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Technical Implementation Notice 13-16
National Weather Service Headquarters Washington DC
719 AM EDT Thu Jul 25 2013

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From: Timothy McClung
Science Plans Branch Chief
Office of Science and Technology

Subject: Amended to Reschedule the Effective Date for the
Hybrid Single-Particle Lagrangian Integrated
Trajectory (HYSPLIT) upgrade to July 25, 2013 to
Corresponds with the Transition of the NCEP
Production Suite to the WCOSS Supercomputer

Effective on Thursday, July 25, 2013, beginning with the
1200 Coordinated Universal Time (UTC) run, the National Centers
for Environmental Prediction (NCEP) will upgrade the HYSPLIT
modeling system including smoke, dust, and volcanic ash.

The NOAA Air Resources Laboratory HYSPLIT subversion number 339
will be implemented as NCEP version 7.0.0 on NCEP's new Weather
and Climate Operational Supercomputing System (WCOSS), scheduled
to become the operational machine on July 25, 2013. A separate
TIN will be issued announcing the operational switch to the
WCOSS system. In the event that switch date is changed, this TIN
will be modified to reflect that change in implementation date.

Forecasts from the updated HYSPLIT model were made available
through a parallel feed from WCOSS starting June 19, 2013. The
smoke and dust HYSPLIT GRIB products from the parallel feed are
disseminated via the NCEP website:

<http://www.emc.ncep.noaa.gov/mmb/aq/hysplit/grib/>

and the products will be displayed through NCEP's website:

<http://www.emc.ncep.noaa.gov/mmb/aq/hysplit/web/html/#picture>

Current operational HYSPLIT model will continue providing
forecasts through NCEP Central Computing System (CCS) until the
WCOSS machine goes live on July 25, 2013. At that time updated
WCOSS smoke and dust predictions will be distributed through

<ftp://tgftp.nws.noaa.gov/SL.us008001/ST.opnl/DF.gr2/DC.ndgd/GT.aq/AR.conus/>

<ftp://tgftp.nws.noaa.gov/SL.us008001/ST.opnl/DF.gr2/DC.ndgd/GT.aq/AR.alaska/>

<ftp://tgftp.nws.noaa.gov/SL.us008001/ST.opnl/DF.gr2/DC.ndgd/GT.aq/AR.hawaii/>

and displayed at

<http://airquality.weather.gov/>

The scientific enhancements include the following:

- Improved wet removal by reducing in-cloud particle wet removal coefficient, allowing wet removal to occur only when both precipitation and clouds are defined in the same grid cell, and turned off precipitation field spatial interpolation
- revised horizontal puff dispersion rate to be more consistent with particle dispersion
- set Kanthar-Clayson vertical mixing parameterization as default
- maximum plume rise limits relaxed
- fires pre-processor modified for daily emission cycling

The model has been tested with these updates for all HYSPLIT applications at NCEP. Overall the results showed generally similar results, except for simulations of the wet deposition from the Fukushima nuclear power plant incident of 2011, in which significant improvements occurred.

There are no changes to existing products or their contents.

More details about the HYSPLIT are available at:

<http://www.ready.noaa.gov/HYSPLIT.php>

For questions regarding these updated predictions, please contact:

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NWS National Technical Implementation Notices are online at:

<http://www.nws.noaa.gov/os/notif.htm>

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