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PNSWSH

Service Change Notice 17-84 Updated
National Weather Service Headquarters Silver Spring MD
135 PM EST Tue Jan 2 2018

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From: David Myrick
 Office of Science and Technology Integration

Subject: Updated: The Nearshore Wave Prediction System (NWPS) Upgrade v1.2 will be provided over the Satellite Broadcast Network (SBN) and NOAAPort on or about January 17, 2018

Updated to change the implementation date to January 17, 2018.

On or about January 17, 2018, additional NWPS data will be added to the SBN and NOAAPort. The NWPS is run two to four times per day, on-demand, depending on the coastal Weather Forecast Office (WFO). Data will increase to 144 hours (from 102 hours) with an increased frequency to 1-hour (from 3-hours). This upgrade also features the transition from regular model grids to unstructured computational meshes for 10 WFOs (TBW, MFL, SJU, MHX, AKQ, OKX, BOX, CAR, SGX, HFO) for improved nearshore accuracy. However, the results from these unstructured meshes are interpolated onto the existing regular grids for dissemination. These hourly grids will be disseminated in gridded binary version two (GRIB2) format. Grid resolutions will be dependent upon individual coastal WFO.

The parameters associated with the messages at these resolutions are:

Q - Wind speed
R - Wind direction
Z - Current speed
Z - Current direction
Z - Water level
C - Wave height
D - Water depth
J - Peak frequency/period
K - Peak direction
Z - Wave length
O - Wave height of swell waves
O - Partitioned swell wave height
Y - Partitioned swell peak period
P - Partitioned swell mean direction
Z - Water level is the level relative to mean sea level (MSL, meters).
D - Water depth is the vertical distance from the water free surface and the seabed topobathy (meters).

Data volume will vary, depending on coastal WFO. The average total data volume (all coastal WFOs) is approximately 16.6 GB per day, with a peak load of 2.3 GB per hour.

The following summarizes the generic World Meteorological Organization (WMO) Headers for the NWPS data:

T1T2A1A2iiCCCC, where:

T1 = E

T2 specifies the parameters (stated above)

A1 = A for CG0 grid; B for CG1 grid; C for CG2 grid; D for CG3 grid; E for CG4 grid, and F for CG5 grid

A2 specifies forecast hours: A=00; B=01,02,03; C=04,05,06; D=07,08,09;

E=10,11,12; F=13,14,15; G=16,17,18; H=19,20,21; I=22,23,24, ..., 27;

J=28,29,30, ..., 33; K=34,35,36, ..., 39; L=40,41,42, ..., 45;

M=46,47,48, ..., 51; X=52,53,54, ..., 57; N=58,59,60, ..., 63;

Y=64,65,66, ..., 69; O=70,71,72, ..., 81; P=82,83,84, ..., 93;

Q=94,95,96, ..., 105; R=106,107, ..., 117; S=118,119, ..., 129;

T=130,131, ..., 141; U=142,143,144

ii = 88 (specifies surface)

For the 30 contiguous U.S. (CONUS) offices, CCCC corresponds to K, appended by the 3-letter Advanced Weather Interactive Processing System (AWIPS) code. For outside the CONUS (OCONUS) offices, CCCC corresponds to P, appended by the 3-letter AWIPS code for the generating the six coastal WFO domains, e.g.,:

HFO - Honolulu, Hawaii

GUM - Tiyan, Guam

AJK - Juneau, Alaska

AER - Anchorage, Alaska

ALU - Anchorage (Aleutian Islands), Alaska

AFG - Fairbanks, Alaska

The National Centers for Environmental Prediction (NCEP) urges all users to ensure their decoders can handle changes in content order, changes in the scaling factor component within the product definition section (PDS) of the GRIB files, changes to the GRIB Bit Map Section (BMS), and volume changes. These elements may change with future NCEP model implementations. NCEP will make every attempt to alert users to these changes before implementation.

