



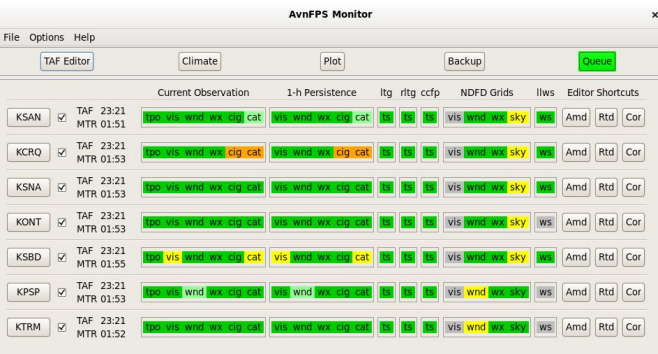
Using TAF Verification to Improve Forecasts and Decision Support Services

Brandt Maxwell

Meteorologist

NOAA/NWS San Diego

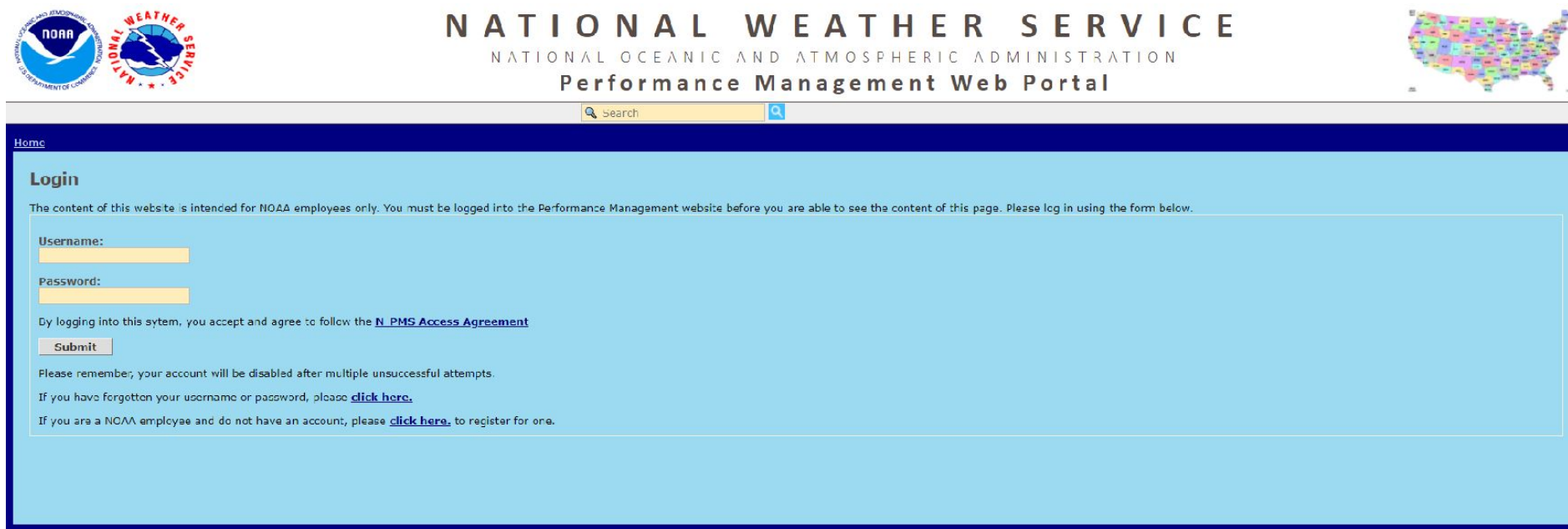
Brandt.Maxwell@noaa.gov



OBS\FORECASTS	1	2	3	4	5	6	TOTAL
<200 (1)	0	0	0	0	0	0	0
200-400 (2)	0	0	27	0	0	17	44
500-900 (3)	0	0	3	49	0	50	102
1000-1900 (4)	0	0	95	227	96	206	624
2000-3000 (5)	0	0	25	214	205	124	568
>3000 (6)	0	0	48	205	408	4,079	4,740
TOTAL	0	0	198	695	709	4,476	6,078
BIAS	0.000	0.000	1.941	1.114	1.248	0.944	----

TAF Verification – Available for all NOAA Personnel

- <https://verification.nws.noaa.gov/content/pm/verif/aviation/index.aspx>
- A part of the greater Performance Management website
- Available from 2005-present
- Need username and password (not the same as Google mail; you must register)



The screenshot shows the NOAA National Weather Service Performance Management Web Portal. At the top, there are logos for NOAA and the National Weather Service, followed by the text "NATIONAL WEATHER SERVICE", "NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION", and "Performance Management Web Portal". A search bar is located below the header. The main content area is titled "Login" and contains a message: "The content of this website is intended for NOAA employees only. You must be logged into the Performance Management website before you are able to see the content of this page. Please log in using the form below." Below this message are two input fields for "Username:" and "Password:". A "Submit" button is located below the password field. Below the button, there is a link to the "N PMS Access Agreement" and a note that the account will be disabled after multiple unsuccessful attempts. At the bottom, there are two links: "click here" for forgotten credentials and "click here" for registration.

NOAA NATIONAL WEATHER SERVICE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
Performance Management Web Portal

Search

Home

Login

The content of this website is intended for NOAA employees only. You must be logged into the Performance Management website before you are able to see the content of this page. Please log in using the form below.

Username:

Password:

By logging into this system, you accept and agree to follow the [N PMS Access Agreement](#)

Please remember, your account will be disabled after multiple unsuccessful attempts.

If you have forgotten your username or password, please [click here](#).

If you are a NOAA employee and do not have an account, please [click here](#), to register for one.

