Weather Evaluation Team

Jason Baker, FAA
Richard Egert, United Airlines
April 2023

Weather Evaluation Team

Objective:

The overall role of the Weather Evaluation sub-team (WET) is to serve as the primary point-of-contact for feedback and recommendations on weather products.

Team responsibilities include:

- **Act as the Subject Matter Experts for weather integration ATC/CDM tools**

- **Provide external outreach to weather products developers and researchers**

- **Provide internal coordination with CDM sub-teams on weather related issues**

Ultimately, the WET's goals are to provide comprehensive weather products that allow for *improved predictability* and *better decision-making* during weather events.

Members and Subject Matter Experts

WET Team Roster

WET Co-Leads			
Jason	Baker	FAA ANG-WX	FAA-ANG-C6
Richard	Egert	United	Industry SME
FAA Members			
Pat	Murphy	FAA	FAA-ANG-C6
Amy	Galvan	FAA /ATCSCC / BUE	ATCSCC
Eric	Avila	ZHU	FAA / NATCA
Industry Members			
Jeff	McLaren	American	Industy SME
Jeff	Sarver	UPS	Industry SME
Stephanie	Klipfel	Delta	Industry SME
Kory	Gempler	FedEx	Industry SME
Erik	Proseus	FedEx	Industry SME
Neal	Husa	Alaska	Industry SME
Mark	Johnson	Southwest	Industry SME
Barbara	Becker	Southwest	Industry SME
Christine	Gregg	JetBlue	Industry SME
Timothy	Matuszewski	Spirit	Industry SME
Eric	Wildgrube	Delta	Industry SME
NWS /NavCanada Members			
Eric	Dupuis	NavCanada	
Gilles	Ratté	Met Services Canada	
Kevin	Stone	NWS / HQ	
Jennifer	Stroozas	NWS / AWC	

WET Subject Matter Experts

|		
Scott	Birch	NWS /Western Region
Debra	Blondin	NWS / AWC
Chris	Brinton	Mosaic
Jenny	Colavito	FAA / ANG
Jon	Cunningham	Mosaic
Christopher	DiPrima	SFO
Ken	Fenton	NOAA / GSL
Matt	Fronzak	MITRE
John	Huhn	MITRE
Curt	Kaler	Mosaic
Jonathan	Leffler	NWS / AWC
Nathan	Polderman	United
Nupur	Sinha	SFO
Brandon	Smith	FAA / ANG
Ken	Venzke	NWS / CWSU
Matt	Wandishin	NOAA / GSL
Sonia	Alvidrez	FAA / ANG
Honorable Mention		
Samantha	Carlson	FAA-ANG-WX

Current Taskings

Weather Evaluation Team
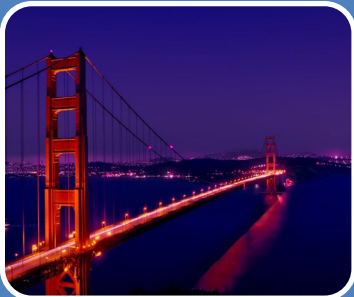
Task 101

- *Monitor status of the Marine Stratus Forecast System (MSFS)*
- *Evaluate the effectiveness and application of the Ground Delay Program Parameters Selection Model (GPSM)*
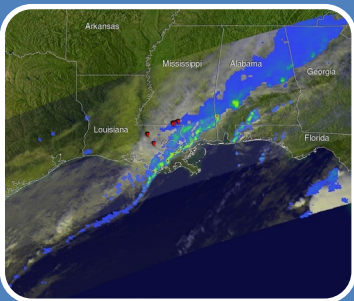
Task 106

- *Conduct an assessment of existing TFM Convective Forecast (TCF) capabilities*

Task 101 SFO MSFS & GPSM

WET Team Task 101 Completion Status:
- ✓ Provide monthly status updates to the CSG.
- ✓ Engage with the appropriate FAA and/or NWS office to support the SFO MSFS
- ✓ Provide information to the CDM Training Team
- o Provide support for evaluation and application of SFO GPSM

- ## Task 101:
  - NWS webpage enhancements become operational
  - Center Weather Service Unit (CWSU) at Oakland Center began providing replacement forecast
  - NWS webpage training developed and provided to CDM
  - Compared 2022 forecast product accuracy of CWSU to historical MSFS performance
  - Supported FAA Aviation Weather Division (ANG-C6) through subject matter expertise with their requirements process
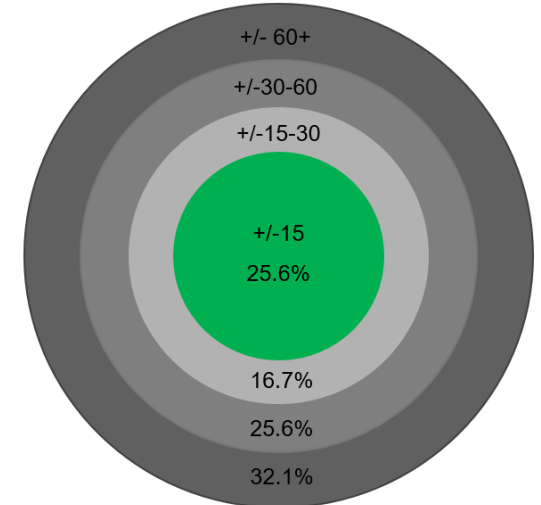   - Value of "perfect stratus forecast" (approx. $18M annually)