Output Data:

In addition to NOAAPort, data will be available through the NCEP ftp/http services:

<http://nomads.ncep.noaa.gov>

<ftp://ftp.ncep.noaa.gov>

On implementation day, the data for the new domains will be available at:
/pub/data/nccf/com/nwps/prod

The file format is the following:

For each of the 2-character regional codes (sr, er, wr, pr, ar), the GRIB2 files are listed under date YYYYMMDD, where YYYYMMDD is year, month, and day, 3-character WFO code (listed above, in lower case), run cycle (CC) and model domain (CG = CG1, CG2, CG3, CG4, CG5; or CG0). The run cycle always corresponds to the analysis time of the run (HH). All output variables pertaining to the run domain are stored in a single GRIB2 file. Note that since the runs are on demand, not all CC cycles will be produced during a given YYYYMMDD.

REGION.YYYYMMDD/WFO/CC/CG/WFO_nwps_CG_YYYYMMDD_HH00.grib2
REGION.YYYYMMDD/WFO/CC/CG0/WFO_nwps_CG0_Trkng_YYYYMMDD_HH00.grib2

For a number of WFOs, the delivery of these GRIB2 files will be delayed with this upgrade. In some cases, they will arrive earlier. This is mostly related to changes in the internal organization of the new unstructured domain jobs. Below is a listing of all WFOs for which products will be delayed (greater than five minutes). Positive numbers are minutes of delay relative to the current production. Negative numbers indicate a speed-up in delivery:

sr/hgx	sr/key
nwps_prdgen_cg1: -17	nwps_prdgen_cg1: -09
nwps_prdgen_cg0: -17	nwps_prdgen_cg0: -08
nwps_prdgen_cgn: 07	nwps_prdgen_cgn: 10
sr/sju	er/car
nwps_prdgen_cg1: 17	nwps_prdgen_cg1: 09
nwps_prdgen_cg0: 20	nwps_prdgen_cg0: 10
nwps_prdgen_cgn: 13	nwps_prdgen_cgn: 06
er/gyx	er/box
nwps_prdgen_cg1: -07	nwps_prdgen_cg1: 23
nwps_prdgen_cg0: -06	nwps_prdgen_cg0: 25
nwps_prdgen_cgn: 15	nwps_prdgen_cgn: 08
er/okx	er/akq
nwps_prdgen_cg1: 22	nwps_prdgen_cg1: 18
nwps_prdgen_cg0: 23	nwps_prdgen_cg0: 19
nwps_prdgen_cgn: 15	nwps_prdgen_cgn: 20
er/mhx	wr/sgx
nwps_prdgen_cg1: 28	nwps_prdgen_cg1: 17
nwps_prdgen_cg0: 29	nwps_prdgen_cg0: 17
nwps_prdgen_cgn: 04	nwps_prdgen_cgn: 09
pr/hfo	ar/aer
nwps_prdgen_cg1: 24	nwps_prdgen_cg1: -14
nwps_prdgen_cg0: 29	nwps_prdgen_cg0: -12
nwps_prdgen_cgn: -29	nwps_prdgen_cgn: 22

In addition, the following pre-processed Extratropical Surge and Tide Operational Forecast System (ESTOFS) water level fields have been appended with extra forecast hours, from 144 to 180. This results in a ~4GB/day increase on file transfer protocol (FTP) and the NOAA Operational Model Archive and Distribution System (NOMADS) at pub/data/nccf/com/nwps/prod/ofs.YYYYMMDD/estofs/, and a five to seven minute delivery delay of files of the type:

```
WFO_output.tar WFO_output/estofs_waterlevel_domain.txt
WFO_output/estofs_waterlevel_start_time.txt
WFO_output/wave_estofs_waterlevel_EPOCH_YYYYMMDD_CC_fHHH.dat
```

where EPOCH is the epoch time, e.g., 1508371200.

Inclusion of Global Forecast System (GFS) Fail-over:

To improve the overall robustness of NWPS, a fail-over to GFS wind input has been included in case of incomplete or erroneous Graphical Forecast Editor (GFE) wind input being received from a WFO. When the GFE wind input file from a particular WFO is either: (a) absent, (b) incomplete (less than 144-hours of data), or (c) spurious (contains values in excess of 199 knots), a fail-over to GFS wind input will be invoked. Normal operation will resume again as soon as a correct GFE wind file is received.

The NWPS website is located at:

<http://polar.ncep.noaa.gov/nwps/>

For additional information regarding GRIB2 files, visit:

<http://www.nco.ncep.noaa.gov/pmb/docs/grib2/>

For questions pertaining to NWPS data, please contact:

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National Service Change Notices are online at:

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

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