



Digital Aviation Services (DAS)

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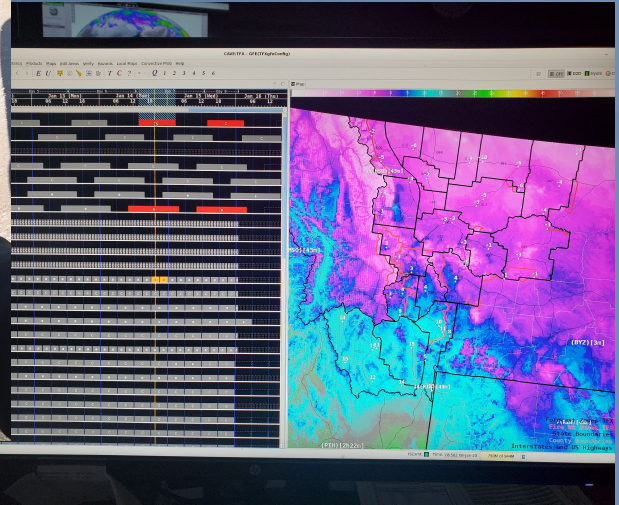
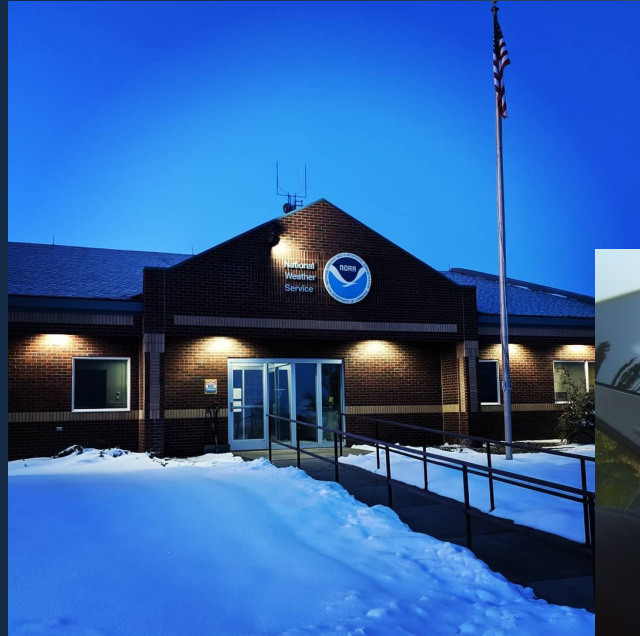


A Little Bit About Me





A Little Bit About Me





Objectives

- What is Digital Aviation Services (DAS)?
- Why is The National Weather Service (NWS) changing its Terminal Aerodrome Forecast (TAF) writing process?
- How are the new TAFs produced?
- Who monitors the NWS TAFs?
- What are the benefits to DAS?
- Where are TAFs, and other NWS aviation information, located?
- What is the future for Digital Aviation Services?

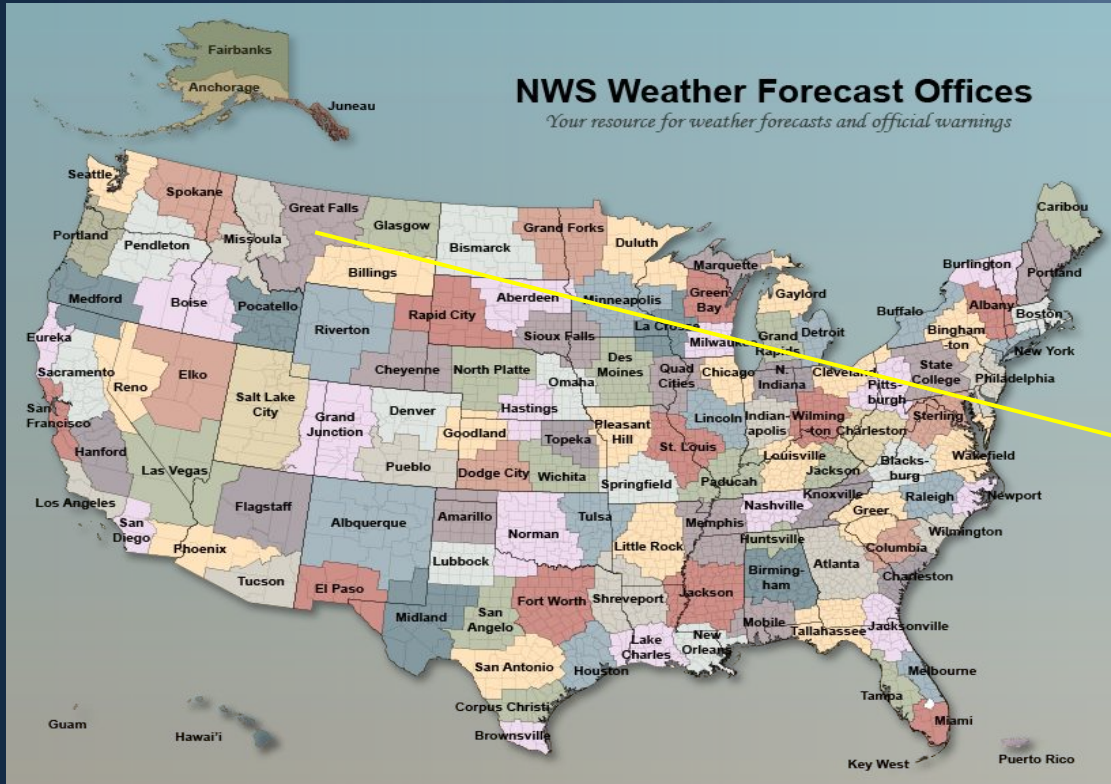


NWS County Warning Areas (CWA)

