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PNSWSH

Technical Implementation Notice 15-36
National Weather Service Headquarters Washington DC
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        -NOAA Weather Wire Service
        -Emergency Managers Weather Information Network
        -NOAAPORT
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From: Timothy McClung
         Chief Operating Officer
         NWS Office of Science and Technology Integration

Subject: Upgrade to Global-Real Time Ocean Forecast System
          (RTOFS) Effective September 1st, 2015

Effective on or about September 1, 2015, beginning with the 0000
Coordinated Universal Time (UTC) run, the National Centers for
Environmental Prediction (NCEP) will upgrade the Global-RTOFS.

The system changes include:

- An increase in the number of vertical layers from 32 to 41
hybrid layers with additional iso-level coordinate layers in the
upper ~200m.
- The coupling of the ocean component Hybrid Coordinate Ocean
Model (HYCOM) to Los Alamos National Laboratory's Community Sea
Ice (CICE) model using v4.0 of Earth System Modeling Framework
(ESMF).
- Updated bathymetry, which improves representation of grid
points in shallow regions where minimum depth is set to 5m.
- An update of the climatology from the U.S. Navy's Generalized
Digital Environmental Model (GDEM) v3.0 to v4.2.
- An equation of state, which is updated from 9 terms to 17
terms.

Benefits of the system changes include:

- Fine vertical resolution in the oceanic mixed layer with 9
additional near surface layers.
- Anticipated improvement to air-sea boundary flux for future
coupled applications (including hurricanes).
- Improved vertical coastal ocean resolution for downstream
applications, such as the National Ocean Service Operational
Forecast System (NOS-OFS) and Eco forecasting.
- Planned addition of Sea Ice products.

Product Additions:

- The following NetCDF files will be made available on the NCEP
server:

  rtofs_glo_sst_YYYYMMDD_hcasts.nc.gz
  rtofs_glo_uv_YYYYMMDD_hcasts.nc.gz
Sea Surface Temperature (SST) and Surface current
components U, V time series for the last day of
nowcast/hindcast

  rtofs_glo_sst_YYYYMMDD_day#.nc.gz
  rtofs_glo_uv_YYYYMMDD_day#.nc.gz
SST and Surface current components U, V time series where
"#" equals day 4 or 5 of forecast

  rtofs_glo_sst_YYYYMMDD.tar.gz
  rtofs_glo_uv_YYYYMMDD.tar.gz
SST and Surface current components U, V time series for
days 1-3 of forecast

  rtofs_glo_2ds_X000_1hrly_????.nc
  rtofs_glo_2ds_X000_3hrly_????.nc
  rtofs_glo_2ds_X000_daily_????.nc
Where "????" is either "prog" (Prognostic) or "diag"
(Diagnostic)
Where "X" is either "f" (Forecast) or "n" (Nowcast)

- The following surface files will now be available on the
NCEP server:
  rtofs_glo.t00z.FFF.archs.a.tgz
  rtofs_glo.t00z.FFF.archs.b
Where FFF is either hourly "f00"-"f192" or "n00" or hourly
"n-01"-"n-48"
- The following ice files will now be available on the NCEP
server:
  rtofs_glo.???.t00z.cice.*.r
  rtofs_glo.t00z.n00.restart_cice.tgz
Where ??? is either anal or fcst1 or fcst2

Details on the contents of these files are available at:

  http://polar.ncep.noaa.gov/global/about/product_description.shtml
  http://polar.ncep.noaa.gov/global/about/regional_description.shtml

Product Changes:

- The high vertical resolution (hvr) regional NetCDF files will
be re-named on the NCEP server. The file name changes reflect
more descriptive region names. The file name changes are as
follows:

  rtofs_glo_3dz_nHHH_6hrly_hvr_reg1.nc -->
  rtofs_glo_3dz_nHHH_6hrly_hvr_US_east.nc

rtofs_glo_3dz_nHHH_6hrly_hvr_reg2.nc -->
rtofs_glo_3dz_nHHH_6hrly_hvr_US_west.nc

rtofs_glo_3dz_nHHH_6hrly_hvr_reg3.nc -->
rtofs_glo_3dz_nHHH_6hrly_hvr_alaska.nc

Where "HHH" is from 000-048

rtofs_glo_3dz_fHHH_6hrly_hvr_reg1.nc -->
rtofs_glo_3dz_fHHH_6hrly_hvr_US_east.nc

rtofs_glo_3dz_fHHH_6hrly_hvr_reg2.nc -->
rtofs_glo_3dz_fHHH_6hrly_hvr_US_west.nc

rtofs_glo_3dz_fHHH_6hrly_hvr_reg3.nc -->
rtofs_glo_3dz_fHHH_6hrly_hvr_alaska.nc

Where "HHH" is from 001-192

- The current 3d archive files will now be available every 6
hours for both forecast and nowcast and the "a" files will
become compressed
  rtofs_glo.t00z.*.archv.b
  rtofs_glo.t00z.*.archv.a -> rtofs_glo.t00z.*archv.a.tgz

A consistent parallel feed of data will be made available on the
NCEP HTTP server once the model is running in parallel on the
NCEP Weather and Climate Operational Supercomputing System
(WCOSS) on or around July 21st. The data will be available at
the following URL:

  http://para.nomads.ncep.noaa.gov/pub/data/nccf/com/rtofs/para

No changes are expected to products over NOAAPORT. Users can
find the data via the NCEP HTTP server at:

  http://nomads.ncep.noaa.gov/pub/data/nccf/com/rtofs/prod/

Users can find additional information about the RTOFS at the
following Environmental Modeling Center website:

  http://polar.ncep.noaa.gov/global

The original design of the Global RTOFS was that the model would
run throughout the day with all products being available by 00
UTC the following day. With any upgrade it is possible that
delivery times during the day may change either earlier or
later, but the final products will still always be available by
00 UTC the following day.

With this upgrade certain analysis products will be available
earlier, and certain forecast products will be available up to
90 minutes later than current production. NCEP is also removing
the contingency that could have caused the last 2 days of the

forecast to be canceled due to resource constraints. This means that no part of the Global RTOFS will be pre-emptively canceled. If you have any concerns with these timing changes please contact Avichal Mehra whose contact is at the bottom.

NCEP encourages all users to ensure their decoders are flexible and are able to adequately handle changes in content order, changes in the scaling factor component within the product definition section (PDS) of the GRIB files, and also any volume changes which may be forthcoming. These elements may change with future NCEP model implementations. NCEP will make every attempt to alert users to these changes prior to any implementations.

For questions regarding the changes to this model, please contact:

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For questions regarding the dataflow aspects of these data sets, please contact:

NCEP/NCO Dataflow Team
College Park, Maryland
Phone: 301-683-0567
Email: ncep.list.pmb-dataflow@noaa.gov

NWS National Technical Implementation Notices are online at:

http://www.weather.gov/os/notif.htm

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