Numerous Options – “Aviation Weather” is the Best One!

verification.nws.noaa.gov/services/public/index.aspx



NATIONAL WEATHER SERVICE

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

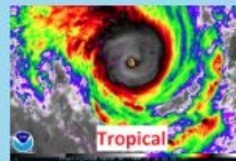
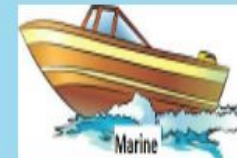
Performance Management Web Portal

Search

- Verification**
- StormDat
- StormGen
- NOES
- Customer Satisfaction
- Service Assessments
- GPRA
- Data Tools
- Resources
- About

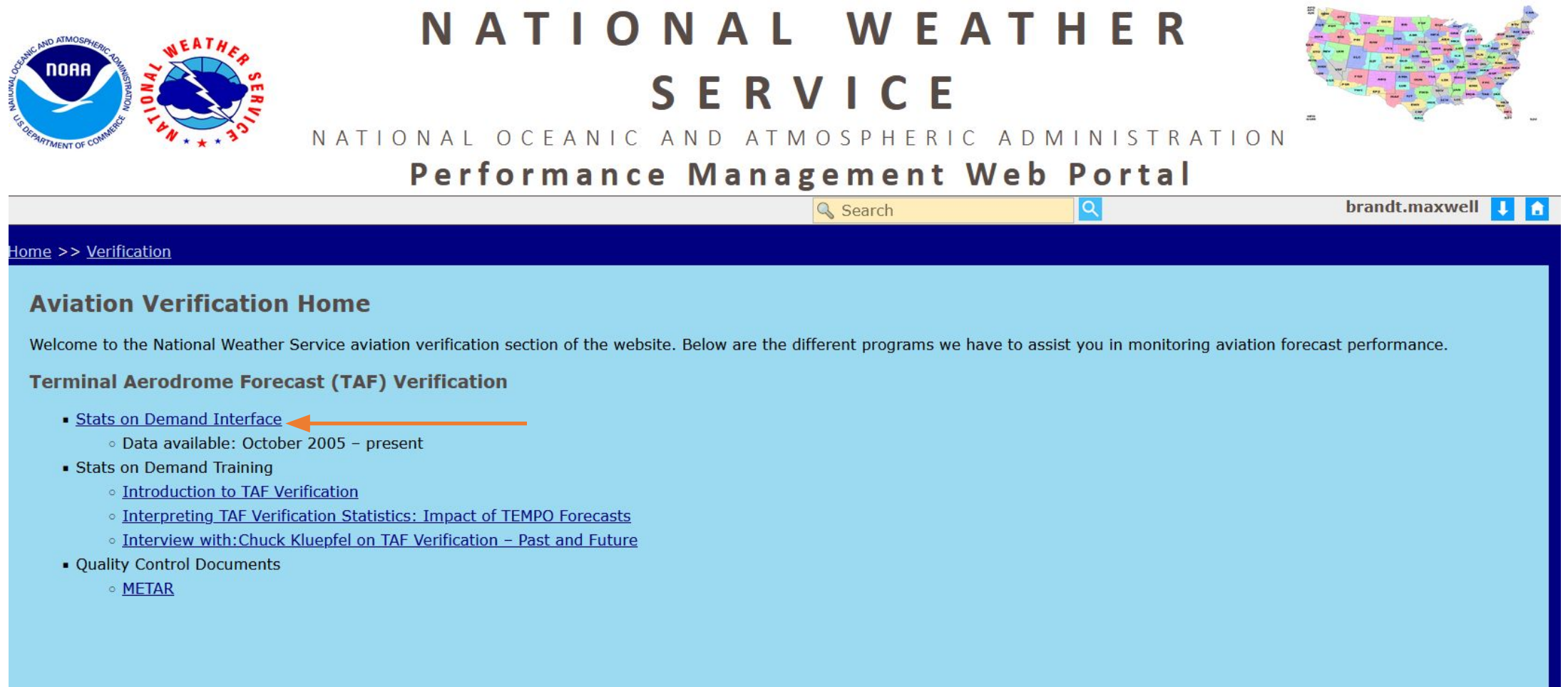
Update! NWS Releases the National Service Assessment on 2018 Hurricane Florence and Hurricane Michael

Verification



Then Select “Stats on Demand Interface”

- After this, the fun begins...I promise!.



The screenshot shows the National Weather Service Performance Management Web Portal. At the top, there are logos for NOAA and the National Weather Service, followed by the text "NATIONAL WEATHER SERVICE" and "NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION". To the right is a map of the United States. Below this is a search bar with the text "Search" and a magnifying glass icon, and a user profile for "brandt.maxwell" with a download icon and a home icon. The main content area has a blue header with the text "Home >> Verification". Below this is a section titled "Aviation Verification Home" with a welcome message. Underneath is a section titled "Terminal Aerodrome Forecast (TAF) Verification" with a list of links. The link "Stats on Demand Interface" is highlighted with an orange arrow.

NATIONAL WEATHER SERVICE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
Performance Management Web Portal

Search brandt.maxwell

Home >> Verification

Aviation Verification Home

Welcome to the National Weather Service aviation verification section of the website. Below are the different programs we have to assist you in monitoring aviation forecast performance.

Terminal Aerodrome Forecast (TAF) Verification

- [Stats on Demand Interface](#) ←
- Data available: October 2005 – present
- Stats on Demand Training
 - [Introduction to TAF Verification](#)
 - [Interpreting TAF Verification Statistics: Impact of TEMPO Forecasts](#)
 - [Interview with: Chuck Kluepfel on TAF Verification – Past and Future](#)
- Quality Control Documents
 - [METAR](#)

TAF Stats Request

- The menu



TAF Stats Request

Click [here](#) to download customized report data in CSV format for Flight Category and Sig Wx element types. Data is available from 09/01/2005 to 06/07/2022. Prior to 12/01/2020 only monthly-sorted **archive data** data is available.

