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PNSWSH

TECHNICAL IMPLEMENTATION NOTICE 05-25  
NATIONAL WEATHER SERVICE HEADQUARTERS WASHINGTON DC  
150 PM EST MON MAR 28 2005

TO: FAMILY OF SERVICES /FOS/ SUBSCRIBERS  
NOAA WEATHER WIRE SERVICE /NWS/ SUBSCRIBERS  
EMERGENCY MANAGERS WEATHER INFORMATION NETWORK /EMWIN/  
SUBSCRIBERS  
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OTHER NWS CUSTOMERS...PARTNERS AND EMPLOYEES

FROM: PAUL HIRSCHBERG  
CHIEF...SCIENCE PLANS BRANCH  
OFFICE OF SCIENCE AND TECHNOLOGY

SUBJECT: UPGRADE OF THE NORTH AMERICAN MESOSCALE /ETA/ SYSTEM: EFFECTIVE  
MAY 3 2005

EFFECTIVE MAY 3 2005...BEGINNING WITH THE 1200 COORDINATED UNIVERSAL TIME  
/UTC/ RUN...THE NATIONAL CENTERS FOR ENVIRONMENTAL PREDICTION /NCEP/ WILL  
UPGRADE THE NORTH AMERICAN MESOSCALE /NAM/ SYSTEM...FORMERLY THE MESO ETA  
SYSTEM AND THE DOWNSCALED GFS BY ETA EXTENSION /DGEX/...TO IMPROVE THEIR  
ACCURACY AND PRODUCTS.

THIS UPGRADE WILL INVOLVE INCREMENTAL IMPROVEMENTS TO ALL THE COMPONENTS  
OF THE NAM:

OBJECTIVE ANALYSIS /3DVAR/  
DATA ASSIMILATION PREDICTION MODEL /MESO ETA/  
OUTPUT PRODUCTS.

THE CHANGES FOR THIS UPGRADE ARE AS FOLLOWS:

3DVAR ANALYSIS CHANGES:

- RE-INTRODUCE SURFACE TEMPERATURE OBSERVATIONS FROM ALL ON-TIME OVERLAND SITES.
- ASSIMILATE NEXRAD LEVEL 2.5 RADIAL WIND DATA /THESE ARE THE SUPEROBS CONSTRUCTED AT INDIVIDUAL WSR-88D LOCATIONS BEFORE TRANSMISSION/.

NDAS DATA ASSIMILATION CHANGES:

- IMPROVE ROBUSTNESS OF PRECIPITATION ASSIMILATION BY USING OBSERVED PRECIPITATION DIRECTLY IN DRIVING THE LAND-SURFACE MODEL AND ELIMINATING THE OPTION TO AGGRESSIVELY CREATE PRECIPITATION.

PREDICTION MODEL CHANGES:

- MODIFIED COMPONENTS AND COEFFICIENTS IN THE RADIATION SCHEME TO SEE CLOUDS BETTER VIA CHANGES TO THE COMPUTATION OF OPTICAL CLOUD DEPTHS.
- CLOUD COVER FORMULATION CHANGED TO ALLOW FOR MORE PARTIAL CLOUDINESS.
- REFINED NUMEROUS ASPECTS OF THE LAND-SURFACE PHYSICS...INCLUDING USE OF

HIGH-RESOLUTION SOIL TYPE AND VEGETATION TYPE DATA SETS...AND MODIFIED SNOW EMISSIVITY TO REDUCE THE COOL-SEASON 2-M TEMPERATURE COLD BIAS.

OUTPUT PRODUCT CHANGES:

- INCLUDE EFFECTS OF CONVECTIVE RAIN RATE IN VISIBILITY ALGORITHM.
- ADD CLEAR-SKY RADIATION FLUXES...FOR EXAMPLE...TO AIR QUALITY FORECAST

THERE WILL BE NO CHANGES TO THE PRODUCTS PRODUCED AND THEIR IDENTIFIERS.

