis and prediction at operational centers.

### WHAT'S NEW

#### Updated January 31, 2006:

- [2005-2007 Projects and Goals](#)
- The 2005 Midyear Reports are available in the [Project Table](#)

#### Added February 10, 2006:

- [The Joint Hurricane Testbed \(JHT\): Progress and Future Plans, Chris Landsea \(TPC/NHC\) - American Meteorological Society's Annual Meeting, February 2006 presentation. \(PDF format\)](#)