



Joint Hurricane Testbed (JHT) 2009 Update

Transition from Research to Operations

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Outline

- Summary of JHT projects 2001-2008
- Major 2008-2009 activities at JHT & NHC
- Challenges ahead

Summary of JHT projects 2001-2008

- **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

2008 Major Activities

- **Completion of the third round (2005-2007) projects**
 - Completed in August 2007
 - Final evaluation (NHC/EMC POCs & JHT)
 - September-December 2007
 - Decision on acceptance for implementation (NHC and EMC Directors)
 - 4 criteria for acceptance
 - Decisions made January 2008
 - 12 projects accepted
 - 3 projects deferred pending further evaluation
 - Implementaton
 - 11 implemented: 4 by EMC/NCO & 7 by NHC

2008 Major Activities

Factors Considered in TPC 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

2008 Major Activities

Implementation (NHC)

- Some relative easy
- Some very complicated
- TPC contributes ≥ 0.5 FTE/yr on implementation
- JHT IT facilitator assists in the process
- NCEP/EMC and NCO also contributed

Operational Centers are not funded for this task

Highlights of 3rd Round Implemented Projects

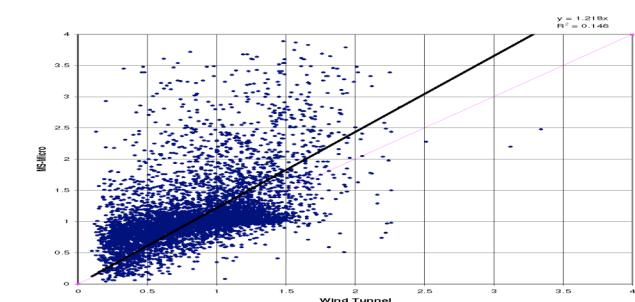
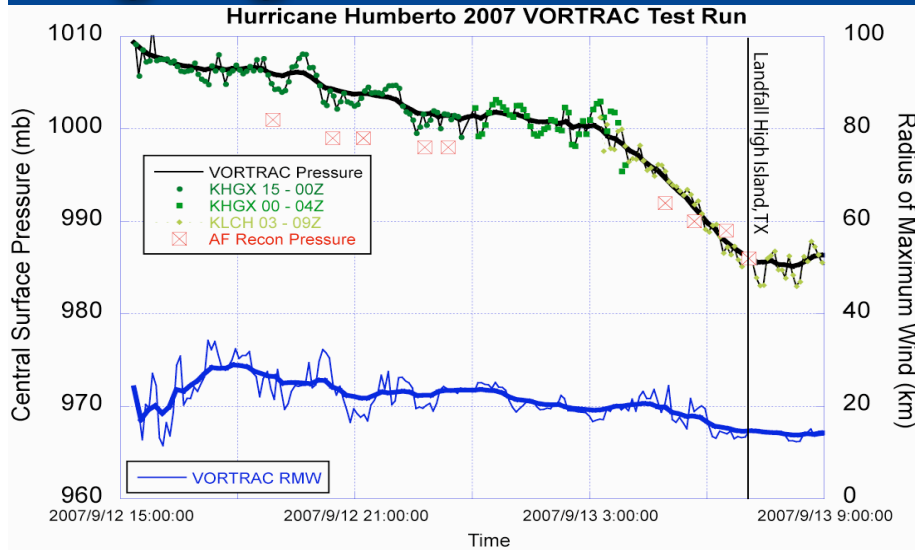
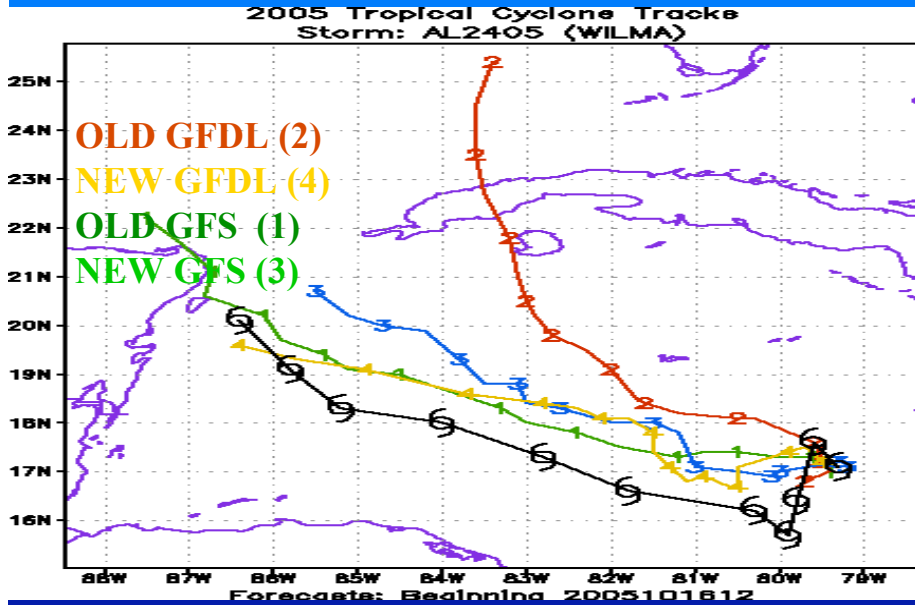