<https://www.weather.gov/srh/nwsoffices>

NWS Weather Forecast Offices

Your resource for weather forecasts and official warnings



United States

122 Weather Forecast
Offices (WFOs)

Montana





Weather Forecast Office Aviation

Terminal Aerodrome Forecast (TAF)

- 0-24 hr (sometimes 30 hr) forecast of aviation-critical weather elements specific to 5 NM radius from center of airfield
- Issued 4 times daily for most airfields (00Z, 06Z, 12Z and 18Z) - Some offices issue 3 hour TAFs
- Monitored continually 24/7/365
- Amended as necessary – In most cases using airfield ASOS reports, satellite and radar to amend for wind, visibility, weather and sky
- Produce text Aviation Forecast Discussion disseminated at the time of each new TAF period



The screenshot shows the NOAA National Weather Service's Aviation Weather Overview page. The 'TAFs' tab is selected and highlighted with a red circle. The map displays various weather symbols and data across the United States. A scale bar indicates 500 km and 500 miles. The date and time are 0034 UTC Thu 27 Feb 2020.



Useful TAF Products



www.aviationweather.gov/taf





Useful TAF Products

<https://aviationweather.gov/taf/board>



AVIATION WEATHER CENTER

NOAA NATIONAL WEATHER SERVICE

Local Forecast

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Impacts TAF Board

[TAF Home](#) [Plot](#) [Data](#) [Board](#) [Info](#)

FOR SITUATIONAL AWARENESS. NOT TO BE USED FOR FLIGHT PLANNING PURPOSES.

ID:

KGTF - Great Falls Intl, MT, US

Issued at 2345 UTC 26 Feb 2020
Updated at 0018 UTC 27 Feb 2020

Potential Impact None **Slight** Moderate High

Time	2353Z	27/01Z	27/02Z	27/03Z	27/04Z	27/05Z	27/06Z	27/07Z	27/08Z	27/09Z	27/10Z	27/11Z	27/12Z	27/13Z>>
Type	OBS	PRVL	PRVL	PRVL	PRVL	PRVL	PRVL	PRVL	PRVL	PRVL	PRVL	PRVL	PRVL	PRVL
VIS	10	>6	>6	>6	>6	>6	>6	>6	>6	>6	>6	>6	>6	>6
CIG	90	80	80	80	--	--	--	--	--	--	--	--	--	--
Cover	OVC	BKN	BKN	BKN	SCT	SCT	SCT	SCT	SCT	SCT	SCT	SCT	SCT	SCT
FltCat	VFR	VFR	VFR	VFR	VFR	VFR	VFR	VFR	VFR	VFR	VFR	VFR	VFR	VFR
WX	--	--	--	--	--	--	--	--	--	--	--	--	--	--
WDir	240	260	260	260	250	250	250	250	250	250	250	250	250	250
WSpd	9	11	11	11	9	9	9	9	9	9	9	9	9	9
WGst	--	18	18	18	--	--	--	--	--	--	--	--	--	--

Raw TAF

KGTF 262345Z 2700/2724 26011G15KT P6SM SCT050 BKN080
FM270400 25009KT P6SM FEW045 SCT080
FM271500 23012G18KT P6SM SCT150
FM271800 25020G25KT P6SM FEW180

Raw METAR



KGTF 262353Z 24009KT 10SM BKN050 OVC110 06/M04 A3009 RMK AO2 SLP218 T00561039 10089 20089 55004
KGTF 262353Z 25014KT 10SM CLR 07/M04 A3009 RMK AO2 PK MND 25026/2210 SLP216 T00721039
KGTF 262153Z 24016KT 10SM CLR 08/M04 A3009 RMK AO2 PK MND 25026/2135 SLP217 T00831039

METAR Board

[Raw Display](#)

[Forecast Discussion](#)

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Aviation Forecast Discussions Data

[AFD Home](#) [Data Page](#) [Info](#)

Select Site:

(EXTRACTED FROM FXUS65 KTFX 270007)

Updated 507 PM MST Wed Feb 26 2020 (27/00Z TAF Period)

Low VFR to brief MVFR conditions expected for the eastern part of the CWA as virga helps moisten the lower levels and drop ceilings, with a few rain/snow showers possible this evening from KTVS thru KHVH, including KBZN. Clearing skies spread east tonight, with VFR for all sites after 06Z. Will need to watch for fog formation with clearing skies and light winds. Gusty west winds tmrw afternoon, but LLWS doesn't appear likely as of now. Can't rule out some mountain wave turbulence during the day/evening tomorrow. -Kredensor





A map of the United States with state names labeled in various colors. The map includes Alaska and Hawaii, and is surrounded by water bodies like the Pacific Ocean, Atlantic Ocean, and Gulf of Mexico. The state names are written in a sans-serif font, with colors matching the state's color in the map.



