NOUS41 KWBC 091600
PNSWSH

Service Change Notice 25-89
National Weather Service Headquarters Silver Spring MD
1100 AM EST Tue Dec 9 2025

To: Subscribers:
-NOAA Weather Wire Service
-Emergency Managers Weather Information Network
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From: David Michaud, Director
NCEP Central Operations

Subject: Implementation of the Artificial Intelligence Global Forecast System (AIGFS), Artificial Intelligence Global Ensemble Forecast System (AIGEFS), and the Hybrid Global Ensemble Forecast System (HGEFS): Effective December 17, 2025

Effective on December 17, 2025, with the 1200 UTC cycle, the NOAA/NWS National Centers for Environmental Prediction (NCEP) will implement three new models: the Artificial Intelligence Global Forecast System (AIGFS) v1.0, the Artificial Intelligence Global Ensemble Forecast System (AIGEFS) v1.0, and the Hybrid Global Ensemble Forecast System (HGEFS) v1.0.

AIGFS and AIGEFS v1.0 were developed by NCEP in collaboration with the NOAA research laboratories and the Earth Prediction Innovation Center (EPIC) in the Office of Oceanic and Atmospheric Research (OAR). The models are based on Google DeepMind's GraphCast model. AIGFS runs for global deterministic forecasting, and AIGEFS runs with 31 members to provide ensemble forecasts. HGEFS is a hybrid global ensemble system combining the AIGEFS v1.0 with the operational GEFSv12. This 62-member ensemble is composed of 31 members from each of the two systems. For more details, please see NOAA/NCEP office notes 521
(https://doi.org/10.25923/xd3y-wy31) and 522
(https://doi.org/10.25923/7kpr-5e68).

NCEP has begun an evaluation period of AIGFS, AIGEFS, and HGEFS models effective Dec 9, 2025. During this time, data will be available for evaluation.

Evaluation Data Locations:
https://nomads.ncep.noaa.gov/pub/data/nccf/com/aigfs/para/
https://nomads.ncep.noaa.gov/pub/data/nccf/com/aigefs/para/
https://nomads.ncep.noaa.gov/pub/data/nccf/com/hgefs/para/

At the completion of the successful evaluation period on December 17, 2025, the models will become operational.

Operational Data Locations (Starting December 17, 2025):
https://nomads.ncep.noaa.gov/pub/data/nccf/com/aigfs/prod/

https://nomads.ncep.noaa.gov/pub/data/nccf/com/aigefs/prod/
https://nomads.ncep.noaa.gov/pub/data/nccf/com/hgefs/prod/

Data for these models will be on the NCEP NOMADS server only; no data will be available via FTP.

GRIB2 File Naming Conventions:
AIGFS Filenames: aigfs.YYYYMMdd/CC/model/atmos/grib2/
aigfs.tCCz.[pres,sfc].fHHH.grib2[.idx]
AIGEFS Filenames:
Ensemble Members: aigefs.YYYYMMdd/CC/memMMM/model/atmos/grib2/
aigefs.tCCz.[pres,sfc].fHHH.grib2[.idx]
Ensemble Statistics:
aigefs.YYYYMMdd/CC/ensstat/products/atmos/grib2/
aigefs.tCCz.[pres,sfc].[avg,spr].fHHH.grib2[.idx]
HGEFS Filenames:
Ensemble Statistics:
hgefs.YYYYMMdd/CC/ensstat/products/atmos/grib2/
hgefs.tCCz.[pres,sfc].[avg,spr].fHHH.grib2[.idx]

Where YYYY is the year, MM is the month, dd is the day, CC is the cycle time, MMM is the forecast member number, and HHH is the forecast hour.

GRIB2 File Technical Specifications:
File Format: GRIB2
Process Generating IDs: 137, 138, 139 per NCEP Grib standards (https://www.nco.ncep.noaa.gov/pmb/docs/on388/tablea.html)
Horizontal resolution: 0.25 degree lat-lon grid
Temporal resolution: AIGFS and AIGEFS 6-hrly from hour 000 to 384 and HGEFS 6-hrly from 000 to 240
Parameters: AIGFS/AIGEFS/HGEFS PRES
- U-component of Wind (UGRD): 10 m above ground, 50, 100, 150, 200, 250, 300, 400, 500, 600, 700, 850, 925, and 1000 mb
- V-component of Wind (VGRD): 10 m above ground, 50, 100, 150, 200, 250, 300, 400, 500, 600, 700, 850, 925, and 1000 mb
- Temperature (TMP): 2 m above ground, 50, 100, 150, 200, 250, 300, 400, 500, 600, 700, 850, 925, and 1000 mb

- Geopotential Height (HGT), Specific Humidity (SPFH), Vertical Velocity (Pressure) (VVEL): at 50, 100, 150, 200, 250, 300, 400, 500, 600, 700, 850, 925, and 1000 mb

Parameters: AIGFS/AIGEFS/HGEFS SFC
- U-component of Wind (UGRD): 10 m above ground
- V-component of Wind (VGRD): 10 m above ground
- Temperature (TMP): 2 m above ground
- Pressure Reduced to Mean Sea Level (PRMSL): mean sea level
- Total Precipitation (APCP): surface

In the event that the implementation date is declared a Critical Weather Day (CWD), an Enhanced Caution Event (ECE), or other significant weather is occurring or is anticipated to occur, implementation of this change will take place at 1200 UTC on the next weekday not declared a CWD and when no significant weather is occurring.

NCEP encourages users to ensure their decoders are flexible and are able to adequately handle changes in content order, changes in the scaling factor component within the product definition section (PDS) of the Gridded Binary (GRIB) files, and any volume changes which may be forthcoming. These elements may change with future NCEP model implementations. NCEP will make every attempt to alert users to these changes prior to any implementations.

Please submit comments, questions, or requests pertaining to this upgrade to:

The Environmental Modeling Center
Products Feedback
emc.products.feedback@noaa.gov

For questions about the dataflow aspects, please contact:

Margaret Curtis
NCEP Central Operations HPC Dataflow Team Lead
ncep.pmb.dataflow@noaa.gov

National Service Change Notices are online at:

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

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