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PNSWSH

TECHNICAL IMPLEMENTATION NOTICE 10-15 AMENDED
NATIONAL WEATHER SERVICE HEADQUARTERS WASHINGTON DC
158 PM EDT MON JUL 19 2010

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

FROM: TIMOTHY MCCLUNG
CHIEF...SCIENCE PLANS BRANCH
OFFICE OF SCIENCE AND TECHNOLOGY

SUBJECT: AMENDED: GLOBAL FORECAST SYSTEM CHANGES: RESCHEDULED FOR JULY 28
2010

AMENDED TO RESCHEDULE THESE CHANGES. DUE TO THE COMPLEXITY OF THE
IMPLEMENTATION OF THE GLOBAL FORECAST SYSTEM AND ALL DOWNSTREAM
DEPENDENCIES...THE EFFECTIVE DATE OF THE UPGRADE IS BEING RESCHEDULED FOR
WEDNESDAY JULY 28. IF THE NWS DECLARES A CRITICAL WEATHER DAY ON OR
AROUND JULY 28...THE IMPLEMENTATION MIGHT BE DELAYED. ANOTHER TECHNICAL
IMPLEMENTATION NOTICE /TIN/ WILL BE SENT IF THIS OCCURS.

EFFECTIVE JULY 28 2010...BEGINNING WITH THE 1200 COORDINATED UNIVERSAL
TIME /UTC/ RUN...THE NATIONAL CENTERS FOR ENVIRONMENTAL PREDICTION /NCEP/
WILL UPGRADE THE GLOBAL FORECAST SYSTEM /GFS/. THE RESOLUTION OF THE
GLOBAL FORECAST MODEL WILL BE INCREASED FROM T382 /35 KM/ TO T574 /27 KM/.
THE HIGH RESOLUTION PORTION OF THE FORECAST WILL BE EXTENDED FROM 180
HOURS TO 192 HOURS. WITH THIS EXTENSION...3-HOURLY OUTPUT WILL BE MADE
AVAILABLE OUT TO 192 HOURS.

THIS WILL RESULT IN SIGNIFICANT CHANGES IN THE DEFINITION OF PARAMETERS IN
THE 192 HOUR PRESSURE GRIDDED BINARY /GRIB/ /PGRB/ AND FLUX FILES. THERE
WILL ALSO BE SIGNIFICANT CHANGES IN MODEL PHYSICS ASSOCIATED WITH THIS
CHANGE. IN ADDITION...MODIFICATIONS WILL BE MADE TO THE CONTENTS OF THE
GLOBAL DATA ASSIMILATION SYSTEM /GDAS/ AND GFS PGRB FILES.

CHANGES IN MODEL PHYSICS INCLUDE:

RADIATION AND CLOUD OVERLAP
GRAVITY WAVE DRAG
HURRICANE RELOCATION
NEW PLANETARY BOUNDARY LAYER SCHEME
NEW MASS FLUX SHALLOW CONVECTION
UPDATED DEEP CONVECTION SCHEME
POSITIVE DEFINITE TRACER TRANSPORT SCHEME

THE NEW PARAMETER FOR THE GFS FORECAST PRESSURE GRIB FILE IS: MAX WIND
GUST.

SEVERAL PARAMETERS ARE BEING DELETED FROM THE GDAS ANALYSIS PRESSURE GRIB FILES BECAUSE THEY ARE NOT VALID FOR THE ANALYSIS DATASET AND HAVE NEVER PROVIDED PERTINENT INFORMATION. THESE INCLUDE:

FOUR PRECIPITATION TYPES
CONVECTIVE PRECIPITATION RATE
LAND-SEA MASK
LATENT HEAT FLUX
SENSIBLE HEAT FLUX
PRECIPITATION RATE
2M RELATIVE HUMIDITY
2M SPECIFIC HUMIDITY
2M TEMPERATURE
BOUNDARY LAYER CLOUD COVER
LOW CLOUD COVER
CONVECTIVE CLOUD COVER
SKIN TEMPERATURE
SURFACE UPWARD LONG WAVE FLUX
SURFACE UPWARD SHORT WAVE FLUX
HELICITY

THESE PARAMETERS ARE BEING DELETED FROM THE GLOBAL FORECAST MODEL SIMULATED GEOSTATIONARY ENVIRONMENTAL ORBITING SATELLITE /GOES/ GRIB FILE BECAUSE THEY WERE INCLUDED IN ERROR. THESE FIELDS ARE AVAILABLE IN THE PGRB FILES:

MEAN SEA LEVEL PRESSURE
WAVE-5 GEOPOTENTIAL HEIGHT

ALL ACCUMULATED OR AVERAGED VALUES IN THE 192 HOUR PGRB AND FLUX FILES WILL NOW BE OVER A SIX HOUR PERIOD INSTEAD OF 12 HOURS. THE FORMAT AND CONTENT OF THE 3-HOURLY FILES FROM 180 TO 192 HOURS WILL BE THE SAME AS THE FILES FROM 0 TO 180. FOR THE FLUX FILE...THIS INCLUDES THE MAJORITY OF THE PARAMETERS IN THE FILE. PARAMETERS CHANGING IN THE PGRB FILE ARE:

