Web-based Display and Diagnostic System

- Open-source web-based display and diagnostic system to support NHC and the hurricane community
- Display is designed using modular and flexible technology:
  - OpenLayers mapping tools
    - Platform independent
    - Open access
  - MySQL database
  - Primary input: ATCF files
- Near real-time and historical storms access for all basins
- Wind radii and fixes editing
- Diagnostic evaluation tools
- Consensus forecasts

Real-time access through the HFIP webpage:
- http://products.hfip.org/nhc-display/
NHC Display Activities

- Improved graphics
- Menu functionality (drop down menus)
- Overlay options
- Historical Storm Analysis
- Bug fixes
- Support for NHC and community versions
Forecast Model Stratification

• Model system stratifications are developed in collaboration with NHC – Updated each season

• Groups
  – Default
  – TVCN
  – GFS Ens
  – ECMWF Ens
  – UKMET Ens
  – CMC Ens
  – Intensity
  – IVCN
  – LAND
Forecast Model Stratification

Example: GFS Ensemble Members
Consensus Forecasts

- Consensus forecasts are computed from displayed model tracks
- Consensus forecast is plotted on the display and can be written to a-deck formatted file
Diagnostic Evaluation - Intensity

- Forecast tracks can be stratified by:
  - Modeling System
  - Intensity
  - Initiation Time
  - Valid Time

Example – Tracks stratified by intensity
Forecast Tracks located to the left of the best track higher storm intensity
Features: Wind Radii and Fix Information

Plotting wind radii
• 34kt, 50kt, 64kt
• Available for best track and model data

Fix Data
• Plotted on track and intensity
NHC Display - Editing tool

Application can be used to edit best-track points and fix data points that are stored in a separate database.

- Visual editing of best-track points location

- Form based editing of best-track and fix points using map or plot

- Updated best-track and fix points can be included in a new database once finalized
NHC Display - Gridded Products

- SST Gridded Fields
- GFS Gridded Fields:
  - Wind shear, relative humidity, precipitable water
  - Product Availability:
    120 hrs of forecast products
    24 hrs of past products
New Seasonal Evaluation Tools

- New features of the seasonal evaluation tools:
  - Stratify by time period
  - Stratify by years
  - Stratify by basins
  - Stratify by storms
New Seasonal Evaluation Tools - Example

- Storms observed for August:
- 2000-2009, 2010-2019
New Seasonal Evaluation Tools - Example

- Storms observed for the Atlantic and Eastern Pacific Basins for 2021 (through November 14)
Planned Updates

• NHC provides annual input for updates and new features
• The HFIP community also provide input for updates on the display system
• Planned updates
  – Annual updates from NHC
  – Additional model and observation gridded products
  – Add mobile display (mobile phone, tablet) agility
  – Implementation of additional diagnostic parameters
  – HFIP community suggestions?

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Thank You – Questions?