From Date

To End Date

Months to report ☒ JAN ☒ FEB ☒ MAR ☒ APR ☒ MAY ☒ JUN
☒ JUL ☒ AUG ☒ SEP ☒ OCT ☒ NOV ☒ DEC ☒ Select All

[National](#) [Region](#) [WFO](#) [State](#) [Terminal](#) [Experimental Forecast](#) [My Verification](#)

Selection area set to Terminal.

Filter [\[?\]](#) Area Type Location
 »

Select [\[?\]](#) Terminal Current Selections

KCRQ		
KONT		
KPSP		
KSAN		
KSBD		
KSNA		

Element Type

Forecast Type

Guidance Type

Ceilings Below

Visibilities Below

TAF Type ☒ Scheduled ☐ Amended ☐ Scheduled and amended combined

TAF Begin Times ☒ 0000-0559 ☒ 0600-1159 ☒ 1200-1759 ☒ 1800-2359 ☒ Select All

Forecast Projections ☒ >0 - 3 ☒ >3 - 6 ☒ >6 - 9 ☒ >9 - 12 ☒ >12 - 18 ☒ >18 - 24 ☐ >24 - 30 ☐ Select All

Email Option [\[?\]](#) ☐ Email me when the report is finished

Reports may take several minutes to create. Please limit criteria to avoid long waits.

TAF Stats Request



Element Type	CEILING
Forecast Type	CEILING
Guidance Type	VISIBILITY
Ceilings Below	FLIGHT CATEGORY
TAF Type	WIND SPEED
TAF Begin Times	WIND DIRECTION
	WIND GUSTS
	SIGNIFICANT WEATHER TYPE

Forecast Type	OPERATIONAL IMPACT
Guidance Type	OPERATIONAL IMPACT
Ceilings Below	PREVAILING
TAF Type	TEMPO
	PROB

Guidance Type	GFS LAMP
Ceilings Below	NONE
TAF Type	GFS MOS
TAF Begin Times	NAM MOS
	NGM MOS
	GFS LAMP
Forecast Projections	PERSISTENCE



Coming soon by popular demand! NBM MOS

TAF Report Page

- Intro...

TAF Report Page

Element	Flight Category
TAF Type	Operational Impact (Scheduled Only)
Guidance Type	GFS LAMP
Date Range	01/01/2022 TO 06/01/2022
Terminal	KSAN
Cycle Times	0000Z, 0600Z, 1200Z, 1800Z
Projections	>0 - 3, >3 - 6, >6 - 9, >9 - 12, >12 - 18, >18 - 24
Report Format	Hours Minutes Percent Frequency Toggle Legend

Tip: Click on “Percent” and get more meaningful numbers in the output

More of the TAF Report Page

- Contingency Tables (The Matrices)
- Obs are always on left axis/legend; Forecasts are always on top axis/legend:

Hit

1-Category Error

2-Category Error

3-Category Error

4 or More Category Error

Show AllHide All

MULTICATEGORY CONTINGENCY TABLES WITH ASSOCIATED SCORES

TAF

OBS\FORECASTS	VLIFR	LIFR	IFR	MVFR	VFR	TOTAL
VLIFR	0	82	55	10	35	182
LIFR	0	191	313	42	301	847
IFR	0	106	1,492	563	441	2,602
MVFR	0	31	2,222	26,529	7,217	35,999
VFR	0	154	1,753	15,223	100,428	117,558
TOTAL	0	564	5,835	42,367	108,422	157,188
BIAS	0.000	0.666	2.243	1.177	0.922	----

GFS LAMP

OBS\FORECASTS	VLIFR	LIFR	IFR	MVFR	VFR	TOTAL
VLIFR	15	48	31	16	72	182
LIFR	46	148	111	179	363	847
IFR	25	585	446	838	708	2,602
MVFR	70	1,490	1,996	25,921	6,522	35,999
VFR	108	369	608	14,204	102,269	117,558
TOTAL	264	2,640	3,192	41,158	109,934	157,188
BIAS	1.451	3.117	1.227	1.143	0.935	----

Quick Rewind: Instead of “Frequency” use “Percent”

- smaller numbers/easier to comprehend
- Good to check for over-forecast vs under-forecast “biases”
 - But official biases are listed too
- And those “bad forecasts” in red...

Hit

1-Category Error

2-Category Error

3-Category Error

4 or More Category Error

Show AllHide All

MULTICATEGORY CONTINGENCY TABLES WITH ASSOCIATED SCORES

TAF

OBS\FORECASTS	VLIFR	LIFR	IFR	MVFR	VFR	TOTAL
VLIFR	0.00	0.05	0.03	0.01	0.02	0.12
LIFR	0.00	0.12	0.20	0.03	0.19	0.54
IFR	0.00	0.07	0.95	0.36	0.28	1.66
MVFR	0.00	0.02	1.41	16.88	4.59	22.90
VFR	0.00	0.10	1.12	9.68	63.89	74.79
TOTAL	0.00	0.36	3.71	26.95	68.98	100.00
BIAS	0.000	0.666	2.243	1.177	0.922	----

GFS LAMP

OBS\FORECASTS	VLIFR	LIFR	IFR	MVFR	VFR	TOTAL
VLIFR	0.01	0.03	0.02	0.01	0.05	0.12
LIFR	0.03	0.09	0.07	0.11	0.23	0.54
IFR	0.02	0.37	0.28	0.53	0.45	1.66
MVFR	0.04	0.95	1.27	16.49	4.15	22.90
VFR	0.07	0.23	0.39	9.04	65.06	74.79
TOTAL	0.17	1.68	2.03	26.18	69.94	100.00
BIAS	1.451	3.117	1.227	1.143	0.935	----

