NOUS41 KWBC 231608
PNSWSH

Technical Implementation Notice 14-54
National Weather Service Headquarters Washington DC
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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: Addition of Global Forecast System (GFS) Model Grids on NOAAPort:
Effective March 10, 2015

Effective on or about March 10, 2015, beginning with the 1200 Coordinated
Universal Time (UTC) run, the National Centers for Environmental
Prediction (NCEP) will add five new GFS model output grids to NOAAPort.

NCEP is working towards removing older legacy grids from NOAAPort. In
2013, NCEP solicited public feedback for removing some GFS model output.

https://www.weather.gov/media/notification/pdfs/pns13gfslegacy.pdf

The 381 km Northern Hemisphere (grid #201) is specifically on the docket
to be removed as soon as the new grids are in the Advanced Weather
Interactive Processing System (AWIPS) baseline, but we are also interested
in removing numerous others. Another Public Information Statement (PNS)
will be issued to determine the feasibility of the plan. Any product
elimination is contingent on providing higher resolution GFS model output
on comparable or better grids to those being removed. So, in response,
NCEP will add five new GFS model output grids to NOAAPort.

NCEP will add the following gridded products to NOAAPort:

Grid 003: 1.0 degree Global (Longitude/Latitude) in gridded binary version
two (GRIB2)

Grid: www.nco.ncep.noaa.gov/pmb/docs/on388/grids/grid003.gif

Forecast hours will be 6-hourly from 00 to 240 hours
Run four cycles per day at 00, 06, 12 and 18 UTC
Total volume of data:
260MB (41 files) x four (cycles) = 1,040MB/day

- World Meteorological Organization (WMO) Headers for 1.0 degree will be as follows:

Template T1 T2 A1 A2 ii cccc cccc is KWBC, where C is GFS.

T1 = Y for forecast hours: 00, 06, 12, 18, 24, 30, 36, 42, 48, 60, 72, 84, 96, 108, 120, 132, 144, 156, 168, 180, 192, 204, 216, 228, 240

T1 = Z for forecast hours: 54, 66, 78, 90, 102, 114, 126, 138, 150, 162, 174, 186, 198, 210, 222, 234

T2 specifies the parameters as follows:
T - Temperature
H - Height; 5-wave geopotential height
O - Vertical velocity
R - Relative humidity
C - Absolute vorticity
U - u-component of wind
V - v-component of wind
P - Pressure; Pressure reduced to Mean Sea level
B - Vertical speed shear
E - Total precipitation
G - Convective precipitation
Q - Best Lifted Index
W - Convective Available Potential Energy
Y - Convective Inhibition
X - Surface Lifted Index
F - Precipitable Water

A1 specifies the grid ID as follows:
P - #003 Global Longitude-Latitude 1.0 degree 65160 points (360x181)

A2 specifies the forecast hours as follows:
A=00; B=06; C=12; D=18; E=24; F=30; G=36; H=42; I=48; J=60; K=72; L=84;
M=96; N=108; O=120; P=132; Q=144; R=156; S=168; T=180; U=192; V=204;
W=216; X=228; Y=240 (Note: T1 is Y);

M=54; N=66; T=78; U=90; V=102; W=114; Z=126; 138; 150; 162; 174; 186; 198;
210; 222; 234 (Note: T1 is Z)

ii specifies the levels as follows:
99=1000mb; 85=850mb; 70=700mb; 50=500mb; 40=400mb; 30=300mb; 25=250mb;
20=200mb; 15=150mb; 10=100mb; 60=600mb; 07=70mb;
86 = Boundary Layer
89 = Reduced to Sea Level
94 = Level of the 0 deg. C isotherm
97 = Level of the Tropopause
98 = Surface of Earth
00 = Entire Atmosphere
96 = Maximum wind level

Grid 215: 20km contiguous U.S. (CONUS) Quadruple Resolution (Lambert Conformal) in GRIB2

Grid: www.nco.ncep.noaa.gov/pmb/docs/on388/grids/grid215.gif

Forecast hours will be 3-hourly from 00 to 84 hours and 6-hourly from 90
to 240 hours
Run four cycles per day at 00, 06, 12 and 18 UTC
Total volume of data:
1,053MB (55 files) x four (cycles) = 4,212MB/day

