



# **Process to Develop Ideas for New NHC Tropical Cyclone Products and Services in the Next 3-10 Years**

**Michael Brennan, NHC**

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# Background

- For the past several years, NHC's focus has been on implementation of the Storm Surge Watch/Warning, as well as the addition of Post-Tropical and Potential Tropical Cyclone advisories
- What should be the next advances in NHC's tropical cyclone products and services over the next 3 to 10 years?
- We began by collecting ideas from HSU and then from the rest of the NHC staff
- We'll be sharing those ideas today and asking for additional feedback and comments before reaching out to a wider group in the user community

# Potential Product Enhancements - Graphics

- Graphic to show all TS/Hurricane/Storm Surge watches/warnings for the NHC website and briefings
- Graphic to display storm surge forecast inundation values included in the public advisory
- Improve communication of inland flood threat through new graphics or probabilistic products from WPC
- Graphical representation of all hurricanes hazards, including rip current threat
- Dynamic track uncertainty cone based on model spread and synoptic situation instead of climatological errors
- Replace cone graphic with a more hazard based product
- Intensity forecast cone and/or landfall intensity probability information

# Potential Product Enhancements - Forecasts/Warnings

- Day 6-7 track and intensity forecasts
- Intermediate TC forecast points beyond 48 h
- Extend real-time storm surge guidance availability to 72 h prior to landfall
- Issuance of pre-genesis TS/Hurricane Watches/Warnings for marine areas
- Probabilistic wave height information
- 7-day genesis forecasts
  - Perhaps only do 6-7 day forecasts for tropical storms initially

# Potential Product Enhancements - Other

- Reformatting the TCM to a matrix or data table and removing the watch/warning information
  - Some reformatting will probably be necessary when additional forecast points are added (60-h and/or day 6/7)
  - Would make it easier to add new parameters (e.g., probabilistic information)
  - May need a larger discussion of what TC information the marine user community needs in the TCM or perhaps another product for marine users
- A new product or extension of an existing product that provides a bulk measure of forecast uncertainty
  - Could start with track, but later be extended to include intensity and maybe wind structure
  - Could use GPCE information for this

# Potential Collaboration Improvements

- Collaborated TS/Hurricane wind watch/warning via hazard grids in GFE/AWIPS2
  - Automated first guess watch/warning area based on wind speed probabilities
  - Analogous to storm surge watch/warning collaboration process
- HSU-issued wind grids
- Audio/Video TCDs and/or briefings

# Potential New Tools

- Develop ensemble-based tools to provide guidance to NHC forecasters for targeting supplemental observations (G-IV, raobs, satellite) to improve TC predictability
- Compiling post-storm data that currently go into TCR tables into a GIS database that users could become part of the permanent archives from the storm (and posted with the ATCF decks) that users could download and work with

# Externally Contributed Ideas/Feedback (so far)

- Issue PTC advisories prior to the watch timeframe
  - Consider adding option to issue PTC advisories within 72 h of arrival of hazards?
- Information on time of departure of TS winds
  - Concern about giving public false sense of safety if other hazards still ongoing
- EMs interested in 6-7 day forecasts as a planning tool even if uncertainty is high



# What's Next?

- What are the highest priorities given that we are all dealing with limited resources?
- Collecting feedback and additional ideas here and in meetings with customers and partners over the next few months
  - Jan-Feb: FEMA L-324 courses
  - Feb-March: ICCOH
  - March: National Hurricane Conference
  - March: Marine Workshops
- Prioritize items, determine resources needed, and develop timelines
  - How does this work in current NWS governance structure?
- Interact with users to determine details
- Involve social science for any changes or additions to public products (could be folded into new HFIP effort to examine entire NWS TC product suite)