THE NCEP ENVIRONMENTAL MODELING CENTER /EMC/ HAS ALREADY PERFORMED A RETROSPECTIVE RUN OF THE 12-KM NDAS/NAM FOR THE PERIOD FROM JULY 17 TO AUGUST 31 2004. VERIFICATION STATISTICS FOR THESE RUNS ARE SUMMARIZED AT /USE LOWER CASE/:

[HTTP://WWWT.EMC.NCEP.NOAA.GOV/MMB/MMBPLL/PLL12STATS.ETX\\_17JUL04-31AUG04/](http://wwwt.emc.ncep.noaa.gov/MMB/MMBPLL/PLL12STATS.ETX_17JUL04-31AUG04/)

EMC HAS BEEN RUNNING A REAL-TIME PARALLEL RUN OF THE NDAS/NAM SINCE MID-DECEMBER 2004...AND A REAL-TIME PARALLEL DGEX SINCE JANUARY 1 2005. BOTH ARE EXPECTED TO CONTINUE UNTIL IMPLEMENTATION. REAL-TIME PARALLEL RUNS FROM THE NAM CAN BE VIEWED AT /USE LOWER CASE/:

[HTTP://WWWT.EMC.NCEP.NOAA.GOV/MMB/MMBPLL/ETAPLLSUP12.ETAX\\_OPSTEST/](http://wwwt.emc.ncep.noaa.gov/MMB/MMBPLL/ETAPLLSUP12.ETAX_OPSTEST/)

WHILE THE REAL-TIME DGEX PARALLEL RUN FOR THE CONTIGUOUS U.S. /CONUS/ CAN BE VIEWED AT /USE LOWER CASE/:

[HTTP://WWWT.EMC.NCEP.NOAA.GOV/MMB/MMBPLL/DGEXPLL.CONUS/INDEX.HTML](http://wwwt.emc.ncep.noaa.gov/MMB/MMBPLL/DGEXPLL.CONUS/INDEX.HTML)

AND THE REAL-TIME DGEX PARALLEL RUN FOR ALASKA CAN BE VIEWED AT /USE LOWER CASE/:

[HTTP://WWWT.EMC.NCEP.NOAA.GOV/MMB/MMBPLL/DGEXPLL.AK/INDEX.HTML](http://wwwt.emc.ncep.noaa.gov/MMB/MMBPLL/DGEXPLL.AK/INDEX.HTML)

SUMMARIES OF VERIFICATION STATISTICS ARE AVAILABLE AT THE FOLLOWING LOCATIONS:

FOR NAM REAL-TIME PARALLEL STATS 12/14/04 TO 3/9/05 /USE LOWER CASE/:

[HTTP://WWWT.EMC.NCEP.NOAA.GOV/MMB/MMBPLL/PLL12STATS.ETX\\_14DEC04-20MAR05/](http://wwwt.emc.ncep.noaa.gov/MMB/MMBPLL/PLL12STATS.ETX_14DEC04-20MAR05/)

AND FOR DGEX REAL-TIME PARALLEL STATS 1/1/05 TO 3/10/05 /USE LOWER CASE/:

[HTTP://WWWT.EMC.NCEP.NOAA.GOV/MMB/MMBPLL/PLLSTATS.DGEXX\\_01JAN05-20MAR05/](http://wwwt.emc.ncep.noaa.gov/MMB/MMBPLL/PLLSTATS.DGEXX_01JAN05-20MAR05/)

IF YOU HAVE ANY QUESTIONS CONCERNING THESE CHANGES...PLEASE CONTACT:

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NATIONAL TECHNICAL IMPLEMENTATION NOTICES ARE ONLINE AT /USE LOWER CASE/:

[HTTPS://WWW.WEATHER.GOV/NOTIFICATION/ARCHIVE](https://www.weather.gov/notification/archive)

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