Grid 217: 20km Alaska Region Double Resolution (Polar Stereographic) in
GRIB2

Grid: www.nco.ncep.noaa.gov/pmb/docs/on388/grids/grid217.gif

Forecast hours will be 3-hourly from 00 to 84 hours and 6-hourly from 90
to 240 hours
Run four cycles per day at 00, 06, 12 and 18 UTC
Total volume of data:
706MB (55 files) x four (cycles) = 2,824MB/day

Grid: 20km Pacific Region (Mercator) in GRIB2

Forecast hours will be 3-hourly from 00 to 84 hours and 6-hourly from 90
to 240 hours
Run four cycles per day at 00, 06, 12 and 18 UTC
Total volume of data:
4,555MB (55 files) x four (cycles) = 18,220MB/day

Grid: 20km Puerto Rico (Longitude/Latitude) 0.25 degree in GRIB2

Forecast hours will be 3-hourly from 00 to 84 hours and 6-hourly from 90
to 240 hours
Run four cycles per day at 00, 06, 12 and 18 UTC
Total volume of data:
633MB (55 files) x four (cycles) = 2,532MB/day

- WMO Headers for all four 20km grids will be as follows:

Template T1 T2 A1 A2 ii cccc cccc is KWBC, where C is GFS

T1 = Y for forecast hours: 00, 06, 12, 15, 18, 24, 30, 36, 42, 48, 60, 72,
84, 96, 108, 120, 132, 144, 156, 168, 180, 192, 204, 216, 228, 240

T1 = Z for forecast hours: 03, 09, 15, 21, 27, 33, 39, 45, 51, 54, 57, 63,
66, 69, 75, 78, 81, 90, 102, 114, 126, 138, 150, 162, 174, 186, 198, 210,
222, 234

T2 specifies the parameters as follows:
T - Temperature, TMIN, TMAX
H - Height; 5-wave geopotential height
O - Vertical velocity
R - Relative humidity
C - Absolute vorticity
U - u-component of wind
V - v-component of wind

P = Pressure; Pressure reduced to Mean Sea level
B - Vertical speed shear
E - Total precipitation
G - Convective precipitation
Q - Best Lifted Index
W - Convective Available Potential Energy
Y - Convective Inhibition
X - Surface Lifted Index
F - Precipitable Water
S - Water Equivalent of Accumulated Snow Depth
M - Precipitable Water

A1 specifies the grid ID as follows:
N - CONUS grid 215 20 km Quadruple Resolution
B - ALASKA grid 217 20 km Double Resolution
E - Puerto Rico grid 20 km Lat/Lon 0.25 degree
F - Pacific Region grid 20 km Mercator

A2 specifies the forecast hours as follows:
A=00; B=06; C=12; D=18; E=24; F=30; G=36; H=42; I=48; J=60; K=72; L=84;
M=96; N=108; O=120; P=132; Q=144; R=156; S=168; T=180; U=192; V=204;
W=216; X=228; Y=240 (Note: T1 is Y)

B=03; E=09; H=15; K=21; L=27; O=33; P=39; Q=45; R=51; M=54; S=57; Z=63;
N=66; Z=69; Z=75; T=78; Z=81; U=90; V=102; W=114; Z=126; 138; 150; 162;
174; 186; 198; 210; 222; 234 (Note: T1 is Z)

ii specifies level as follows:
99=1000mb; 93=975 mb; 95=950 mb; 92=925 mb; 90=900mb; 91=875 mb; 85=850mb;
82=825 mb; 80=800 mb; 77=775 mb; 75=750 mb; 72=725mb; 70=700mb; 67=675 mb;
65=650 mb; 62=625 mb; 60=600 mb; 57= 575 mb; 55=550mb; 52=525 mb;
50=500mb; 45=450mb; 40=400mb; 35=350mb; 30=300mb; 25=250mb; 20=200mb;
15=150mb; 10=100mb
86 = Boundary Layer
89 = Reduced to Sea Level
94 = Level of the 0 degree Celsius (C) isotherm
97 = Level of the Tropopause, potential vorticity surface
98 = Surface of Earth
00 = Entire Atmosphere
96 = Maximum wind level
73 = High, Mid, Low cloud bottom level

Sample files and WMO headers will be available here:

ftp.ncep.noaa.gov/pub/data1/nccf/com/gfs/

For questions regarding these changes, please contact:

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National Technical Implementation Notices are online at:

https://www.weather.gov/notification/archive

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