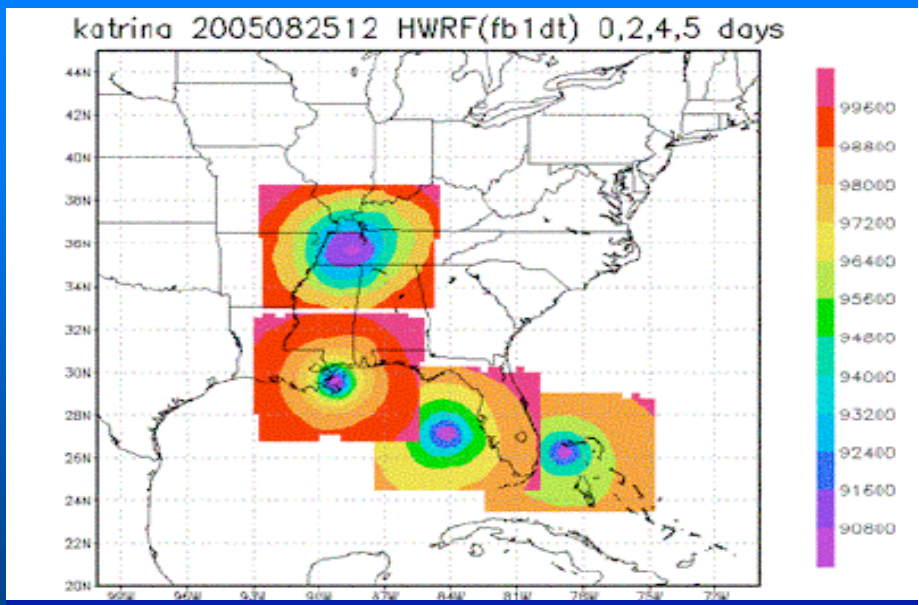
Figure 1: Scatter plot of MS-Micro predicted speed-up factors versus speed-up factors measured in the wind tunnel study of Chock *et al.* (2002) for the islands of Oahu and Kauai

