



# CONDUIT Update

Cooperative Opportunity for NCEP Data using IDD Technology

Rebecca Cosgrove

NCEP/NCO/Production Management Branch

October 26, 2011





# Agenda

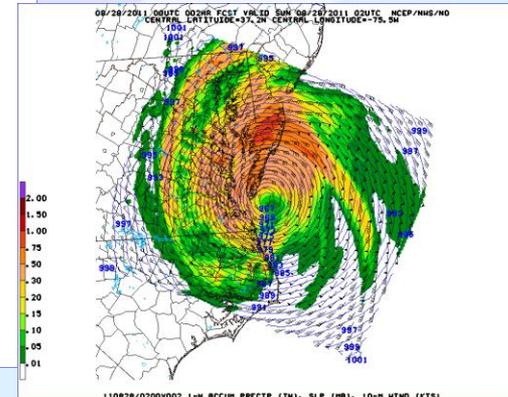
- Changes over the last 6 months
- Additions to CONDUIT
- Upcoming NCEP model changes
- Discussion



# Changes March – October 2011



- New NAM Fire Weather products added to CONDUIT
  - Fire Weather grid is 1.33km CONUS grid or 1.5km Alaska grid (0-36 hrs) run over that day's area of interest for the fire weather community.



- Currently sending 76 GB/day to top-level LDM queues
- Working towards CONDUIT Technology refresh by early 2012
  - More memory for larger LDM queue and therefore more data!



# Adding Data to CONDUIT

- Unidata posted list to community February 2011 asking for input on what to add, but little response
- One request was for NAM grid 221 – 32km North American grid to 84 hours
- Asked Usercomm to recommend some additions on behalf of the community

|                         |                       |
|-------------------------|-----------------------|
|                         |                       |
| Rapid Refresh           | GFS analysis/forecast |
| NAEFS ensemble products | NAM analysis/forecast |
| GFDL/HWRF               | RR analysis/forecast  |
| RTOFS Atlantic          | RTMA                  |

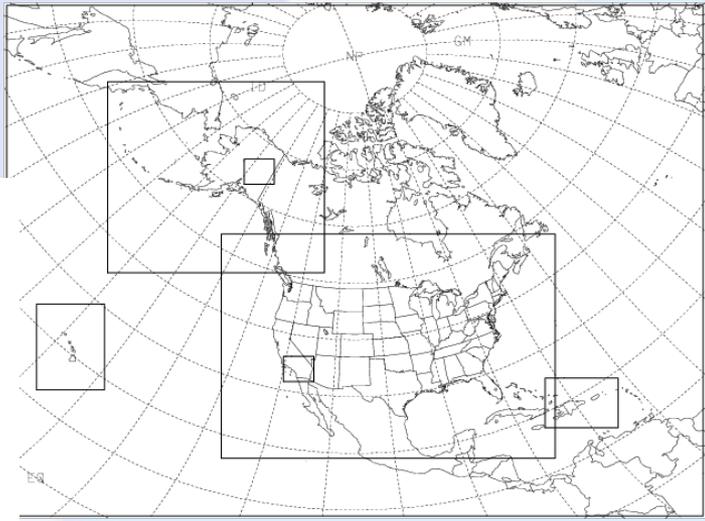
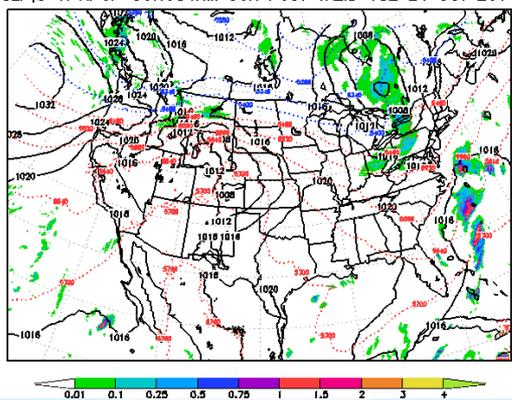




# Recent Model Additions

- NAM nests (0-60 hrs)
  - 4km CONUS
  - 6km Alaska
  - 3km Hawaii
  - 3km Puerto Rico

SLP,3-H APCP CONUS4KM 30H FCST VALID 18Z 24 OCT 2011



- NFCens – NCEP/FNMOC Combined Wave ensemble
  - Significant Wave Height output for members and combined ensemble
  - Showed marked skill at reducing biases of both systems

