Web-ATCF, User Requirements and Intensity Consensus

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Overview

1. Web-ATCF (JHT project, 20% complete)
2. User Requirements (JHT, 50% complete)
3. Intensity Consensus (JHT, 50% complete)
4. Product and Service Development (NHC)
1. Web-ATCF

- Client will
  - be 1MB executable
  - written in C++
  - work for Windows and Linux
  - launch from web page

- Communication will
  - be https (secure) protocol
  - work through most firewalls

- ATCF will work still work in w/s configuration
2. User Requirements

• Approximately 30 requirements addressed

• Highlights
  • Mouse-over Information
  • Sidebar
  • Run Your Own Consensus dialog
This sidebar menu allows quick display or removal of fields, aids, fixes, labels. Ideal for a web application, but also has merit in the current ATCF.
Click on a fix to get an instant display of the fix metadata. Also implemented for the best track, objective best track, objective aids and forecast.
Run Your Own Consensus (RYOC)

Ability to construct consensus on the fly. Used for 12% of all advisories in 2007 (45 and 12 cases at 12 and 120 h). HWRF and ECMWF frequent additions to consensus.
Five top-performing intensity models and five-model consensus (IVCN). The consensus generally outperforms individual models. IVCN and a four-model consensus (ICON=ICVN-GFNI) will be run this season.
Performance of ICON and IVCN for AL and EP 2006-2007 is about the same. ICON requires all four models be available to compute it (~87% availability) while IVCN requires only two be available (~100% availability). Forecasters prefer ICON.
NWS / NOAA: Near Future

- Spin up WEB version ATCF (prototype) – external users within NCEP, NWS and DOD (after Operational T&E).

- Product Rollouts - as developed, refined and tested.
  - Kml / Kmz files (Google Earth / Maps)
  - GIS Shapefiles (ArcGIS, MapInfo, etc)
  - XML – proposal for WMO sponsored TC format.

“Leverage the ATCF Databases – the direct source.”
Google Earth
“Prototype of Best Track information”

- Roads
- Cities
- Political Boundaries
- Break Points
- Best Track
Google Maps “Prototype of Best Track information”

- Offers a two dimensional view of the earth.
- Well suited for web applications.
GIS Shapefiles “Prototypes of Forecast information”

- Spatial Analysis
- Reporting Capabilities
- Greater “interoperability” with other systems
- In “production design” phase.

“Cone of Uncertainty”

“TC Wind Probabilities”

“Probabilistic Storm Surge”
Interoperable Data Format

CXML – XML for Tropical Cyclones (WMO)

• Self-describing format (for both human and computer).

• CXML is not a replacement for other WMO standard formats (BUFR, CREX, etc).

<cyclone>
    <name> Katrina </name>
    <basin> North Atlantic </basin>
    <fix type="forecast" time="2005-08-29T00:06:00Z">
        <latitude units="deg N"> 27.0 </latitude>
        <longitude units="deg E"> -88.9 </longitude>
        <maxWindSpeed units="kt"> 135. </maxWindSpeed>
        <minimumPressure units="hPa"> 910. </minimumPressure>
    </fix>
</cyclone>

Proposal to WMO by: B. Ebert (CAWCR/BOM) Z. Toth and M. Charles (EMC/NCEP) and Gil Ross (Met Office)
Summary

• Benefits to primary and external users.
  ▪ Interoperability.
  ▪ Greater decision making and reporting capability.

• Joint Agency cooperation on shared system (efforts are not duplicated).
Questions?
Comments?
Suggestions?
ATCF is a Multi-Agency System

... and a workstation that packages results and code from multiple sources for use in the tropical cyclone forecast process at the centers (e.g., NHC or JTWC)

NWP Models
(FNMOC, NCEP)

Consensus
(NRL)

Intensity Models
(NOAA/CIRA)

Satellite Products
(NRL/FNMOC)

TC Analyses
(NOAA, CIMSS)

Wind Radii
(NOAA/CIRA)

Probabilities
(NOAA/CIRA)

Trackers
(JTWC/NCEP)

ATCF

Tracks

Fixes

Obj Aids

Bogus

Navy Warnings

Advisories

Statistics

Historical Data

Historical Data