VORTRAC – Lee/Bell/Harasti

Topographic Wind Effects - Miller

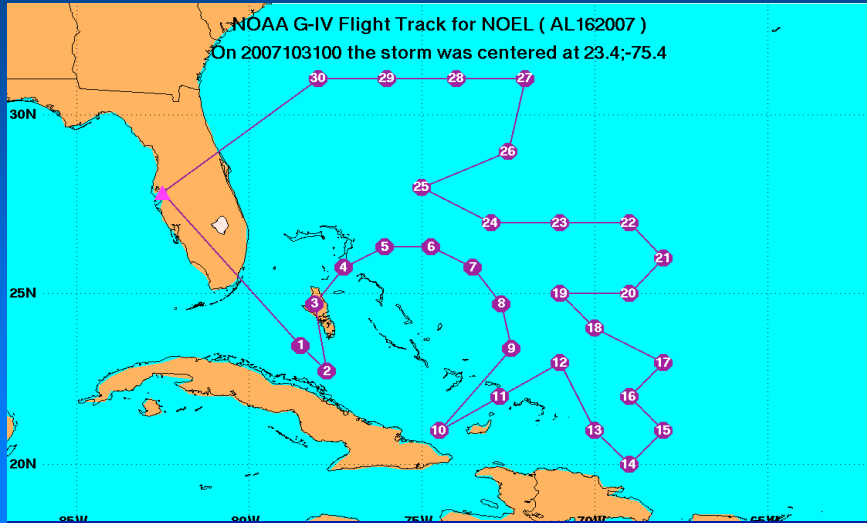


GFDL – Bender

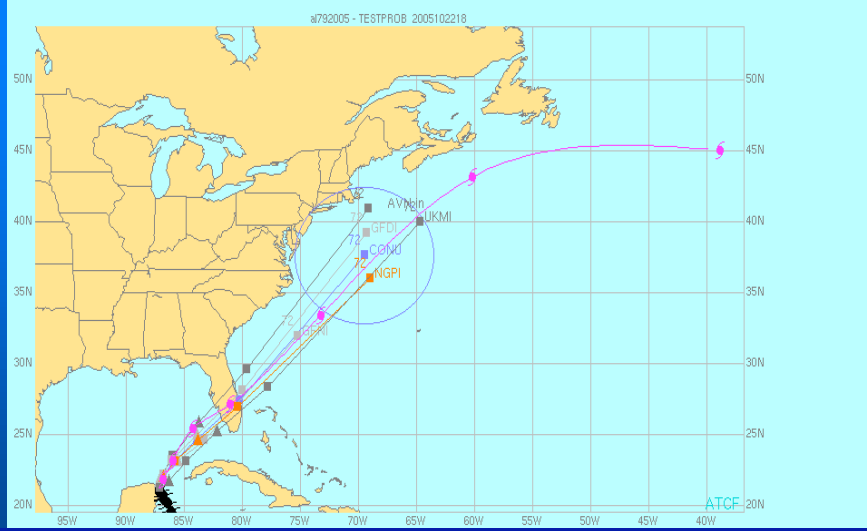


HWRf – Tuleya, Powell

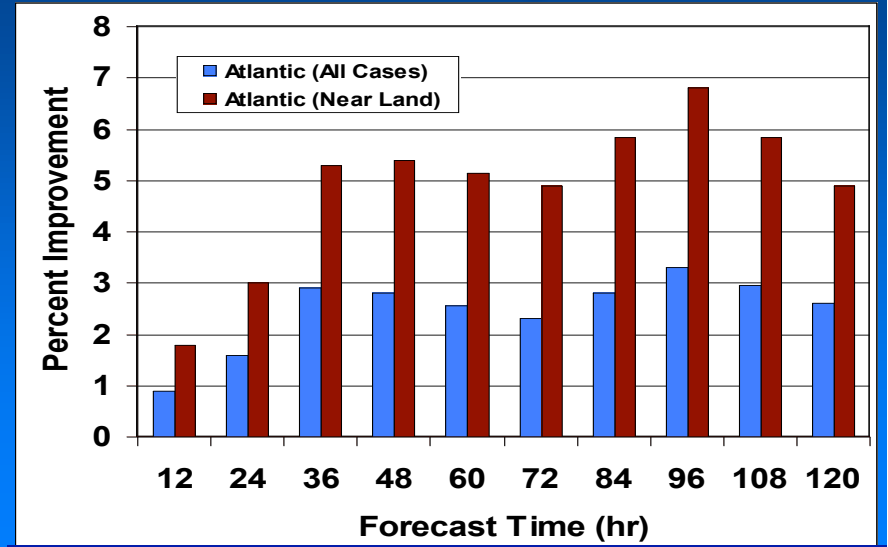
Highlights of 3rd Round Implemented Projects