Useful Non-TAF Products

<https://www.weather.gov/greatfalls>

Area Forecast Discussion

NATIONAL WEATHER SERVICE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

HOME FORECAST PAST WEATHER SAFETY INFORMATION EDUCATION NEWS SEARCH ABOUT

Local forecast by ZIP, city or ZIP code
Enter location: [] Go
Location Help

News Headlines

- Latest Cold and V/Weather Hazard Forecast for Newborn and Young Livestock
- Sign Up Today for the Intermountain V/Weather Safety V/Workshop Coming May in Reno, Nevada

NWS Forecast Office Great Falls, MT
Weather.gov > Great Falls, MT

Great Falls, MT
Weather Forecast Office

Current Hazards Current Conditions **Forecasts** Rivers and Lakes Climate and Past Weather Local Programs

Warmth returns

Warm Conditions Return

	Forecast Highs
Cut Bank	45° 52° 44°
Havre	48° 52° 51°
Great Falls	50° 57° 51°
Lewistown	41° 51° 48°
Helena	47° 55° 48°
Dillon	42° 45° 44°
Bozeman	43° 49° 47°
W. Yellowstone	31° 36° 37°
	Thur. Fri. Sat.

National Weather Service · Great Falls, Montana Updated: 2/26/2020 4:02 PM

Show Caption

.DISCUSSION...

Shortwave disturbance in NW flow aloft located over BC this afternoon will continue SE into MT this evening, exiting the region late tonight. The shortwave itself is fairly weak but moistening and decreasing stability combined with favorable upper level jet positioning should lead to a fairly quick increase in the coverage of showers across the forecast areas around or shortly after 5 pm this evening. Greatest concentration of showers look to occur initially along the Rocky Mtn front, then spreading quickly east to the central MT MTns and extending south through Gallatin county before precipitation ends from west to east around midnight. Snow levels initially around 4000-4500 feet will mean a potential start as rain for most areas outside of the mountains, but cooling through the evening will promote a changeover to snow, particularly for Judith Basin and Fergus counties where accumulations of up to an inch are possible at lower elevations, while up to 3 inches of accumulation are possible across the mountains. Skies clear from west to east after midnight and this could lead to the development of some patchy fog in some SW MT valleys that see any evening precipitation.

An upper level ridge builds inland Thursday and Friday with warming and drying occurring through the period. By Friday afternoon many lower elevations locations should see temperatures well into the 50s, but moderate W to NW flow aloft and surface troughing east of the Rockies will promote breezy to locally windy conditions across the plains.

A more vigorous upper level trough moves into the NW US Saturday with its associated surface cold front likely to sweep E/SE across the region by late Saturday. A period of precipitation is likely Saturday over the mountains with showers at lower elevations in association with the frontal passage, followed by a period of gusty west winds following the front late Saturday into Saturday night. Hoenisch





Digital Aviation Services (DAS)

A unified forecast process whereby TAFs are produced digitally

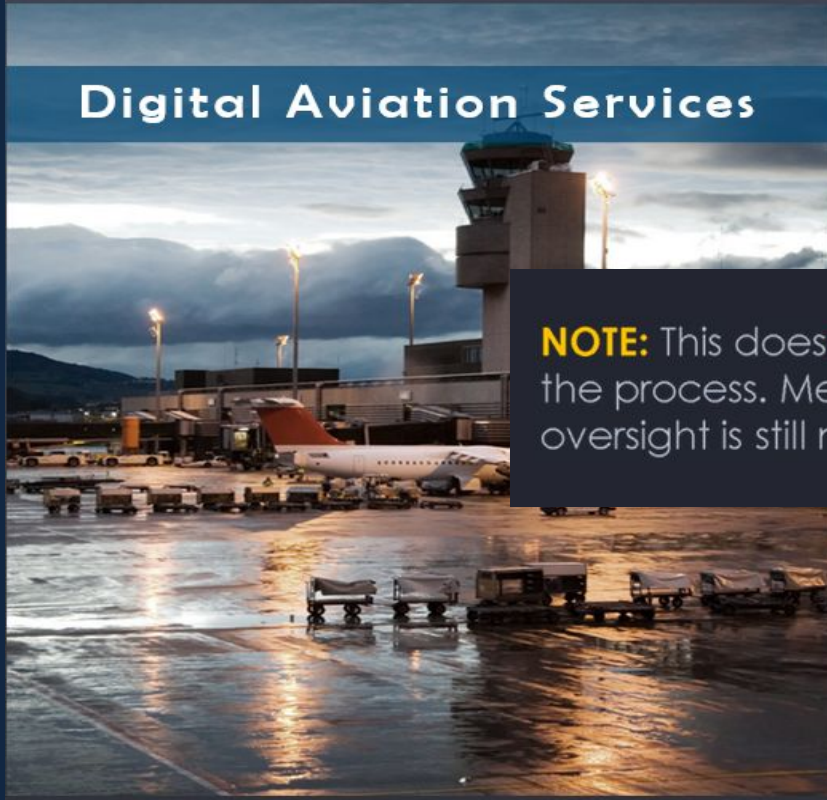


standard.net



Digital Aviation Services (DAS)

Digital Aviation Services



NOTE: This does **not** "automate" a smart tool, the process. Meteorologist oversight is still needed.

What is DAS?

For meteorologists...

...a set of GFE grids, a smart tool, matter

For aviation customers...