2 M ABOVE GROUND MAX. TEMPERATURE
2 M ABOVE GROUND MIN. TEMPERATURE
SURFACE ALBEDO
SURFACE CLEAR SKY
UV-B DOWNWARD SOLAR FLUX
SURFACE CATEGORICAL FREEZING RAIN
SURFACE CATEGORICAL ICE PELLETS
SURFACE CONVECTIVE PRECIPITATION RATE
SURFACE CATEGORICAL RAIN
SURFACE CATEGORICAL SNOW
ATMOSPHERIC COLUMN CLOUD WORK FUNCTION
SURFACE DOWNWARD LONG WAVE FLUX
SURFACE DOWNWARD SHORT WAVE FLUX
SURFACE UV-B DOWNWARD SOLAR FLUX
SURFACE GROUND HEAT FLUX
SURFACE LATENT HEAT FLUX
SURFACE PRECIPITATION RATE
LOW CLOUD BASE PRESSURE
LOW CLOUD TOP PRESSURE

MID-CLOUD BASE PRESSURE
MID-CLOUD TOP PRESSURE
HIGH CLOUD BASE PRESSURE
HIGH CLOUD TOP PRESSURE
SURFACE SENSIBLE HEAT FLUX
ATMOSPHERIC COLUMN TOTAL CLOUD COVER
BOUNDARY CLOUD LAYER
TOTAL CLOUD COVER
LOW CLOUD COVER
MID-CLOUD COVER
HIGH CLOUD COVER
LOW CLOUD TOP TEMPERATURE
MID-CLOUD TOP TEMPERATURE
HIGH CLOUD TOP TEMPERATURE
SURFACE ZONAL GRAVITY WAVE STRESS
SURFACE ZONAL MOMENTUM FLUX
SURFACE UPWARD LONG WAVE FLUX
TOP OF ATMOSPHERE UPWARD LONG WAVE FLUX
SURFACE UPWARD SHORT WAVE FLUX
TOP OF ATMOSPHERE UPWARD SHORT WAVE FLUX
SURFACE MERIDIONAL GRAVITY WAVE STRESS
SURFACE MERIDIONAL MOMENTUM FLUX
SURFACE CONVECTIVE PRECIPITATION
SURFACE TOTAL PRECIPITATION
SURFACE LARGE SCALE PRECIPITATION

NOTE THAT FOR THE 192 HOUR PGRB PRODUCTS AVAILABLE ON NOAAPORT AND IN THE ADVANCED WEATHER INTERACTIVE PROCESSING SYSTEM /AWIPS/...THE ACCUMULATIONS AND AVERAGES WILL REMAIN OVER THE PREVIOUS 12-HOUR PERIOD UNTIL AWIPS IS MODIFIED TO ACCOMMODATE THIS CHANGE.

ONE ADDITIONAL CHANGE TO NOTE IS THAT THE FILE PGRBF192.GRIB2 ON THE NCEP FTP SERVER WILL CHANGE FROM CONTAINING MODEL OUTPUT ON A 2.5 DEGREE GRID TO CONTAINING MODEL OUTPUT ON A ONE DEGREE GRID. THE 2.5 DEGREE OUTPUT WILL BE PROVIDED IN A NEW FILE WITH THE NAME PGRBF192.2P5DEG.GRIB2.

THE FORMAT OF THE HALF AND ONE DEGREE PRESSURE GRIB FILES WILL REMAIN THE SAME EXCEPT FOR THE CHANGES IN VARIABLES LISTED ABOVE. THE SIZE OF THESE FILES WILL NOT CHANGE SIGNIFICANTLY. WITH THE INCREASE IN MODEL RESOLUTION...THE SIZE OF THE SIGMA COEFFICIENT FILES AND THE SURFACE FLUX FILES WILL INCREASE SIGNIFICANTLY.

THESE CONTENT CHANGES WILL IMPACT ALL DISSEMINATION ROUTES: NWS PUBLIC FTP SERVER...THE NCEP PUBLIC FTP SERVER AND NOAAPORT.

A SET OF TEST DATA IS AVAILABLE /USE LOWER CASE/:

[FTP://FTP.EMC.NCEP.NOAA.GOV/GC WMB/WX24FY/GFS T574L64/GFS.20091217/](ftp://ftp.emc.ncep.noaa.gov/gc_wmb/wx24fy/gfs_t574l64/gfs.20091217/)

A CONSISTENT PARALLEL FEED OF DATA IS AVAILABLE ON THE NCEP FTP SERVER AT THE FOLLOWING URL /USE LOWER CASE/:

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

DATA DELIVERY TIMING OF THE GFS WILL NOT BE IMPACTED BY THIS IMPLEMENTATION.

NCEP ENCOURAGES ALL USERS TO ENSURE THEIR DECODERS ARE FLEXIBLE AND ARE ABLE OF ADEQUATELY HANDLING CHANGES IN CONTENT... PARAMETER FIELDS CHANGING ORDER...CHANGES IN THE SCALING FACTOR COMPONENT WITHIN THE PRODUCT DEFINITION SECTION /PDS/ OF THE GRIB FILES AND ANY VOLUME CHANGES WHICH MAY OCCUR. THESE ELEMENTS MAY CHANGE WITH FUTURE NCEP MODEL IMPLEMENTATIONS. NCEP WILL MAKE EVERY ATTEMPT TO ALERT USERS TO THESE CHANGES PRIOR TO ANY IMPLEMENTATIONS.

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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