Replay: Instead of “Frequency” use “Hours”

- Very meaningful data for more anomalous occurrences
- Some numbers can get quite big

Hit	1-Category Error	2-Category Error	3-Category Error	4 or More Category Error
-----	------------------	------------------	------------------	--------------------------

⌵ Show All ⌶ Hide All

⌶ MULTICATEGORY CONTINGENCY TABLES WITH ASSOCIATED SCORES

TAF

OBS\FORECASTS	VLIFR	LIFR	IFR	MVFR	VFR	TOTAL
VLIFR	0.00	6.83	4.58	0.83	2.92	15.17
LIFR	0.00	15.92	26.08	3.50	25.08	70.58
IFR	0.00	8.83	124.33	46.92	36.75	216.83
MVFR	0.00	2.58	185.17	2,210.75	601.42	2,999.92
VFR	0.00	12.83	146.08	1,268.58	8,369.00	9,796.50
TOTAL	0.00	47.00	486.25	3,530.58	9,035.17	13,099.00
BIAS	0.000	0.666	2.243	1.177	0.922	----

GFS LAMP

OBS\FORECASTS	VLIFR	LIFR	IFR	MVFR	VFR	TOTAL
VLIFR	1.25	4.00	2.58	1.33	6.00	15.17
LIFR	3.83	12.33	9.25	14.92	30.25	70.58
IFR	2.08	48.75	37.17	69.83	59.00	216.83
MVFR	5.83	124.17	166.33	2,160.08	543.50	2,999.92
VFR	9.00	30.75	50.67	1,183.67	8,522.42	9,796.50
TOTAL	22.00	220.00	266.00	3,429.83	9,161.17	13,099.00
BIAS	1.451	3.117	1.227	1.143	0.935	----

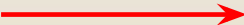
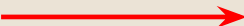
More of the TAF Report Page

- Contingency Tables Scores (Statistics)
- Most of These Are Self-Explanatory

CONTINGENCY TABLES SCORES (TAF / GFS LAMP)	
Percent Hits [?]	81.84 / 81.94
Percent >1 Category Errors [?]	1.80 / 2.57
Peirce Skill Score (PSS) [?]	0.619 / 0.608
5-category Gerrity Skill Score (GSS) [?]	0.376 / 0.340
5-category GSS delta [?]	0.002 / 0.002
3-category GSS [?]	0.621 / 0.524
3-category GSS delta [?]	0.000 / 0.000
TAF Better Than GFS LAMP (TAF > GFS LAMP) [?]	7.80
TAF Worse Than GFS LAMP (TAF < GFS LAMP) [?]	7.42
TAF = GFS LAMP = OBS [?]	75.07
TAF = GFS LAMP <> OBS [?]	9.71

Peirce Skill Score & Garrity Skill Score

- Peirce Skill Score: -1 to 1, with 0 being random based on climatology and 1 being perfect
- Garrity Skill Score: Also -1 to 1, with 0 indicating no skill and 1 being perfect...but...with greater bonus towards forecasting anomalies well

CONTINGENCY TABLES SCORES (TAF / GFS LAMP)	
Percent Hits [?]	81.84 / 81.94
Percent >1 Category Errors [?]	1.80 / 2.57
 Peirce Skill Score (PSS) [?]	0.619 / 0.608
 5-category Gerrity Skill Score (GSS) [?]	0.376 / 0.340
5-category GSS delta [?]	0.002 / 0.002
3-category GSS [?]	0.621 / 0.524
3-category GSS delta [?]	0.000 / 0.000
TAF Better Than GFS LAMP (TAF > GFS LAMP) [?]	7.80
TAF Worse Than GFS LAMP (TAF < GFS LAMP) [?]	7.42
TAF = GFS LAMP = OBS [?]	75.07
TAF = GFS LAMP <> OBS [?]	9.71

Still More on the TAF Report Page

- Finally the last part
- POD/FAR/CSI for each category (slice) plus combinations (“& below”)

⚙️ POD-FAR-CSI SCORES (TAF / GFS LAMP)				
Category/Scores	Probability of Detection (POD) [?]	False Alarm Ratio (FAR) [?]	Critical Success Index (CSI) [?]	% Improvement TAF CSI over GFS LAMP
VLIFR	0.000 / 0.082	--- / 0.943	0.000 / 0.035	-100.00
LIFR & Below	0.265 / 0.250	0.516 / 0.912	0.207 / 0.070	195.82
IFR & Below	0.617 / 0.401	0.650 / 0.761	0.287 / 0.176	63.38
MVFR & Below	0.798 / 0.807	0.351 / 0.324	0.557 / 0.582	-4.24
LIFR Slice	0.226 / 0.175	0.661 / 0.944	0.157 / 0.044	253.21
IFR Slice	0.573 / 0.171	0.744 / 0.860	0.215 / 0.083	157.60
MVFR Slice	0.737 / 0.720	0.374 / 0.370	0.512 / 0.506	1.16
VFR	0.854 / 0.870	0.074 / 0.070	0.800 / 0.817	-2.06
⚙️ Profile Of Data Used For This Report				
Scheduled Forecasts Analyzed [?]		553		
Total 5-Minute Intervals [?]		157,188 / 159,264 (98.70 %)		

Review of POD, FAR, CSI


- $POD = A / (A + B)$: 0 is worst, 1 is best
- $FAR = C / (A + C)$: 0 is best (no false alarms), 1 is worst
- $CSI = A / (A + B + C)$: 0 is worst, 1 is best


Bonus: Bias is $(A + C) / (A + B)$

Obs\Forecast	Forecast says "YES!"	Forecast says "NO!"
Observation says "YES!"	A	B
Observation says "NO!"	C	Not represented in POD, FAR or CSI

Examples of Using Specific Thresholds

- Ceilings Below 2000 Feet (Extra Fuel Requirement):

From Date 

To End Date 

Months to report ☒ JAN ☒ FEB ☒ MAR ☒ APR ☒ MAY ☒ JUN
☒ JUL ☒ AUG ☒ SEP ☒ OCT ☒ NOV ☒ DEC ☒ Select All

National **Region** **WFO** **State** **Terminal** **Experimental Forecast** **My Verification**

Selection area set to Terminal.

