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PNSWSH

TECHNICAL IMPLEMENTATION NOTICE 08-31
NATIONAL WEATHER SERVICE HEADQUARTERS WASHINGTON DC
200 PM EDT WED APR 2 2008

TO: SUBSCRIBERS:
-FAMILY OF SERVICES
-NOAA WEATHER WIRE SERVICE
-EMERGENCY MANAGERS WEATHER INFORMATION NETWORK
OTHER NWS PARTNERS...USERS AND EMPLOYEES

FROM: JASON TUELL
SCIENCE PLANS BRANCH CHIEF
OFFICE OF SCIENCE AND TECHNOLOGY /OST/

SUBJECT: GLOBAL FORECAST SYSTEM CHANGES: EFFECTIVE MAY 13 2008

EFFECTIVE TUESDAY MAY 13 2008...BEGINNING WITH THE 1200
COORDINATED UNIVERSAL TIME /UTC/ RUN...SEVERAL CHANGES WILL BE
MADE TO THE GLOBAL FORECAST SYSTEM /GFS/ MODELING SYSTEM. THESE
CHANGES ARE BEING MADE TO IMPROVE MODEL PERFORMANCE.

THE FOLLOWING FOUR CHANGES INVOLVE A SIGNIFICANT UPGRADE IN THE
CONSISTENCY AND ACCURACY OF THE MODEL RADIATION
PARAMETERIZATIONS:

1. HOURLY RRTM1 LONGWAVE RADIATION RRTM SHORTWAVE RADIATION
2. MAXIMUM-RANDOM CLOUD OVERLAP FOR SHORTWAVE GENERALIZED
AEROSOL TREATMENT AND REALISTIC CO2
3. MINOR ADJUSTMENTS OF OROGRAPHIC GRAVITY WAVE VARIANCE RANGE
LIMITS AND MOUNTAIN BLOCKING BUG FIX
4. ENTHALPY THERMODYNAMIC PROGNOSTIC VARIABLE WHICH ALLOWS FOR
GREATER FLEXIBILITY AND IN CARRYING ATMOSPHERIC CONSTITUENTS

THE ANALYSIS CHANGES INCLUDE:

1. ADDING WINDSAT NEAR SURFACE WINDS
2. ADDING NOAA-18 SBUV/2 OZONE
3. FOTO /FIRST-ORDER TIME-EXTRAPOLATION TO OBSERVATIONS/
4. VARIATIONAL QC
5. CHANGE IN LAND/SNOW/ICE SKIN TEMPERATURE VARIANCE
6. FLOW DEPENDENT RE-WEIGHTING OF BACKGROUND ERROR VARIANCES
7. BUG FIXES TO PROCESSING OF COSMIC GPSRO DATA...GROSS CHECK...
AND ADJUSTMENT OF OBSERVATION ERROR FOR VERTICALLY DENSE
OBSERVATIONS
8. CODE AND SCRIPT OPTIMIZATION

OTHER OUTPUT CHANGES INCLUDE:

1. THE INTERNAL MODEL SPECTRAL /SIGMA/ FILE IS CHANGING ITS
FORMAT SLIGHTLY. THIS FILE IS NOT USED FOR PRODUCTS. ONLY ITS

HEADER INFORMATION IS CHANGING. USER'S GUIDE AND SAMPLE CODE AND FILES CAN BE FOUND AT /USE LOWER CASE LETTERS/:

[HTTP://WWW.EMC.NCEP.NOAA.GOV/GMB/IREDELL/GFS/SAMPLE2008/](http://www.emc.ncep.noaa.gov/gmb/ire dell/gfs/sample2008/)

2. THERE ARE NO OTHER OUTPUT CHANGES. NOTABLY NO GRIB PRODUCTS ARE CHANGING.

THE COMBINED IMPACT OF THESE CHANGES HAS LED TO THE FOLLOWING IMPROVEMENTS IN MODEL PERFORMANCE:

1. IMPROVED SKILL IN EXTRATROPICAL 3-DAY FORECAST PERFORMANCE AT 500 MB...PARTICULARLY IN THE SOUTHERN HEMISPHERE BETTER LOWER STRATOSPHERIC THERMODYNAMIC STRUCTURE
2. MORE DETAILS ABOUT THESE CHANGES CAN BE SEEN AT /USE LOWERCASE/:

[HTTP://WWW.EMC.NCEP.NOAA.GOV/GMB/WX24FY/VSDB_EXP/SUMMER07/](http://www.emc.ncep.noaa.gov/gmb/wx24fy/vsdb_exp/summer07/)

DATA DELIVERY TIMING WILL NOT BE IMPACTED BY THIS IMPLEMENTATION. DATA VOLUMES ARE NOT EXPECTED TO INCREASE. SIGNIFICANT DATA CONTENT CHANGES ARE NOT EXPECTED.

THESE MODEL CHANGES WILL IMPACT ALL DISSEMINATION ROUTES WHICH INCLUDE NOAAPORT...THE NWS PUBLIC FTP SERVER AND THE NCEP PUBLIC FTP SERVER. A CONSISTENT PARALLEL FEED OF DATA WILL BECOME AVAILABLE ON THE NCEP FTP SERVER ON APRIL 1 2008 AT THE FOLLOWING URL /USE LOWERCASE/:

[FTP://FTP.NCEP.NOAA.GOV/PUB/DATA/NCCF/COM/GFS/PARA](ftp://ftp.ncep.noaa.gov/pub/data/nccf/com/gfs/para)

NCEP WOULD ENCOURAGE ALL USERS TO ENSURE THEIR DECODERS ARE FLEXIBLE AND ARE ABLE TO ADEQUATELY HANDLE CHANGES IN CONTENT ORDER...PARAMETER FIELDS CHANGING ORDER...CHANGES IN THE SCALING FACTOR COMPONENT WITHIN THE PDS OF THE GRIB FILES AND ANY VOLUME CHANGES THAT MAY BE FORTHCOMING. THESE ELEMENTS MAY CHANGE WITH FUTURE NCEP MODEL IMPLEMENTATIONS. NCEP WILL MAKE EVERY ATTEMPT TO ALERT USERS TO THESE CHANGES BEFORE IMPLEMENTATIONS.

FOR QUESTIONS CONCERNING THESE CHANGES...PLEASE CONTACT:

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

[HTTP://WWW.NWS.NOAA.GOV/OM/NOTIF.HTM](http://www.nws.noaa.gov/om/notif.htm)

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