...a set of products & aviation forecast information, beyond the traditional TAF sites for the entire forecast area



DAS Overview

Focus on Users

- Incorporate numerical forecast model solutions into TAF production
- Horizontal consistency between aviation forecast graphics and TAFs
- Horizontal consistency between aviation forecast graphics, TAFs and public forecast
- Horizontal consistency of TAFs from one Weather Forecast Office (WFO) County Warning Area (CWA) to another





DAS Overview

Why DAS?

Produces 2 new
national digital
elements: ceiling
and visibility...

new

...for **all** gridded
points in the entire
county warning
area (CWA).



Meets increasing
demand for consistent,
high resolution weather
information.

Benefits other programs
by making hourly visibility
information available.

Provides significant
benefits for ALL of our
aviation customers.



DAS Overview



Products for Customers

DAS offers a variety of current and potential benefits for different customers:

FAA

more detail
than TAFs
alone

General Aviation

forecasts at
all airports

Emergency Services

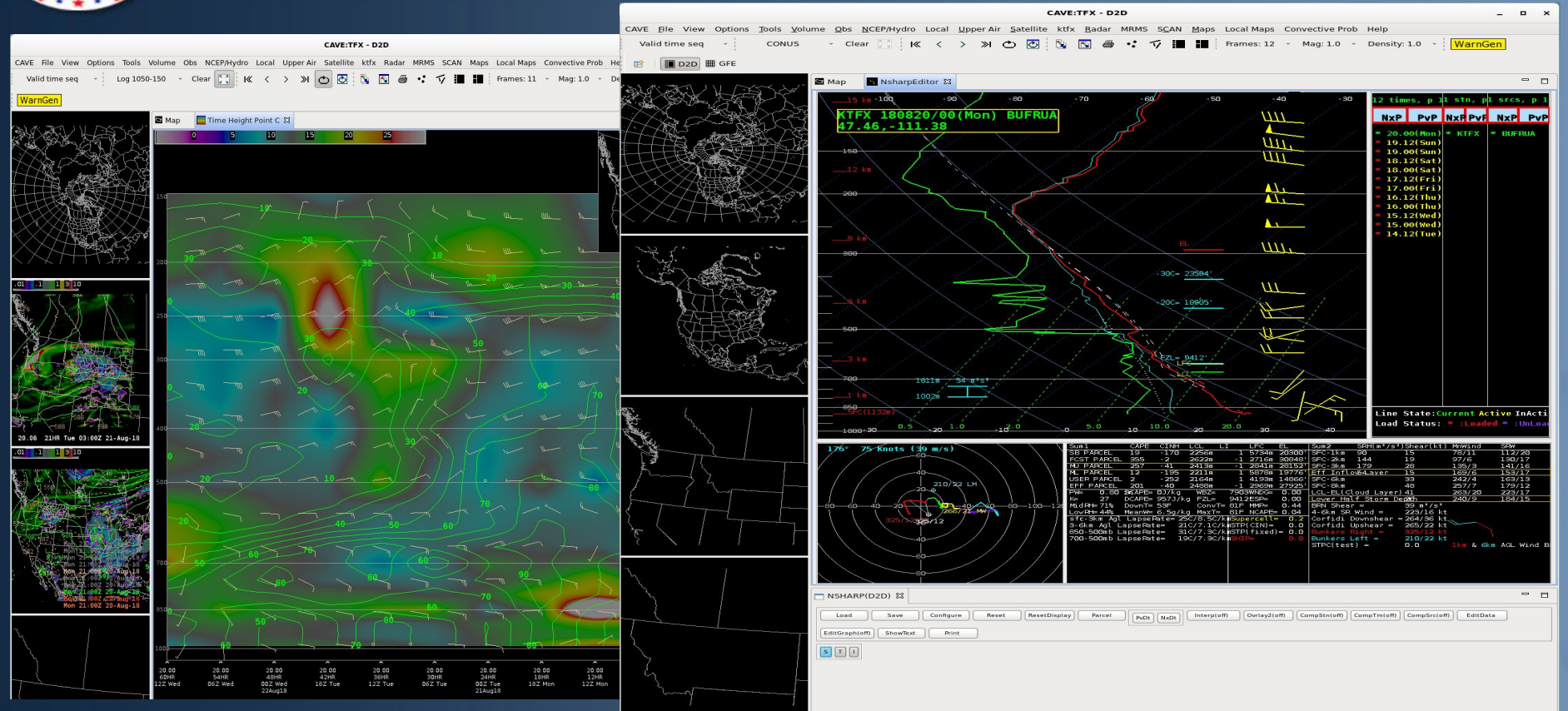
location-
specific
information

NTSB

archived
location-
specific
information

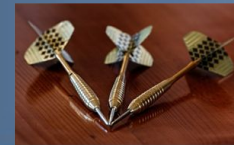
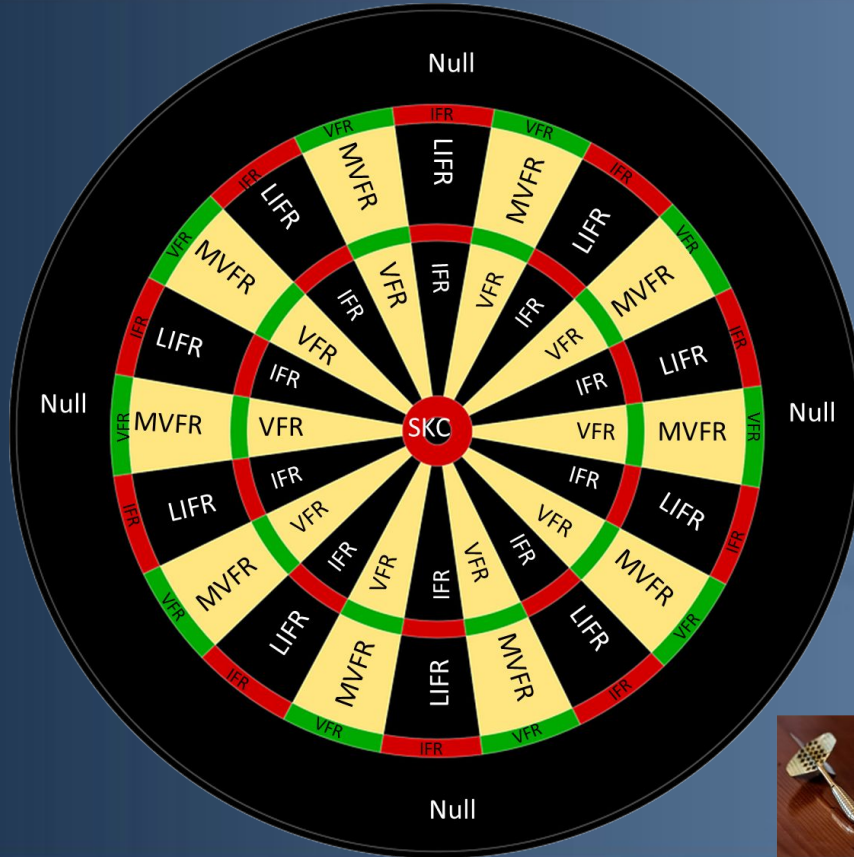


DAS TAF Process





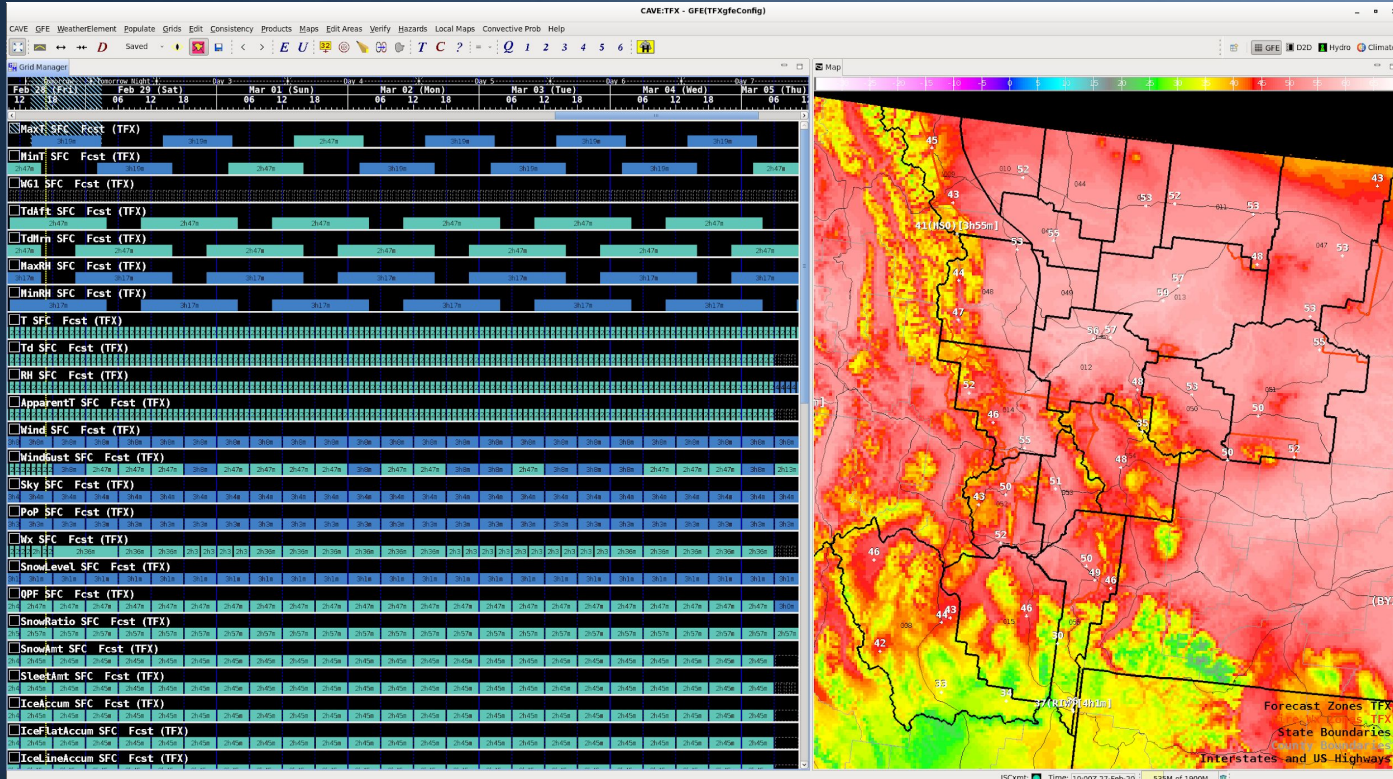
If All Else Fails....