Filter [\[?\]](#) Area Type Location
 »

Select [\[?\]](#) Terminal Current Selections

KCRQ
KONT
KPSP
KSAN
KSBD
KSNA


KSAN

Add Remove Clear

Element Type

Forecast Type

Guidance Type

Ceilings Below 

TAF Type ☒ Scheduled ☐ Amended ☐ Scheduled and amended combined

TAF Begin Times ☒ 0000-0559 ☒ 0600-1159 ☒ 1200-1759 ☒ 1800-2359 ☒ Select All

Forecast Projections ☒ >0 - 3 ☒ >3 - 6 ☒ >6 - 9 ☒ >9 - 12 ☒ >12 - 18 ☒ >18 - 24 ☐ >24 - 30 ☐ Select All

Email Option [\[?\]](#) ☐ Email me when the report is finished

Get Scores Reports may take several minutes to create. Please limit criteria to avoid long waits.

Examples of Using Specific Thresholds - Output

- Ceilings Below 2000 Feet (Extra Fuel Requirement):

2x2 CRITICAL THRESHOLD DATA

TAF

OBS\FORECASTS	< 2000	>= 2000	Total
< 2000	3.88	3.25	7.13
>= 2000	5.08	87.79	92.87
Total	8.96	91.04	100.00

POD [?] (< 2000)	0.544
FAR [?] (< 2000)	0.567
CSI [?] (< 2000)	0.318
2x2 Heidke Skill Score [?]	0.438

GFS LAMP

OBS\FORECASTS	< 2000	>= 2000	Total
< 2000	3.35	3.79	7.13
>= 2000	3.62	89.25	92.87
Total	6.96	93.04	100.00

POD (< 2000)	0.469
FAR (< 2000)	0.519
CSI (< 2000)	0.311
2x2 Heidke Skill Score	0.435

More Critical Threshold – Airport Landing Minimums

- Many airports have landing minimums of 200 feet (can be seen by looking at VLIFR in Stats on Demand)
- Some airports have different landing minimums not corresponding to a threshold associated with VLIFR, LIFR or IFR.
- Example: MSO (Missoula) – 300 foot CAC ceiling (Threshold A – Landing Minimums)

From Date 01/01/2022 To End Date 04/01/2022

Months to report ☒ JAN ☒ FEB ☒ MAR ☒ APR ☒ MAY ☒ JUN ☒ JUL ☒ AUG ☒ SEP ☒ OCT ☒ NOV ☒ DEC ☒ Select All

National Region WFO State Terminal **Experimental Forecast** My Verification

Selection area set to Terminal.

Filter [?] Area Type Location
WFO » MSO

Select [?] Terminal Current Selections
KBTM
KFCA
KGPI
KMSO
KSMN
Add Remove Clear

Element Type CEILING
Forecast Type OPERATIONAL IMPACT
Guidance Type GFS LAMP
Ceilings Below 300 FEET
TAF Type ☒ Scheduled ☐ Amended ☐ Scheduled and amended combined
TAF Begin Times ☒ 0000-0559 ☒ 0600-1159 ☒ 1200-1759 ☒ 1800-2359 ☒ Select All
Forecast Projections ☒ >0 - 3 ☒ >3 - 6 ☒ >6 - 9 ☒ >9 - 12 ☒ >12 - 18 ☒ >18 - 24 ☐ >24 - 30 ☐ Select All
Email Option [?] ☐ Email me when the report is finished
Get Scores Reports may take several minutes to create. Please limit criteria to avoid long waits.

Ceiling Threshold for Airport Landing Minimum - Output

- Generally under-forecasting cigs < 300 feet
- GFS-LAMP is not included since 300 feet is not one of its category thresholds

2x2 CRITICAL THRESHOLD DATA

TAF

OBS\FORECASTS	< 300	>= 300	Total
< 300	0.24	4.00	4.23
>= 300	0.66	95.11	95.77
Total	0.89	99.11	100.00

POD [?] (< 300)	0.056
FAR [?] (< 300)	0.734
CSI [?] (< 300)	0.049
2x2 Heidke Skill Score [?]	0.079

Heidke Skill Score:
-∞ to 1 (1 is best, 0
is no skill, -∞ is evil)

What About Both CIG & VIS Thresholds for Flight Category?