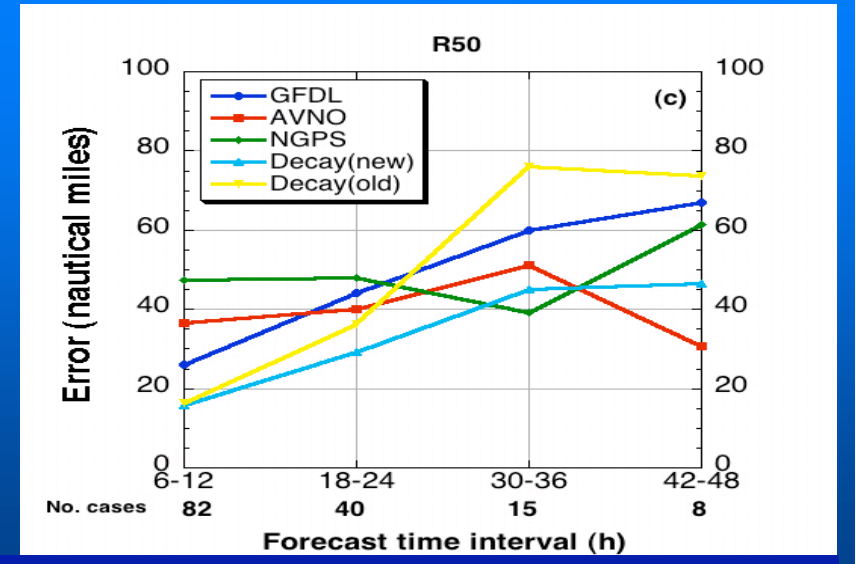
Inclusion of Dropsonde Moisture into GFS – Abernson/Dunjon



Corrected Consensus Track Forecasts - Goerss



Revised SHIPS intensity forecast scheme – DeMaria/Knaff



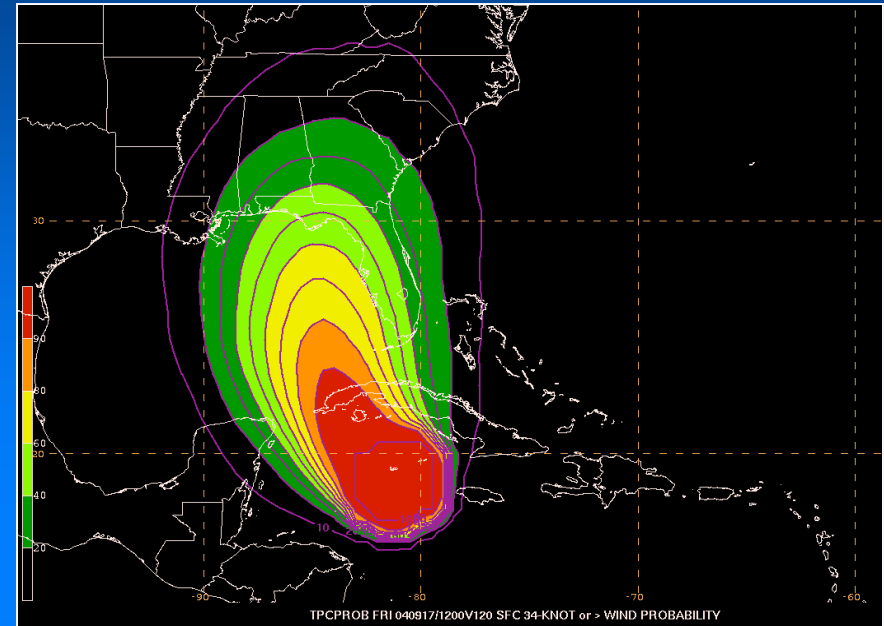
Wind Radii Decay Model - Kaplan

Highlights of 3rd Round Implemented Projects

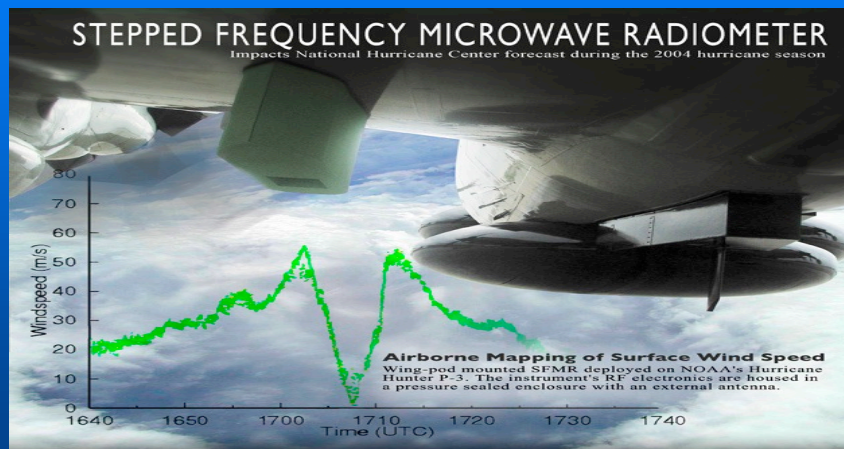
Satellite (Subj. Dvorak) Fix Data - RADII al802006

