

NOUS41 KWBC 191607
PNSWSH

Technical Implementation Notice 14-54
National Weather Service Headquarters Washington DC
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To: Subscribers:
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-NOAA Weather Wire Service
-Emergency Managers Weather Information Network
-NOAAPORT
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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 Global Forecast System (GFS) model output.

www.nws.noaa.gov/os/notification/pns13gfslegacy.txt

The 381 km Northern Hemisphere (grid #201) is specifically on the docket to be removed as soon as the new grids are in the AWIPS baseline but we are also interested in removing numerous others. Another 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:

1) Grid 003 1.0 degree Global (Longitude/Latitude) in GRIB2
- Grid:

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

- Forecast hours will be 6 hourly from 00 to 240
- Run 4 cycles per day at 00z, 06z, 12z and 18z
- Total volume of data:
260MB (41 files) x 4 (cycles) = 1040MB/day
- 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 reduce 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

2) Grid 215 20km 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 and 6 hourly from 90 to 240
- Run 4 cycles per day at 00z, 06z, 12z and 18z
- Total volume of data:
 $1053\text{MB} (55 \text{ files}) \times 4 (\text{cycles}) = 4212\text{MB/day}$

3) 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 and 6 hourly from 90 to 240
- Run 4 cycles per day at 00z, 06z, 12z and 18z
- Total volume of data:
 $706\text{MB} (55 \text{ files}) \times 4 (\text{cycles}) = 2824\text{MB/day}$

4) 20km Pacific Region (Mercator) in GRIB2

- Forecast hours will be 3 hourly from 00 to 84 and 6 hourly from 90 to 240
- Run 4 cycles per day at 00z, 06z, 12z and 18z
- Total volume of data:
 $4555\text{MB} (55 \text{ files}) \times 4 (\text{cycles}) = 18220\text{MB/day}$

5) 20km Puerto Rico (Longitude/Latitude) 0.25 degree in GRIB2

- Forecast hours will be 3 hourly from 00 to 84 and 6 hourly from 90 to 240
- Run 4 cycles per day at 00z, 06z, 12z and 18z
- Total volume of data:
 $633\text{MB} (55 \text{ files}) \times 4 (\text{cycles}) = 2532\text{MB/day}$

- 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 reduce 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 deg. 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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NWS National Technical Implementation Notices are online at:

<http://www.nws.noaa.gov/os/notif.htm>

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