- You can select thresholds for both ceiling and visibility
- Slight limitation in the visibility (no 8th miles)
- Otherwise, same rules apply
- Example: Crescent City, California (CEC) landing minimums are 300 feet and $\frac{3}{4}$ mile:

Flight Category - Output

TAF			
OBS\FORECASTS	CIG <300 or VIS < $\frac{3}{8}$	CIG \geq 300 and VIS $\geq \frac{3}{8}$	Total
CIG <300 or VIS < $\frac{3}{8}$	0.05	0.16	0.21
CIG \geq 300 and VIS $\geq \frac{3}{8}$	0.35	99.44	99.79
Total	0.40	99.60	100.00

POD [?] (CIG < 300 or VIS < $\frac{3}{8}$)	0.231
FAR [?] (CIG < 300 or VIS < $\frac{3}{8}$)	0.876
CSI [?] (CIG < 300 or VIS < $\frac{3}{8}$)	0.088
2x2 Heidke Skill Score [?]	0.159

Important Nuances of Verification: RAW vs. Compared with Guidance

- RAW scores will almost always be best in fair weather
 - P6SM SKC is *usually* the easiest to forecast
 - Example—PHX (Phoenix!) in April 2022

MULTICATEGORY CONTINGENCY TABLES WITH ASSOCIATED SCORES

TAF

OBS\FORECASTS	VLIFR	LIFR	IFR	MVFR	VFR	TOTAL
VLIFR	0.00	0.00	0.00	0.00	0.00	0.00
LIFR	0.00	0.00	0.00	0.00	0.00	0.00
IFR	0.00	0.00	0.00	0.00	0.00	0.00
MVFR	0.00	0.00	0.00	0.00	0.00	0.00
VFR	0.00	0.00	0.00	0.00	100.00	100.00
TOTAL	0.00	0.00	0.00	0.00	100.00	100.00
BIAS	0.000	0.000	0.000	0.000	1.000	----

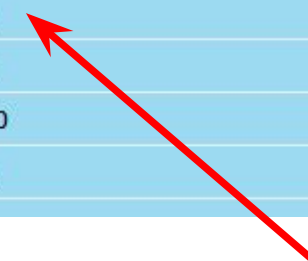
GFS LAMP

OBS\FORECASTS	VLIFR	LIFR	IFR	MVFR	VFR	TOTAL
VLIFR	0.00	0.00	0.00	0.00	0.00	0.00
LIFR	0.00	0.00	0.00	0.00	0.00	0.00
IFR	0.00	0.00	0.00	0.00	0.00	0.00
MVFR	0.00	0.00	0.00	0.00	0.00	0.00
VFR	0.00	0.00	0.00	0.00	100.00	100.00
TOTAL	0.00	0.00	0.00	0.00	100.00	100.00
BIAS	0.000	0.000	0.000	0.000	1.000	----

Important Nuances of Verification: RAW vs. Compared with Guidance

- RAW scores will almost always be best in fair weather
 - P6SM SKC is *usually* the easiest to forecast
 - Example—PHX (Phoenix!) in April 2022

CONTINGENCY TABLES SCORES (TAF / GFS LAMP)	
Percent Hits [?]	100.00 / 100.00
Percent >1 Category Errors [?]	0.00 / 0.00
Peirce Skill Score (PSS) [?]	--- / ---
5-category Gerrity Skill Score (GSS) [?]	--- / ---
5-category GSS delta [?]	--- / ---
3-category GSS [?]	--- / ---
3-category GSS delta [?]	--- / ---
TAF Better Than GFS LAMP (TAF > GFS LAMP) [?]	0.00
TAF Worse Than GFS LAMP (TAF < GFS LAMP) [?]	0.00
TAF = GFS LAMP = OBS [?]	100.00
TAF = GFS LAMP <> OBS [?]	0.00



With More Clouds and “Weather” It’s Sometimes Easier to Beat GFS LAMP

- PDT (Pendleton, OR) – Jan/Feb/Mar 2022:

CONTINGENCY TABLES SCORES (TAF / GFS LAMP)

Percent Hits [?]	80.47 / 78.46
Percent >1 Category Errors [?]	6.32 / 7.41
Peirce Skill Score (PSS) [?]	0.485 / 0.457
5-category Gerrity Skill Score (GSS) [?]	0.559 / 0.587
5-category GSS delta [?]	0.000 / 0.000
3-category GSS [?]	0.665 / 0.683
3-category GSS delta [?]	0.000 / 0.000
TAF Better Than GFS LAMP (TAF > GFS LAMP) [?]	8,546 (8.77 %)
TAF Worse Than GFS LAMP (TAF < GFS LAMP) [?]	5,977 (6.13 %)
TAF = GFS LAMP = OBS [?]	72,242 (74.12 %)
TAF = GFS LAMP <> OBS [?]	10,697 (10.98 %)

Viewing Your Personal Statistics

- You should have “My Verification” available...
- If you are the aviation program manager or in management (MIC/SOO/WCM), you should be able to view stats for other forecasters
- The website is a little slower here (especially when looking at longer periods of time)

The screenshot displays a web interface for viewing personal statistics. At the top, there are date pickers for 'From Date' (01/01/2022) and 'To End Date' (06/01/2022). Below these are checkboxes for 'Months to report', with all months from JAN to DEC selected, and a 'Select All' option. A navigation bar includes tabs for 'National', 'Region', 'WFO', 'State', 'Terminal', 'Experimental Forecast', and 'My Verification'. The 'Terminal' tab is active, showing a message: 'Selection area set to Terminal for individual forecaster.' Below this, a 'Filter' section shows 'Forecaster' with a dropdown menu containing '(007) brandt.maxwell@noaa.gov'. The 'Select' section features a 'Terminal' list with KCRQ, KONT, KPSP, KSAN (highlighted), KSBD, and KSNA. To the right, 'Current Selections' shows KSAN. At the bottom, there are 'Add', 'Remove', and 'Clear' buttons.

From Date: 01/01/2022

To End Date: 06/01/2022

Months to report: ☒ JAN ☒ FEB ☒ MAR ☒ APR ☒ MAY ☒ JUN ☒ JUL ☒ AUG ☒ SEP ☒ OCT ☒ NOV ☒ DEC ☒ Select All

National Region WFO State Terminal **Experimental Forecast** My Verification

Selection area set to Terminal for individual forecaster.

