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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...OTHER
NATIONAL WEATHER SERVICE /NWS/ CUSTOMERS AND
PARTNERS...NWS EMPLOYEES

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

SUBJECT: UPGRADE OF THE NORTH AMERICAN MESOSCALE /ETA/ SYSTEM
EFFECTIVE...MAY 03 2005

EFFECTIVE MAY 03 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/
AND 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.
REFINE 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 17 JULY TO 31 AUGUST 2004. VERIFICATION STATISTICS FOR THESE RUNS ARE SUMMARIZED AT /USE LOWER CASE LETTERS/:

[HTTP://WWWT.EMC.NCEP.NOAA.GOV/MB/MBPLL/PLL12STATS.ETX_17JUL04-31AUG04/](http://wwwt.emc.ncep.noaa.gov/mb/mbpll/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 1 JANUARY 2005. BOTH ARE EXPECTED TO CONTINUE UNTIL IMPLEMENTATION. REAL-TIME PARALLEL RUNS FROM THE NAM CAN BE VIEWED AT /USE LOWER CASE LETTERS/:

[HTTP://WWWT.EMC.NCEP.NOAA.GOV/MB/MBPLL/ETAPLLSUP12.ETAX_OPSTEST/](http://wwwt.emc.ncep.noaa.gov/mb/mbpll/etapllsup12.etax_opstest/)

WHILE THE REAL-TIME DGEX PARALLEL RUN FOR CONUS CAN BE VIEWED AT /USE LOWER CASE LETTERS/:

[HTTP://WWWT.EMC.NCEP.NOAA.GOV/MB/MBPLL/DGEXPLL.CONUS/INDEX.HTML](http://wwwt.emc.ncep.noaa.gov/mb/mbpll/dgexpll.conus/index.html)

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

[HTTP://WWWT.EMC.NCEP.NOAA.GOV/MB/MBPLL/DGEXPLL.AK/INDEX.HTML](http://wwwt.emc.ncep.noaa.gov/mb/mbpll/dgexpll.ak/index.html)

SUMMARIES OF VERIFICATION STATISTICS ARE AVAILABLE AT THE FOLLOWING LOCATIONS:

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

HTTP://WWW.EMC.NCEP.NOAA.GOV/MMB/MMBPLL/PLL12STATS.ETX_14DE
C04-20MAR05/

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

HTTP://WWW.EMC.NCEP.NOAA.GOV/MMB/MMBPLL/PLLSTATS.DGEXX_01JA
N05-20MAR05/

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

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THIS AND OTHER NWS TECHNICAL IMPLEMENTATION NOTICES ARE AVAILABLE
ONLINE AT /USE LOWER CASE LETTERS/:

HTTP://WWW.NWS.NOAA.GOV/OM/NOTIF.HTM

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