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Service Change Notice 25-80 Updated
National Weather Service Headquarters Silver Spring MD
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From: David Michaud
Director, NCEP Central Operations

Subject: Updated: Implementation of the Domestic Aviation Forecast System (DAFS) v1.0: Effective March 2, 2026

Updated to reflect a delayed implementation date to March 2, 2026.

Effective March 2,2026, The National Centers for Environmental Prediction (NCEP) will implement the Domestic Aviation Forecast System (DAFS) v1.0. This new system is an integrated suite of aviation weather products and will provide a consistent and comprehensive set of aviation forecasts for the contiguous United States and Alaskan domain. This implementation comes as a result of safety recommendations from the FAA and NTSB.

Summary of Changes

(A) The DAFS v1.0 is a new standalone system which utilizes the Unified Post Processor (UPP) to produce 3 km Inflight Icing (IFI), also known as Forecast Icing Product (FIP), and Graphical Turbulence Guidance (GTG) products from the High Resolution Rapid Refresh (HRRR) model.

Several enhancements to the underlying science will be implemented for IFI v2.0. These changes include using explicit Liquid Water Content in place of Total Water Content (TWC), with the exception of cloud boundary identification which still uses TWC, and an assumption that explicit model supercooled rain implies corresponding Supercooled Large Droplets (SLD).

Similarly, science changes will be made for the GTG v4.0. First, an improved low-level turbulence diagnostic was incorporated. Second, the clear air turbulence (CAT) and mountain wave turbulence (MWT) diagnostics have been updated and expanded. Third, the GTG will also include an in-cloud, convectively induced turbulence parameter (CIT). Lastly, diagnostics and calibrations have been distinguished separately for the Planetary Boundary Layer (stable or unstable), troposphere and stratosphere.

(B) IFI v2.0 includes three components: Icing Probability, Icing Severity and SLD with hourly cycles over the CONUS domain and three-hourly cycles over the Alaska domain.

3 km IFI v2.0 GRIB2 files will be newly added to the NOAA Operational Model Archive and Distribution System (NOMADS), for both the CONUS and Alaska domains, with the following details:

Both CONUS and Alaska domains
- 60 levels every 500 ft from FL010 to FL300
- Icing Severity:
  1. GRIB2 CODE TABLE is 4.228
  2. GRIB2 parameter number is 37, mnemonic is icesev
- Background generating process identifier is 0
- Packing type:
  Complex3 packing with bitmap

CONUS domain
- Hourly cycles with hourly forecasts from F001-F018
- File size:
  26M/forecast hour, 468M/cycle

Alaska domain
- Three-hourly cycles with hourly forecasts from F001-F018
- File size:
  35M/forecast hour, 630M/cycle

13 km IFI v2.0 GRIB2 files for the CONUS domain will be available over the SBN, to replace the RAP-based 13 km IFI v1.0. In addition to the GRIB2 changes listed above, SBN specific changes include:
- Modification of WMO header site ID from KKCI to KWBA
- Complex3 packing with no bitmap in place of JPEG2000 packing used by IFI v1.0
- Hourly forecasts with hourly cycles from F001-F018 in place of selective hours F01 F02 F03 F06 F09 F12 F15 F18
- Addition of WMO headers in accordance with additional forecast hours. Full WMO header details by parameter:
  Icing probability: YAW[B-S]ii KWBA
  Icing severity: YLX[B-S]ii KWBA
  SLD: YAX[B-S]ii KWBA

(C) GTG v4.0 includes five components produced hourly: CAT, MWT, CIT, 2D maximum on individual flight levels, and a 3D column max. GTG v4.0 will solely be available over the CONUS domain.

3 km GTG v4.0 GRIB2 files will be available on NOMADS. Changes from the current RAP based 13 km GTG v3.0 files available on NOMADS include:
- CONUS domain
- Hourly forecasts from F000-F018
- Addition of new CIT parameter:
  GRIB2 parameter number for the new CIT parameter is 50
- Change to individual flight level max EDR parameters:
  GRIB2 parameter number for individual level max EDR is 30 (EDPARM), from the current 31 (MXEDPRM)
- Change to column max EDR parameter:
  GRIB2 fixed surface type (Code table 4.5) for column max EDR is 10 (Entire Atmosphere), from the current 102 (Specific Altitude Above Mean Sea Level)
- File size:
  155M/forecast hour, 2.7G/cycle

- Packing type:
  Complex3 packing with bitmap

13 km GTG v4.0 GRIB2 files will be available over the SBN, to replace RAP based 13 km GTG v3.0. In addition to the GRIB2 changes listed above, SBN specific changes include:
- Modification of WMO header site ID from KKCI to KWBA
- Complex3 packing with no bitmap in place of simple packing used by GTG v3.0
- Addition of WMO header for CIT component. Full WMO header details by parameter:
  CAT: YVW[A-D,G,J,M,P,S]ii KWBA
  MWT: YWN[A-D,G,J,M,P,S]ii KWBA
  CIT: YLW[A-D,G,J,M,P,S]ii KWBA
  Max: ZVW[A-D,G,J,M,P,S]50 KWBA

(D) NOMADS link to access DAFS GRIB2 files containing non-WMO headed products during the 30-day parallel:
- https://nomads.ncep.noaa.gov/pub/data/nccf/com/dafs/para
- ftp://ftp.ncep.noaa.gov/data/nccf/com/dafs/para

NOMADS link to access DAFS GRIB2 files containing non-WMO headed products post implementation:
- https://nomads.ncep.noaa.gov/pub/data/nccf/com/dafs/prod
- ftp://ftp.ncep.noaa.gov/data/nccf/com/dafs/prod

Filenames during the 30-day parallel and post-implementation will have the patterns:
- GTG: dafs.tHHz.gtg.3km.conus.fCCC.grib2
- IFI-CONUS: dafs.tHHz.ifi.3km.conus.fCCC.grib2
- IFI-AK: dafs.tHHz.ifi.3km.ak.fCCC.grib2

(E) Previous 13 km RAP versions of GTG and IFI will be removed from the NWS TGFTP upon DAFS implementation. Users are encouraged to transition to the new GTG v4.0 and IFI v2.0 GRIB2 files available on NOMADS.

--- - GTG to be removed:
https://tgftp.nws.noaa.gov/SL.us008001/DC.avspt/DS.gtggb/PT.grid_DF.gr2/
with filename pattern: sn.*.bin

ftp://tgftp.nws.noaa.gov/SL.us008001/DC.avspt/DS.gtggb/PT.grid_DF.gr2/
with filename pattern: sn.*.bin

- IFI to be removed:
https://tgftp.nws.noaa.gov/SL.us008001/DC.avspt/DS.fipgb/PT.grid_DF.gr1/
with filename pattern: sn.*.bin

ftp://tgftp.nws.noaa.gov/SL.us008001/DC.avspt/DS.fipgb/PT.grid_DF.gr1/
with filename pattern: sn.*.bin

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.

For more information on DAFS icing and turbulence parameters, please see the following links to their respective product description documents:

GTG4:
https://nsdesk.servicenowservices.com/api/g_noa/nwspc/res2/62bbbccb47f8f290f6550c03e16d4351

IFI2:
https://nsdesk.servicenowservices.com/api/g_noa/nwspc/res2/dc3cf44f47f8f290f6550c03e16d43d0

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

Dr. Joshua Scheck
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For questions about the dataflow aspects, please contact:

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National Service Change Notices are online at:

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

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