Joint Hurricane Testbed

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Joint Hurricane Testbed Overview

- **Our Mission**: successfully transfer new technology, research results & observational advances for tropical cyclone forecasting from research groups to operational centers (NHC, CPHC, JTWC)

- Round 8: FY15-17 – 7 projects with no cost extensions wrapping up

- Round 9: FY17-19 – 6 projects in progress

- Round 10: FY19-21 - Selection of new projects nearly completed

- **Funding levels**
  - ~$750 K for project funding
  - ½ time support for JHT IT facilitator
  - 0.2 FTE support and HRD for admin support
FY18 Highlights

• FSU Hart/Halperin TC genesis product very popular with forecasters

• CSU/CIRA heat content/daily SST processing system implemented in NHC operations for 2018 hurricane season
  • Extensive new developmental dataset for sub-surface ocean predictors for NHC statistical TC intensity models

• Two projects using machine learning for TC intensity models
  • Will assess value of advanced statistical methods relative to linear methods currently used

• U of Miami aircraft under-sampling bias correction method will be used in NHC operations in 2019
Challenges

• Leadership changes
  • Former JHT Director (Chris Landsea) became NHC TAFB Chief in May 2018
    • Mark DeMaria Acting JHT Director
    • Jason Sippel taking on larger role
  • JHT IT facilitator contract ended, new facilitator selected with new role

• Projects backing up (3 rounds at once)
  • Formal evaluation for FY15-17 projects will start soon

• Several recent projects have incompatible software, require real-time processing not available at NHC
Backup Slides for R2O Discussion
Metrics for Operational Implementation

- **Forecast or Analysis Benefit**: expected improvement operational forecast and/or analysis accuracy
- **Efficiency**: adherence to forecaster time constraints and ease of user’s needs
- **Compatibility**: IT compatibility with operational hardware, software, data, communication, etc.
- **Sustainability**: availability of resources to operate, upgrade, and/or provide support
NHC Procedure for R2O Decision

• Receive final reports from PIs
• Provide interim and final reports to NHC forecaster focal points, TSB Chief, JHT Director for comments
• Make recommendation to NHC Director
• NHC Director makes final decision
  • Accepted for transition
  • Deferred
  • Non accepted
• Send decision letters to PIs
• NHC/TSB adds JHT transitions to annual development priorities
Evaluation of Round 1-7 Projects
Status of Round 1-7 Projects (2001-15)

By Round

Total Rounds 1-7
Lessoned Learned for Successful R2O

• Early coordination with project PIs
  • Describe NHC’s operational computer environment
  • NHC forecast cycle and time constraints
• Real-time demonstrations enlightening
• Two categories of successful projects
  1. Major new capabilities
     • Examples: 2003 TC Rapid Intensification Index
                 2007 Windspeed probability model
                 2015 Initial Hart/Halperin TC genesis probabilities
  2. Used compatible software or tested in parallel operational IT environment
     • Examples: 2007 Add GOES and ocean heat content predictors to statistical models
                 2013 Extended-range baseline track/intensity models
                 2017 NRL TC satellite product web page enhancements