Comparison of 2022 NWS/CWSU-ZOA clearing forecasts to prior AvMet study for MSFS

2012-2019

+/- 60+
+/-30-60
+/-15-30
+/-15
23.7%
19.6%
25%
31.7%

2022

+/- 60+
+/-30-60
+/-15-30
+/-15
25.6%
16.7%
25.6%
32.1%
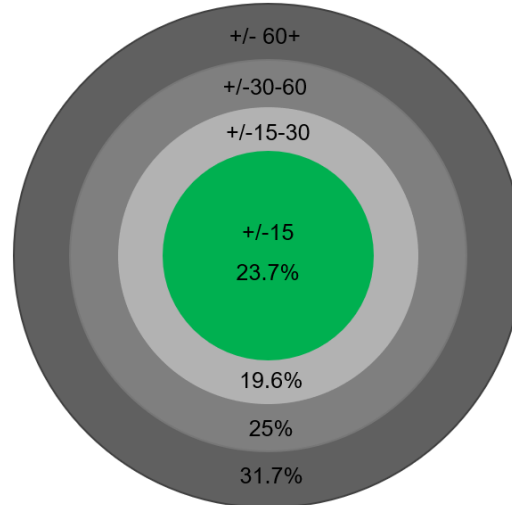
What's Next?

- Task 101:
  - Continue to assess NWS/CWSU forecast for SFO
  - Assist SFO in exploring if GPSM can be used with alternative weather forecast sources
  - Provide input to R&D efforts within ANG-C6 to develop a tailored forecast for SFO
    - Goal: Forecast tailored to SFO, spatially, temporally and focused on key environmental thresholds
 - Support ANG-C6's requirements process

Task 106 TCF Capability Assessment

WET Team Task 106 Completion Status:

- ✓ Conduct an assessment of the existing TCF capabilities.
- ✓ Record assessment activities and report findings monthly during the CDM Leadership meetings.
- ✓ Document findings to evolve the TCF into a more dependent interpretation of forecast data.
- ✓ Provide recommendations which may include additional future tasks for the WET.
- ✓ Analysis of TCF survey results to understand its usage.
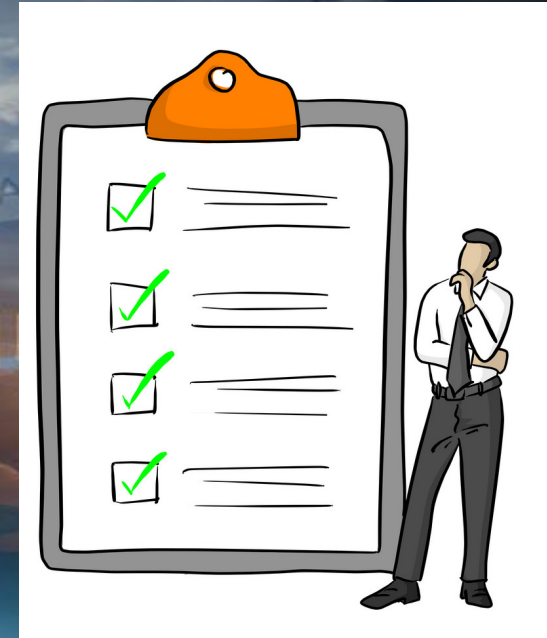
- ## Task 106:
  - Partnered with FAA Aviation Weather Division (ANG-C6)
    - Developed survey to assess user understanding of the Traffic Flow Management Convective Forecast (TCF)
    - 184 responses in total; wide range of responses (FAA, industry, NWS, dispatchers, etc.)
  - Modified TCF training course based on survey results
  - Training course provided to CDM and added to electronic Learning Management System (eLMS) for FAA
  - Receive monthly updates from NOAA/NWS on TCF Metric Performance; drill down on high impact days as necessary

Task 106 TCF Capability Assessment

Completion of survey developed by the WET Team to study TCF user understanding

Survey participants included:

➤ Meteorologists
➤ Aircraft Dispatchers
➤ ATC Controllers
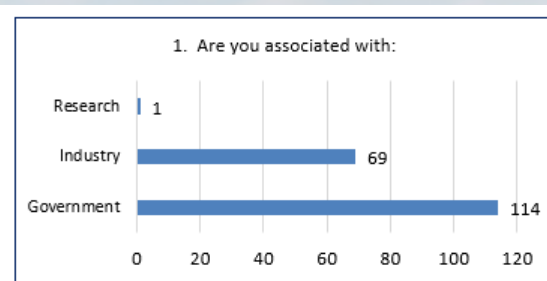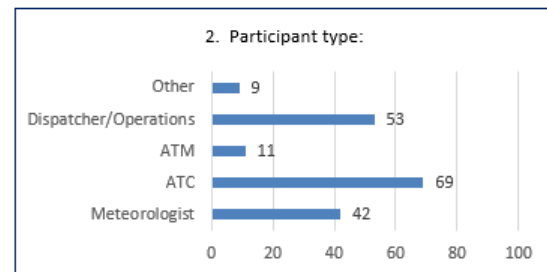➤ ATC Traffic Management

1. Are you associated with:

Research — 1
Industry — 69
Government — 114

(x-axis: 0, 20, 40, 60, 80, 100, 120)

Figure 1: User Group

2. Participant type:

Other — 9
Dispatcher/Operations — 53
ATM — 11
ATC — 69
Meteorologist — 42

(x-axis: 0, 20, 40, 60, 80, 100)

Figure 2: User Type

Survey findings indicated:

➢ Access to training was non-existent for many individuals.

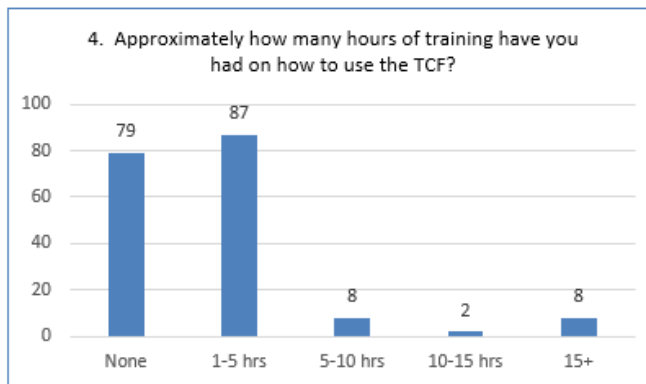➢ Majority of survey participants had long-term career experience.
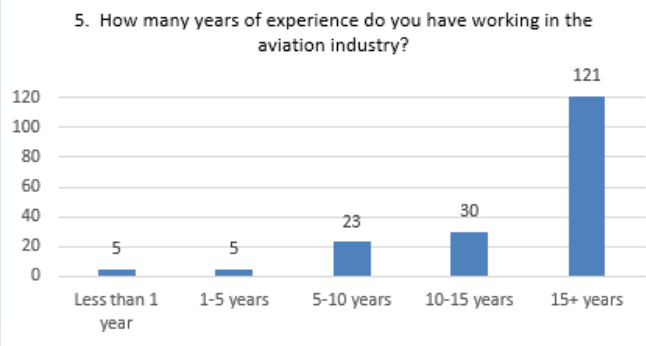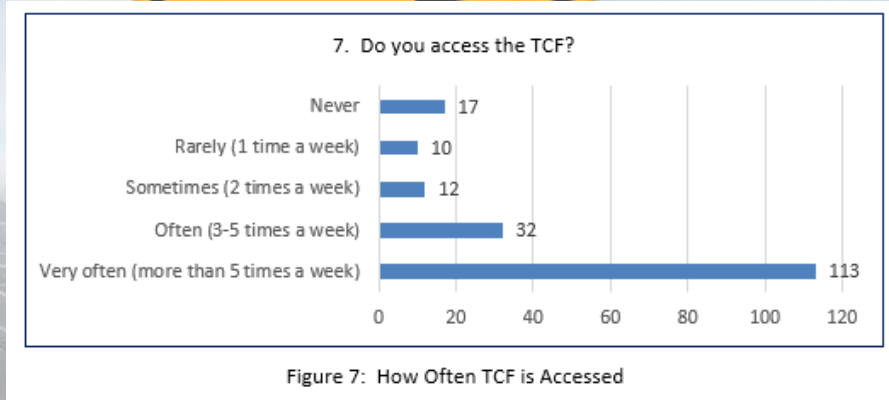

Figure 4: Hours of Training

Figure 5: Years of Experience

CDM Collaborative Decision Making

7. Do you access the TCF?

Never	17
Rarely (1 time a week)	10
Sometimes (2 times a week)	12
Often (3-5 times a week)	32
Very often (more than 5 times a week)	113

Figure 7: How Often TCF is Accessed

Majority of surveyed respondents indicated using the TCF product frequently.

