Preliminary Recommendations and The Way Ahead

Plan focuses on 4 main research goals:

1. Improve forecasts of tropical cyclone intensity/structure
2. Improve tropical cyclone track forecasts
3. Improve forecasts of impacts at landfall from wind, surge, waves, severe weather and rain
4. Improve understanding of economic and social impacts of tropical cyclones and associated forecasts and warnings
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• Intensity/Structure (STIP: FY07 15.4 kt, FY12 13.9 kt)
  – Intensity and structure highest priority for NOAA - structure highest priority for DoD
  – Requires high-resolution, coupled air-sea-land prediction system with advanced physics (e.g., HWRF), model system test capability, attendant observing & DA system
  – Provide high quality atmosphere & ocean observations for assimilation into and evaluation of model system
  – Improve understanding of physical processes & develop improved representation of such in model system
  – Speed transfer of new science & technology (e.g., JHT, JCSDA, DTC)

* Intensity defined here as maximum 1-min sustained wind at 10-m altitude anywhere in storm
* Structure defined here as radii of 34, 50, 64, and radius of maximum wind

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• Track (GPRA: FY07 128 nm, STIP: FY12 90 nm)
  – Track is second highest priority for NOAA and DoD - essential for improvement to impacts
  – Continue current track improvements through implementation of new model, attendant observing and DA system
  – Provide high quality atmosphere observations through development of new sampling strategies
  – Improve understanding of physical processes that effect track, particularly predictability limits and outliers, focusing on both large speed errors (e.g., recurvers and stalling storms) and large direction errors (e.g., loops)
  – Speed transition of research to operations
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- Impact of wind, surge/wave, severe wx & rain
  - Highest priority for customer and NOAA - radius of 12 ft sea high priority for DoD
  - Implement operational storm surge model system (include waves, run-up, coastal and estuary processes) coupled to HWRF for wind & rain - requires accurate operational surface wind analysis
  - Provide high quality atmosphere & ocean observations for evaluation of model system
  - Improve understanding of physical processes that effect impacts from wind, surge/waves, severe wx and rain
  - Speed transition of research to operations
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• Socio-economic
  – Economic cost-benefit activities priority of NOAA, economic and social impacts priority for all
  – Need research component in social science coordinated with physical science and decision-making communities.
  – Improve understanding of:
    • Economic and social impacts of hurricanes,
    • Costs and benefits of various response strategies,
    • Decision making environment, and
    • Technology infusion process - basic research to societal benefit.
  – Interrelated factors contribute to more effective decision-making reducing society's vulnerability to hurricanes.
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• Recognized need for research to improve understanding of long-term changes in tropical cyclone behavior
• Priority not as high as other four
• Recommend this activity be charged to climate change community as one of their high priorities
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- Need to build end to end process to insure success

5 - 10 yrs
Basic Research

3 - 5 yrs
Applied Research

0 - 2 yrs
Operations

0 - 2 yrs
Decision Makers
Input for Report

- Draft Interagency Strategic Research Plan is available

- Joint Agency Group for Tropical Cyclone Research (JAG/TCR) will seek to finalize Research Plan during next few months

- Comments and input are welcome

- Send comments and input to:
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