- Center/Intensity Center Fix Max Wind Speed Fix
- DTG (YYYYMMDDHHMM) 20060823
- Latitude [] N S Longitude [] E W
- PCN CONF
- PCN or CONF 6 Poorly def'd circ center/ephemeris
- Satellite Type []
- Dvorak Code - Long Term Trend
 - Final T-Number none
 - CI Number none
 - Anticipated Intensity Change + - Blank
 - Past Change Developed Steady Weakened Blank
 - Amount of T-Num change none Hours since previous eval []
- Dvorak Code - Short Term Trend
 - Past Change Developed Steady Weakened Blank
 - Amount of T-Num change none Hours since previous eval []
- Forecast Intensity none * Fix Type CSC - cloud system center
- Sensor Type Visual Infrared Microwave
- Tropical SubTropical ExtraTropical
- Comments []
- * Fix Site [] Initials []
- * Fields marked with an asterisk (*) are required.

Improvements to ATCF operating system - Sampson



Enhancements to Wind Probability Products – Knaff/DeMaria



SFMR - Carswell/Black

2008 Major Activities

- Second year funding renewal for 4th round projects – April - June 2008
- Testing of 4th round projects
 - Collaboration with PI
 - Programming
 - Establishing data flow
 - Generating output for forecaster use/evaluation

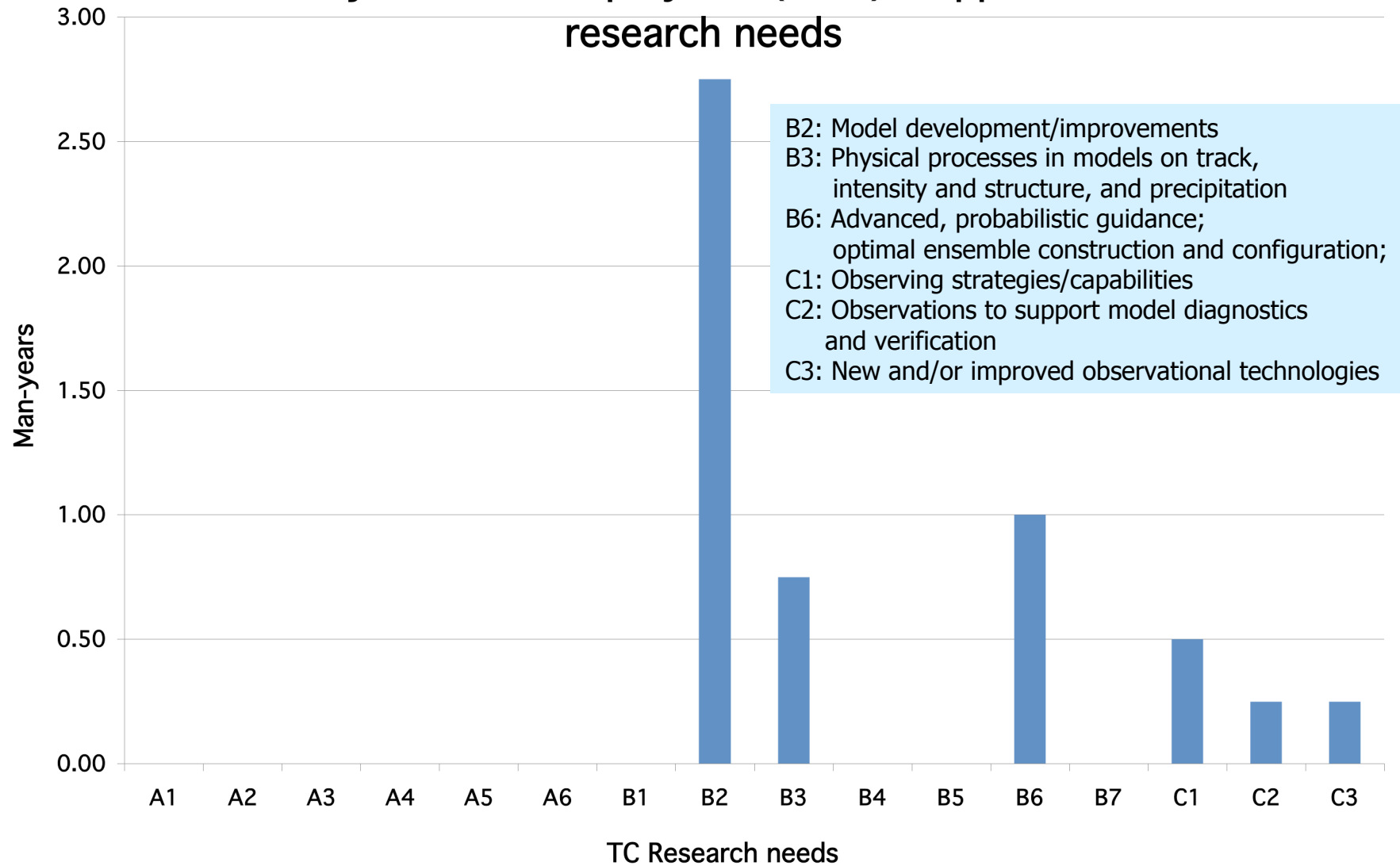
Cont.