DAS TAF Process

Public Grids





DAS TAF Process

Aviation_Populate [minimize] [maximize] [close]

Select Model <ul style="list-style-type: none"><input checked="" type="radio"/> NBM<input type="radio"/> CONSShort<input type="radio"/> GLAMP25<input type="radio"/> ADJLAV<input type="radio"/> HRRR<input type="radio"/> RAP13<input type="radio"/> ADJMET<input type="radio"/> NAMNest<input type="radio"/> NAM12<input type="radio"/> ADJMAV<input type="radio"/> GFS1hr<input type="radio"/> NationalBlend	Model Run <ul style="list-style-type: none"><input type="radio"/> Previous<input checked="" type="radio"/> Current	Select Element <ul style="list-style-type: none"><input checked="" type="checkbox"/> CloudBasePrimary<input checked="" type="checkbox"/> Visibility<input checked="" type="checkbox"/> LLWS<input checked="" type="checkbox"/> LLWSHgt<input type="checkbox"/> Sky<input type="checkbox"/> Wind<input type="checkbox"/> WindGust<input type="checkbox"/> PoP
---	--	--

<input type="radio"/> GFE Selected Time	Start <input type="text" value="1"/>	27.11Z
<input checked="" type="radio"/> Choose -->	End <input type="text" value="33"/>	28.19Z

Alternative Cloud Base

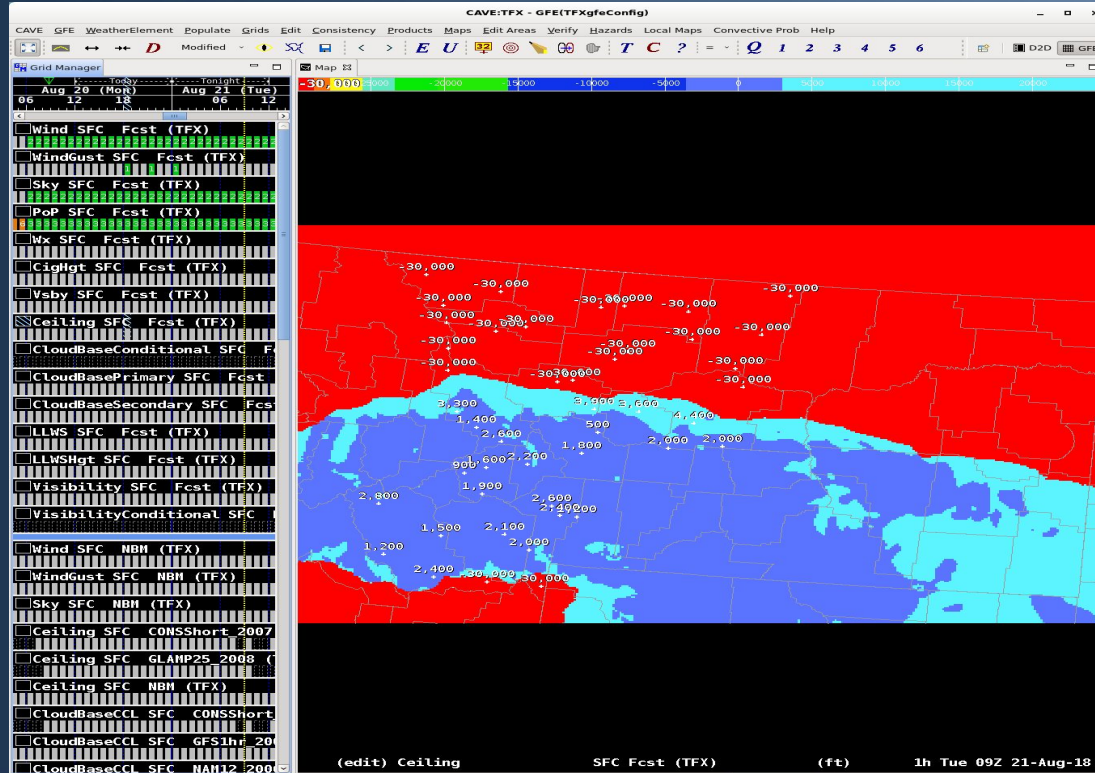
Current Version <ul style="list-style-type: none"><input checked="" type="radio"/> CONSShort<input type="radio"/> RAP13<input type="radio"/> NAM12<input type="radio"/> GFS1hr<input type="radio"/> GFS	Select Element <ul style="list-style-type: none"><input checked="" type="radio"/> CloudBasePrimary<input type="radio"/> CloudBaseSecondary<input type="radio"/> CloudBaseConditional	Select One Algorithm <ul style="list-style-type: none"><input checked="" type="radio"/> CloudBaseCCL<input type="radio"/> CloudBaseLCL<input type="radio"/> CloudBaseRH
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DAS TAF Process

Aviation Grids





DAS TAF Process



Aviation_Finalize _ □ ×

Rules To Apply:

- ☒ PoP Adjusts Cloud Base
- ☒ QC Vis with PoP & Wx
- ☒ PoP Defines Sky
- ☐ Vis Adds New Wx
- ☒ Wx Adjusts Vis
- ☐ Update Wx Intensity Using Vis
- ☒ Adjust WindGust Using Wind
- ☐ Add Vis to Wx String

Save and Publish?
☐ Yes
☒ No

Select Time Period ----- 32 hours selected

27.12 27.18 28.00 28.06 28.12 28.18

Run Run/Dismiss Cancel



Goals

What are we expecting at this point?

