

Future Direction Group Discussion

Science Strengths

- Knowledge of detailed observations evaluation of instruments
- Tropical Cyclone Numerical Weather Prediction
- Statistical dynamical modeling
- Hurricane and climate
- Structure intensity change theory
 - Inner core processes
- Data Assimilation theory
- Sampling hurricane with aircraft
- Hurricane environment, periphery
- Air-sea interaction and boundary layer structure
- Turbulence
- Inverse modeling
- Verification/evaluation of model fields
- Microphysics
- Land interaction

What are the issues/problems & possible solutions?

1. HFP: 2 P-3s until 2016, after that: 1 P-3, 1 G-IV
2. Leverage with NASA, NHC, universities, lobbying in support of aircraft
3. Be proactive to formulate plan for the future hurricane observations requirements
4. Show operational value of P3s (aggressively) and what we need to do (e.g. UAS, TDR)
5. Contingency plan in a world without aircraft
6. Identify target audience (decision makers) and onboard allies (NHC, AOC, EMC, etc)
7. Plan ready to go if there's a major landfall and Congressional funds suddenly free up (e.g. concise "why we need the P-3s", specific costs associated with a P-3 re-winging; how much extra life (bang for the buck) we get from a re-winging)
8. Identify unique capabilities of the P3s (e.g. instrument test platform, UAS, etc.)
9. Tap into historical data archive of HFP data
10. Evaluation of the model
11. Intensity and structure forecast
12. Quantitative improvements
13. What if there are no aircraft?
 - Develop multiple databases of HRD data (e.g. GPS, air-sea, radar): mine, organize, analyze (with goal of understanding and improving the models)
 - Small-scale field projects and seek external funding (e.g. vortex)
 - Tap into science expertise
14. Expand modeling, DA (one place shop for hurricane modeling prediction)
15. Collaborate with other groups like PhOD, climate-related (IPCC), wind engineering, etc.
16. "Lead" observational investigation hurricane research-focused aircraft missions (including non-NOAA)
17. OSSE studies
18. Expand focus beyond hurricanes? (e.g. sea breeze dynamics and winter storms)