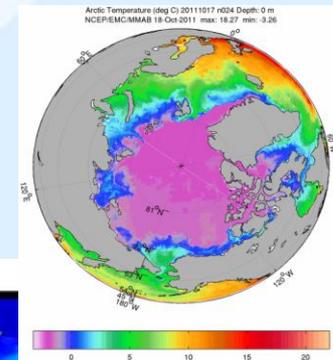
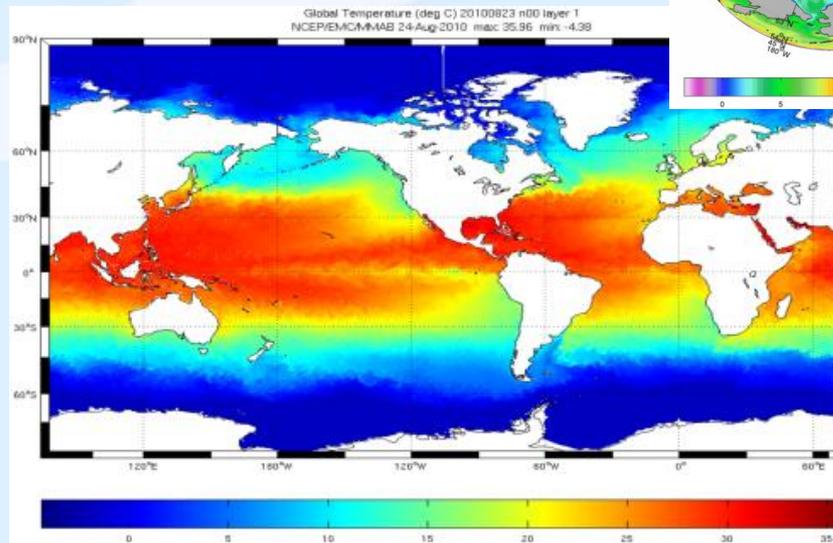
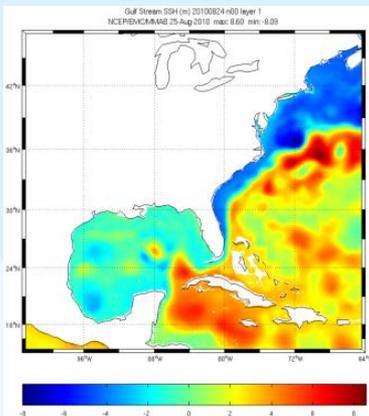


# Global RTOFS

## Global Real-Time Ocean Forecast System



- Currently only available on NCEP's NOMADS system
- First global eddy-resolving ocean forecast system at NCEP.
- Based on 1/12<sup>th</sup> degree HYCOM model with a Pan-Am global grid
- Netcdf output available out to 6 days
  - 3-hourly surface output
    - T, S, U, V, SSH, MLD, Ice cover, Ice thickness
  - Daily volume 3-d files
    - T, S, U, V on 33 levels
  - Regional files available also





# Other Available Data

- **Climate Forecast System (CFS) version 2 products**
- **Real-time Ocean Forecast System (RTOFS)** – nowcast & forecast
  - Hybrid curvilinear coordinate system – Atlantic & regional grids
  - Interpolated to standard lat/lon grid – Atlantic & regional grids
- **Hurricane model output**
  - HWRF and GFDL model output when storms are run; 1, 1/6<sup>th</sup>, 1/12<sup>th</sup> degree nests
- **NOAA WW3 output**
  - Hurricane wave model, multi-grid wave model, global wave ensemble
  - Global and regional domains
- **North American Ensemble Forecast System (NAEFS)**
  - Ensemble products
- **RTMA**
  - Alaska 3km – all other grids (incl CONUS 2.5km) available on NOAAPORT



# Other Potential Additions

- **Retrospective Forecast Data from CFS Reanalysis**
  - NCEP has the 1982-present dataset.
  - 9 month reforecasts every 6 hours for every 5<sup>th</sup> day
  - Initial states every 6 hours from 1999 to present
  - Reaching out to other organizations to see if anyone (including UCAR) would be interested in hosting it.
  - CONDUIT would be one potential distribution mechanism
- **HRRR**
  - NCO is in discussions with GSD to host the HRRR data on our servers
  - Add to CONDUIT?



# SBN Expansion

- SBN expansion had been on hold, but soon will be moving forward
- Bottleneck at the NWSTG that will preclude us from sending data to the expanded SBN
- NCEP Products on Candidate list:
  - Hires Window (November 8<sup>th</sup>)
  - RUC13 to 18 hours at all cycles
  - NAM DNG – 2.5 km for CONUS, 3km for Alaska
  - Gridded LAMP
  - Additional NAM BUFR soundings
  - GFS-based Gridded MOS
  - GTG and FIPS (aviation products)
  - RTOFS
  - GFS DNG
  - Extra-tropical Storm Surge



# NCEP Model Changes

- Rapid Refresh replaces RUC - early 2012
  - Includes new larger-domain 32 km grid
- Global Ensemble Forecast System (GEFS) – March 2012
  - Resolution increase 0-192 hrs T190L28 --> T254L42, 192-364 hrs T190L28 --> T190L42
- RTMA upgrades – mid 2012
  - Based on the Rapid Refresh, expand CONUS grid, finer-scale grids for Alaska
- Short-Range Ensemble Forecast System (SREF) Upgrade - mid 2012
  - Change make-up of multi-model ensemble members, increase horizontal resolution
- GFS upgrade – mid 2012
  - Hybrid EnKF - 3DVar GSI Data Assimilation, with 80 member T254L64 ensemble. Additional fields for Fire Weather & wind energy
  - Potential for addition of a few 0.25 degree grids



# Additional Discussion Items

- Begin new 10-year supercomputing contract
  - Major implementations on hold while we transition to new computers mid-2012 to mid-2013
  - First computers probably won't be any significant increase in compute power which will limit some model upgrades
- Should we start posting NCO parallel model data on CONDUIT?
  - NCO runs 30-day parallel prior to implementation
  - NAM fire weather showed we can send data labeled as parallel
  - Early look at RR, GEFS, SREF, GFS
  - Could send notice to community week prior to start to gauge interest



# One Other thing

- We will be moving to College Park summer 2012!





# Questions/Discussion