- Formatter-generated TAFs that are reasonably workable
- Not a hands-off process
- Some manual editing of formatter-generated TAFs is expected, especially during rapidly-changing situations
- Continued meteorologist monitoring



DAS TAF Process

Formatter Launcher

Products (TFX and Surrounding CWA's) Data Source Issued By Help

TAF

File Edit Options CallToActions

TAF
KBZN 271029Z 2712/2818 VRB04KT P6SM FEW060 FEW090
FM272100 27007KT P6SM FEW045 SCT060
FM280000 VRB06KT P6SM SCT045
FM280400 VRB06KT P6SM FEW040 SCT060
FM280900 VRB04KT P6SM FEW060 FEW080=

TAF
KEKS 271029Z 2712/2812 19009KT P6SM FEW080 FEW100
FM272300 21011KT P6SM SCT045
FM280600 18010KT P6SM FEW045 FEW060
FM280700 18010KT P6SM FEW045 FEW060
FM281000 18010KT P6SM FEW060 FEW080=

TAF
KWYS 271029Z 2712/2812 VRB04KT P6SM FEW022 SCT070
FM271600 VRB03KT P6SM SCT045 BKN070
FM271800 VRB05KT P6SM FEW017 SCT060
FM272000 23007KT P6SM FEW040 SCT045
FM280400 VRB06KT P6SM FEW015 SCT060=

TAF
KHLN 271029Z 2712/2812 VRB06KT P6SM FEW060 FEW090
FM271400 VRB05KT P6SM SCT060 BKN100
FM271800 26009KT P6SM SCT060 BKN080
FM280000 26008KT P6SM SCT060
FM280600 VRB05KT P6SM FEW060 FEW100=

TAF
KGTF 271029Z 2712/2812 22011KT P6SM FEW060 FEW090
FM271400 22011G19KT P6SM FEW060 FEW080
FM271700 23016G24KT P6SM FEW060 FEW080
FM271800 24020G30KT P6SM FEW060 FEW090
FM280000 23014G22KT P6SM SKC=

TAF
KCTB 271029Z 2712/2812 26013KT P6SM FEW070 FEW080
FM271300 26013G21KT P6SM FEW070 FEW080 WS020/29040KT
FM271800 26025G36KT P6SM FEW060 FEW090 WS020/28040KT
FM271900 26025G37KT P6SM SKC
FM280000 26021G31KT P6SM SKC WS020/27040KT=

TAF
KHVR 271029Z 2712/2812 23011KT P6SM FEW070 SCT090
FM272000 26015KT P6SM FEW060 FEW120
FM272200 27015G23KT P6SM FEW060 FEW100
FM272300 27015KT P6SM FEW060 FEW100
FM280600 23011KT P6SM FEW070 FEW120=

TAF
KLWT 271029Z 2712/2812 26008KT P6SM FEW060 FEW100
FM272000 28014G22KT P6SM FEW040 FEW070
FM272300 29015KT P6SM FEW040 FEW070
FM280300 27011KT P6SM FEW060 FEW100
FM280600 24009KT P6SM SKC=

AvnFPS TAF Editor

File Options Edit Help

Viewer Editor

Load Syntax QC Send Save Restore

KBZN

FTUS45 KTFX 271100 Rtn Amd Rtd Cor Clear

TAF
KBZN 271128Z 2712/2818 15010KT P6SM BKN200
FM272100 27007KT P6SM FEW040 SCT060=

TAF
KEKS 271128Z 2712/2812 15009KT P6SM SCT120
FM272300 21012KT P6SM FEW040 SCT080=

TAF
KWYS 271128Z 2712/2812 VRB03KT P6SM SCT200
FM272000 23007KT P6SM FEW040 SCT060=

TAF
KHLN 271128Z 2712/2812 27014KT P6SM BKN110
FM271400 26013KT P6SM SCT060 BKN080
FM280600 VRB05KT P6SM FEW060 FEW100=

TAF
KGTF 271128Z 2712/2812 23012KT P6SM FEW200
FM271400 22011G19KT P6SM FEW060 FEW080
FM271700 24020G30KT P6SM FEW060 FEW090
FM280000 23014G22KT P6SM FEW250=

Tools: AdjustTimes Apply Insert Wrap

Site ID: KBZN Flight Categories: VFR MVFR IFR LFR

Metars GFS-MOS TAF/LAMP GFS/LAMP NAM-MOS NAM DMO NDFFD Grids

All Flight Categories Headers Decoded Num Hours: 6

KBZN METAR Guidance 02/27/20 1056 UTC

T	TIME	WIND	VSBY	WX	SKY	CONDITION	SLP	TT	DP	ALT	PCP
M	271056	15010	10		CLR		298	20	14	029	
M	270956	15005	10		CLR		307	17	12	030	
M	270856	00000	10		CLR		291	29	19	029	
M	270756	16005	10		CLR		289	28	19	028	
M	270656	31009	10		CLR		280	31	19	026	
M	270556	26006	10		BKN055		279	33	24	026	