Filter [?] Forecaster

(007) brandt.maxwell@noaa.gov

Select [?] Terminal

KCRQ
KONT
KPSP
KSAN
KSBD
KSNA

Current Selections

KSAN

Add Remove Clear

Results

TAF

OBS\FORECASTS	1	2	3	4	5	6	TOTAL
<200 (1)	0.00	0.00	0.00	0.00	0.00	0.00	0.00
200-400 (2)	0.00	0.80	0.15	0.00	0.00	0.21	1.16
500-900 (3)	0.00	0.49	0.31	0.08	0.00	0.53	1.41
1000-1900 (4)	0.00	0.00	1.76	3.09	3.55	1.52	9.91
2000-3000 (5)	0.00	0.00	0.00	1.85	7.35	1.38	10.58
>3000 (6)	0.00	0.24	0.40	1.07	10.64	64.59	76.93
TOTAL	0.00	1.53	2.62	6.08	21.54	68.23	100.00
BIAS	0.000	1.314	1.861	0.614	2.035	0.887	----

CONTINGENCY TABLES SCORES (TAF / GFS LAMP)

Percent Hits [?]	76.14 / 75.23
Percent >1 Category Errors [?]	3.96 / 7.20
Peirce Skill Score (PSS) [?]	0.535 / 0.464
6-category Gerrity Skill Score (GSS) [?]	0.299 / 0.374
6-category GSS delta [?]	0.004 / 0.004
3-category GSS [?]	0.670 / 0.537
3-category GSS delta [?]	0.002 / 0.002
TAF Better Than GFS LAMP (TAF > GFS LAMP) [?]	12.85
TAF Worse Than GFS LAMP (TAF < GFS LAMP) [?]	9.20
TAF = GFS LAMP = OBS [?]	66.96
TAF = GFS LAMP <> OBS [?]	11.00

Wind Speed

- Example: Great Falls, MT (KGTF) 1 Jan-1 Jun 2022

TAF

OBS\FORECASTS	<8	8-12	13-17	18-22	23-27	28-32	>32	TOTAL
<8	12.26	14.54	2.88	0.26	0.13	0.02	0.00	30.11
8-12	4.41	15.86	6.32	1.21	0.40	0.10	0.01	28.31
13-17	0.85	6.96	9.02	3.38	1.24	0.24	0.03	21.72
18-22	0.10	1.17	4.36	4.09	2.27	0.84	0.14	12.97
23-27	0.01	0.18	0.76	1.80	1.35	0.91	0.09	5.09
28-32	0.00	0.00	0.01	0.32	0.74	0.40	0.03	1.51
>32	0.00	0.01	0.02	0.03	0.13	0.10	0.02	0.30
TOTAL	17.63	38.72	23.38	11.07	6.27	2.61	0.31	100.00
BIAS	0.586	1.368	1.077	0.854	1.232	1.731	1.038	----

GFS LAMP

OBS\FORECASTS	<8	8-12	13-17	18-22	23-27	28-32	>32	TOTAL
<8	19.50	9.81	0.77	0.02	0.00	0.00	0.00	30.11
8-12	6.80	15.30	5.23	0.84	0.11	0.03	0.00	28.31
13-17	0.89	6.12	8.85	4.71	0.89	0.18	0.08	21.72
18-22	0.09	1.19	3.44	5.12	2.41	0.54	0.19	12.97
23-27	0.00	0.07	0.38	2.04	1.86	0.58	0.16	5.09
28-32	0.00	0.00	0.03	0.24	0.79	0.38	0.06	1.51
>32	0.00	0.00	0.02	0.02	0.12	0.11	0.02	0.30
TOTAL	27.29	32.49	18.72	12.99	6.18	1.82	0.51	100.00
BIAS	0.906	1.148	0.862	1.002	1.215	1.209	1.684	----

Wind Speed

- Example: Great Falls, MT (KGTF) 1 Jan-1 Jun 2022

CONTINGENCY TABLES SCORES

Percent Hits [?]	43.00 / 51.04
Percent >1 Category Errors [?]	11.18 / 6.86
Peirce Skill Score (PSS) [?]	0.260 / 0.361
Gerrity Skill Score (GSS)) [?]	0.385 / 0.464
GSS delta [?]	0.000 / 0.000
TAF Better Than GFS LAMP (TAF > GFS LAMP) [?]	18.09
TAF Worse Than GFS LAMP (TAF < GFS LAMP) [?]	28.93
TAF = GFS LAMP = OBS [?]	28.48
TAF = GFS LAMP <> OBS [?]	24.50

⌵ POD-FAR-CSI SCORES (TAF / GFS LAMP)

Scores\Wind Speed	>27 knots	>32 knots
Probability of Detection (POD) [?]	0.302 / 0.319	0.058 / 0.076
False Alarm Ratio (FAR) [?]	0.813 / 0.752	0.944 / 0.955
Critical Success Index (CSI) [?]	0.130 / 0.162	0.029 / 0.029
% Improvement TAF CSI over GFS LAMP	-19.53	0.76