Survey results indicated varied reasoning for TCF usage.

Task 106 TCF Capability Assessment

8. I use TCF to make the following decisions and/or do the following tasks:

Determine throughput — 42
Determine permeability — 47
Determine airspace capacity — 59
Determine Echo Top (ET) height — 65
Determine coverage — 112
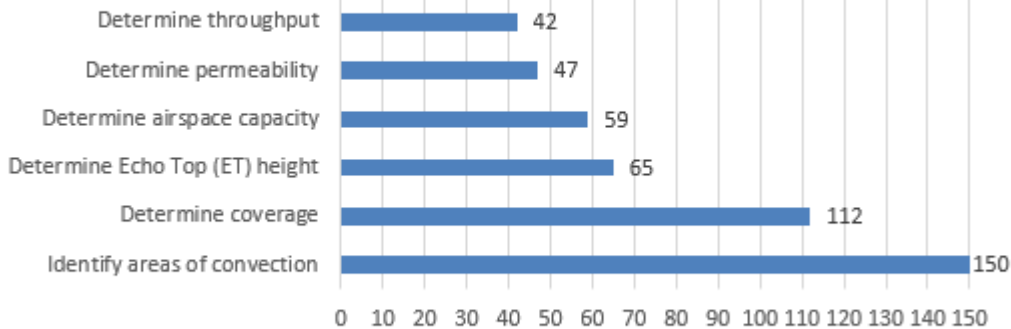Identify areas of convection — 150

Figure 8: TCF and Decision-Making

Survey results indicated varied reasoning for TCF usage to include:

- Determining throughput
- Determining coverage
- Identifying areas of convection

Task 106 TCF Capability Assessment

Survey questions included the understanding of various hashed regions / lines along with possible impacts:
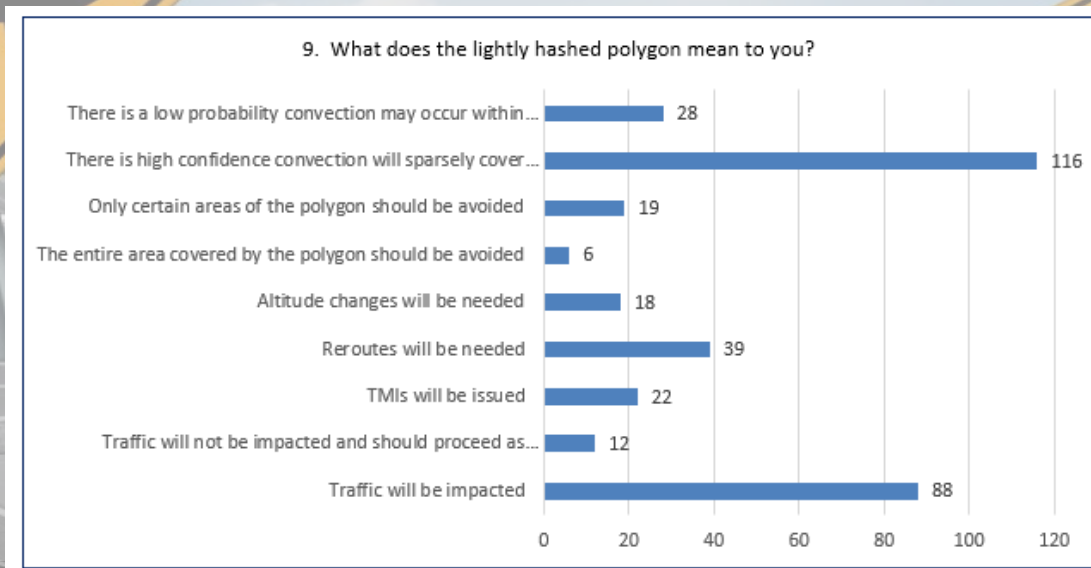

Figure 9: Lightly Hashed Polygon

What's Next?

- Task 106
  - Recommending closing
  - Propose follow-on tasking for train-the-trainer sessions

Samantha Carlson (FAA) – General Support

Sonia Alvidrez (FAA) – TCF Survey

Eric Avila (FAA) – NATCA Representative

James Fee (FAA) – Executive Technical Representative

Jonathan Leffler (NWS) –TCF Training Package

Tony Price (FAA), Darin Tietjen (WNCO), Jason Sullivan (JMA Solutions) – Training to eLMS

Kevin Stone, Scott Birch and Ken Venzke (NWS) – SFO Webpage and CWSU Forecast

Ashleigh Yanoscsik (FAA) and Ken Venzke (NWS) – SFO Website Training

Contact Information

- Jason Baker
  - Jason.M.Baker@faa.gov

- Richard Egert
  - Richard.Egert@united.com