TAF Manager

Aviation Preparation System (AvnFPS)

AvnFPS Monitor [X]

File Options Help

TAF Editor Climate Plot Backup Queue

		Current Observation	1-h Persistence	ltg	rltg	ccfp	NDFD Grids	llws	Editor Shortcuts			
KBZN	<input checked="" type="checkbox"/>	TAF 05:38 MTR 10:56	tpo vis wnd wx cig cat	vis wnd wx cig cat	ts	ts	ts	vis wnd wx sky	ws	Amd	Rtd	Cor
KEKS	<input checked="" type="checkbox"/>	TAF 05:38 MTR 11:35	tpo vis wnd wx cig cat	vis wnd wx cig cat	ts	ts	ts	vis wnd wx sky	ws	Amd	Rtd	Cor
KWYS	<input checked="" type="checkbox"/>	TAF 05:38 MTR 11:25	tpo vis wnd wx cig cat	vis wnd wx cig cat	ts	ts	ts	vis wnd wx sky	ws	Amd	Rtd	Cor
KHLN	<input checked="" type="checkbox"/>	TAF 05:38 MTR 10:53	tpo vis wnd wx cig cat	vis wnd wx cig cat	ts	ts	ts	vis wnd wx sky	ws	Amd	Rtd	Cor
KGTF	<input checked="" type="checkbox"/>	TAF 05:38 MTR 10:53	tpo vis wnd wx cig cat	vis wnd wx cig cat	ts	ts	ts	vis wnd wx sky	ws	Amd	Rtd	Cor
KCTB	<input checked="" type="checkbox"/>	TAF 05:38 MTR 10:56	tpo vis wnd wx cig cat	vis wnd wx cig cat	ts	ts	ts	vis wnd wx sky	ws	Amd	Rtd	Cor
KHVR	<input checked="" type="checkbox"/>	TAF 05:38 MTR 10:53	tpo vis wnd wx cig cat	vis wnd wx cig cat	ts	ts	ts	vis wnd wx sky	ws	Amd	Rtd	Cor
KLWT	<input checked="" type="checkbox"/>	TAF 05:38 MTR 10:54	tpo vis wnd wx cig cat	vis wnd wx cig cat	ts	ts	ts	vis wnd wx sky	ws	Amd	Rtd	Cor

Checking ltg for ALL





TAF Manager

Aviation Preparation System (AvnFPS)

AvnFPS TAF Editor

File Options Edit Help

Viewer Editor

Load Syntax QC Send Save Restore

KBZN KLWT AAX KLWT AAX

FTUS45 KTFX 270538 AAX ☐ Rtn ☒ Amd ☐ Rtd ☐ Cor Clear

TAF AMD
KLWT 270538Z 2706/2806 VRB06KT P6SM SCT002 BKN080
TEMPO 2706/2708 1/4SM PZFG VV002
FM270800 28011G19KT P6SM SCT009 BKN020
FM271400 24008KT P6SM FEW060 FEW100
FM272000 28015G23KT P6SM FEW040 FEW070=

Tools: AdjustTimes Apply ☒ Insert ☐ Wrap

Site ID: KLWT Flight Categories: VFR MVFR IFR LIFR

Metars GFS-MOS TAF/LAMP GFS/LAMP NAM-MOS NAM DMO NDFD Grids

☐ All ☐ Flight Categories ☒ Headers ☒ Decoded Num Hours: 6

KLWT METAR Guidance 02/27/20 1154 UTC

T	TIME	WIND	VSBY	WX	SKY	CONDITION	SLP	TT	DP	ALT	PCP
M	271154	21008	10		CLR		251	20	14	017	
M	271054	23005	10		BKN070		245	25	18	017	
M	270954	21007	10		BKN070		246	26	20	018	
M	270854	20008	10		OVC075		244	30	25	019	
M	270754	22008	10		OVC075		244	28	25	018	
M	270654	25006	10		SCT004 OVC075		239	29	27	017	





DAS Benefits

- Public forecast grids help produce TAFs
- Horizontal consistency all around
- KWYS TAF came online 16 Jul 2019 / 18Z TAF period with TAFs produced all year to service winter medivac
- More available time to work on additional aviation projects





Operational Goal

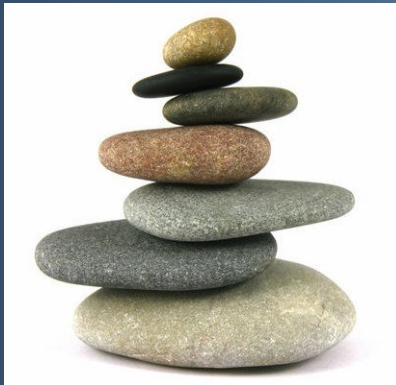
- Every NWS Weather Forecast Office will use Digital Aviation Services to create TAFs by the end of FY2021.





DAS Future

- Always a work in progress
- Formatter-generated TAF issues become less and less, and taper off
- Stability is reached as the process is perfected over time





Summary

- What is Digital Aviation Services (DAS)?
- Why is The National Weather Service (NWS) changing its Terminal Aerodrome Forecast (TAF) writing process?
- How are the new TAFs produced?
- Who monitors the NWS TAFs?
- What are the benefits to DAS?
- Where are TAFs, and other NWS aviation information, located?
- What is the future for Digital Aviation Services?



Questions?