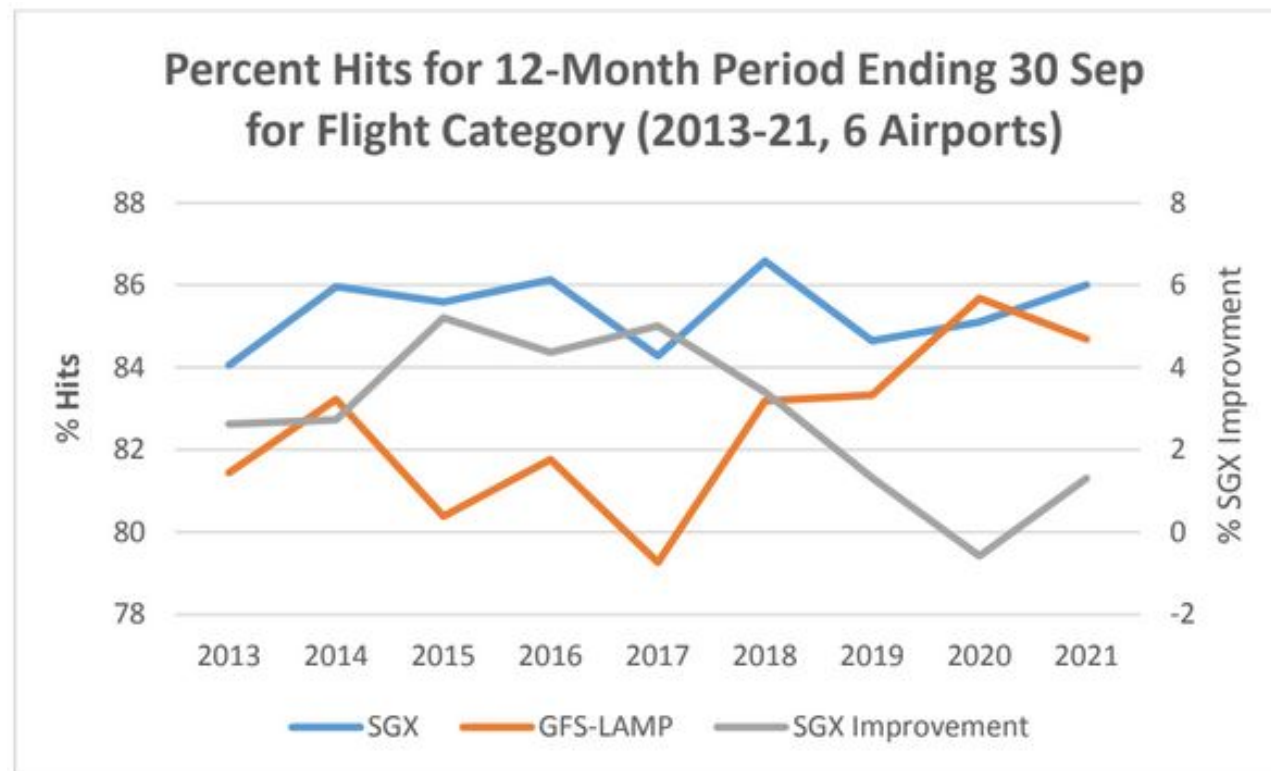
⌵ MEAN ERROR DATA BY OBSERVED SPEED

TAF

CATEGORY	<8	8-12	13-17	18-22	23-27	28-32	>32	OVER-ALL
Mean Algebraic Error [?]	4.1	1.1	-0.2	-0.7	-2.2	-4.4	-8.5	1.2
Mean Absolute Error [?]	4.3	2.9	3.6	4.5	4.7	4.9	8.5	3.8
Root Mean Square Error [?]	5.5	4.1	4.6	5.5	5.8	5.9	9.7	5.0

Example Graphic from a TAF Verification Report

- Verification website will give you the data but not the graphic...



Issues with Moving to a New Office

- Forecaster needs to reset their office affiliation
- Click “Account” by your name after you log in, then click “Update your profile information”



NATIONAL WEATHER SERVICE

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
Performance Management Web Portal



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Account

Account Settings

Please use the links below to view and update your account settings.

- [Update your profile information](#) ←
- [Change your password](#)
- [Update your email subscriptions](#)
- [View your account permissions](#)
- [Create/ Update your Home page profile](#)

Profile Information

- Note that you might need to change your forecaster ID at a new office (contact AWIPS focal point)

[Home](#) >> [Account Settings](#)

Account Update

Please use the form below to update your user profile. All fields are required.

First Name:	<input type="text" value="Brandt"/>	
Last Name:	<input type="text" value="Maxwell"/>	
Username:	<input type="text" value="brandt.maxwell"/>	(6-25 letters, digits, and ".")
Email Address:	<input type="text" value="brandt.maxwell@noaa.gov"/>	(must be NOAA.gov address)
Office / Center:	<input type="text" value="NWS Forecast Office"/>	▼
Location:	<input type="text" value="SGX"/>	▼
Forecaster ID:	<input type="text" value="007"/>	▼
Title:	<input type="text" value="Forecaster"/>	▼
(Optional)	Add Address : Add Phone	
Office Phone:	<input type="text" value="858-675-8700"/>	(format: 321-555-1234)

Logins Every 18 Months

- The verification website will disable your username/password if you don't log in for 18 months



Strategies/Questions

- How often should you do aviation verification for an office?
- What do you do when a certain forecaster is performing less well than others?
- What strategies do you have to improve the TAF verification?
- And how does this affect DSS?

But...Before You Get Too Excited...

- System Outage Saturday-Monday Due To Maintenance

Hello Brandt Maxwell ,

The Performance Management Website will undergo routine maintenance this weekend to comply with the latest security protocols. This will result in the website being inaccessible from roughly 10am EDT Saturday (6/11/22) to sometime Monday (6/13/22). In addition, it will take some time for the data to catch up, so there could be residual issues into midweek.

We apologize for the inconvenience, but we appreciate your patience and understanding as we implement these critical changes to our servers.

Another reminder will be sent later this week.

Have a great day!

Questions?

- Send them to Brandt.Maxwell@noaa.gov
- Charles.Kluepfel@noaa.gov is the NWSHQ contact (technical assistance)



Source: Denverpost.com