2008 Major 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
Total	10

Currently-funded JHT projects (Rd 4) mapped onto TC research needs



2008 Major Activities

- Preparation for 5th round projects
 1. Draft Federal Funding Opportunity (FFO) (March 08)
 - Centers priorities
 - Evaluation criteria
 - FFO published early July
 - SC Review of Pre-applications (September)
 - PIs submitting full proposals (Oct 30)
 - SC Review of full proposals (completed)

Challenges for FY09

- **Fifth round funding processes**
 - Steering committee review proposals – Complete Feb 2009
 - Rank and select proposals for funding
 - Work with Grants Office to fund selected projects
 - Find Point of contacts among NHC forecasters and support staff
 - Work with PIs to setup timelines for their projects
- **Test and evaluation**
 - Prepare real-time testing & evaluation for 5th round projects
 - Set up necessary software code and data flow.
- **Completion of 4th round projects**
 - Final reports for 4th round projects
 - POC feedback
 - JHT final review/reports to NHC Director for acceptance
- **Implement newly accepted projects (TPC)**

Acknowledgements

- JHT Steering Committee
- Shirley Murillo, JHT Admin. Asst.
- Chris Landsea, TPC SOO and JHT Admin. Asst.
- Jose Salazar, JHT meteorologist/programmer
- TPC and EMC forecaster and points of contact
- TPC/Technical Support Branch staff
- JHT principal investigators and other funded participants
- John Gaynor (USWRP)
- TPC/NHC admin staff

JHT Website


Go to www.nhc.noaa.gov

Joint Hurricane Testbed - Home - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://www.nhc.noaa.gov/jht/index.shtml

NCEP Systems Monitor



- JHT Home
- Terms of Reference (PDF)
- Staff
- Steering Committee
- Main Activities
- Highlights - 2001 to present
- New Projects (2007-2009)
- Current Projects (2005-2007)
- Past Projects
- Administrative Presentations and Information

Mission Statement

The mission of the Joint 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 May 8, 2006:
Please read about the new projects for 2007-2009

Updated November 21, 2006:
The JHT FY07 AFFO Application Deadline has been reopened.

Updated June 16, 2006:
The JHT FY07 Announcement of Federal Funding Opportunity has been released.

Added April 26, 2006:

- The 2005 First Year Reports are available in the Project Table
- Joint Hurricane Test Bed (JHT): 2006 IHC Update, Dr. Jiann-Gwo Jiing, JHT Director, Technical Support Branch Chief, TPC/NHC, Interdepartmental Hurricane Conference, 22 March 2006 presentation. (PDF format)

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Done

Thank you