Detailed Agenda for the Fall 2024 FPAW Meeting

October 29-31, 2024 Dates: Location: FAA William J. Hughes Technical Center (WJHTC) for Advanced Aerospace, Building 300, Auditorium Atlantic City Int'l Airport, NJ 08405



Registration: Required via FPAW website

	Day 1	Day 2		Day 3		
Time (EDT)	Tuesday, 10-29-24	Wednesday, 10-30-24		Thursday, 10-31-24		
7:30 AM			1			
8:00 AM		Arrive WJHTC Gate 18	Walk to Weather Labs		Transport to NAPT/ARFF	
8:30 AM 9:00 AM	Arrive WJHTC Gate 18 Van/Bus Transport to Building 300, Auditorium 8:30 AM - 9:30 AM	Van/Bus Transport to Building 300, Auditorium 7:50 AM - 9:30 AM	Pre-Meeting WJHTC Tours/Demos* ERAM Lab, STARS Lab, Traffic Production Center (TPC)	Arrive WJHTC Gate 18 Van/Bus Transport to Building 300, Auditorium 8:00 AM - 9:45 AM	Tours/Demos* Mat'l Airport Pavement Test Facility (NAPT), ARFF Facility	
9:30 AM	Welcome and Logistics		8:30 AM - 9:30 AM Walk to Auditorium	8:30 AM - 9:30 AM Transport to Auditorium		
	9:30 AM - 10:00 AM (Auditorium)				•	
			r 9:50 AM - 10:00 AM			
10:00 AM 10:30 AM	Session 1a	The Art of the Possibl from the Aviatior 10:00 AM	ion 3a e: Weather Resiliency 1 Side (VFAST Lab) - 10:35 AM 300 10:35 AM - 10:45 AM			
11:00 AM	CSS-Wx and NWP Comprehensive Review and Update: Part 1 10:00 AM - 11:45 AM (Auditorium)	Session 3a Group A Innovate 28 LAX Demo (NIEC Lab)	Group B Break	Artificial Intelligence		
11:30 AM	10.00 AM - 11.45 AM (Auditonum)		Session 3a Group B Innovate 28 LAX Demo (NIEC Lab) uditorium ion 3a	Forec: 09:55 AM - 12:05	asting PM (Auditorium)	
12:00 PM	Lunch	The Art of the Possibl from the Aviation	e: Weather Resiliency I Side (Auditorium) - 12:00 PM			
12:30 PM	11:45 AM - 12:40 PM (WJHTC Cafeteria)	Lunch Lunch 12:00 PM - 1:00 PM (WJHTC Cafeteria) (WJHTC Cafeteria)				
	Walk to Weather Labs AWD Demonstrations 12:50 PM (Weather Labe)			afeteria)		
1:00 PM	12:50 PM - 13:05 PM (Weather Labs) Walk to Auditorium					
1:30 PM 2:00 PM	Session 1b CSS-Wx and NWP Comprehensive Review and Update: Part 2 1:15 PM - 3:00 PM (Auditorium)	The Art of the Possible: M Box for Weather Resili	ion 3b Noving Further Outside the iency and Optimization PM (Auditorium)		on 5b and Decision Support PM (Auditorium)	
2:30 PM		Br	eak			

3:00 PM	Break		Depart WJHTC Van/Bus Transportation from Building 300,
3:30 PM 4:00 PM	Session 2 FAA Weather Community of Interest (Wx COI) Update 3:15 PM - 4:15 PM (Auditorium)	Session 4 FPAW Organizational Update and Mini Planning Meeting 3:00 PM - 4:00 PM (Auditorium) Depart WJHTC Van/Bus Transportation from Building 300,	Main Entrance to Gate 18 3:00PM - 3:30 PM
4:30 PM 5:00 PM 5:30 PM	Depart WJHTC Van/Bus Transportation from Building 300, Main Entrance to Gate 18 4:15 PM - 5:00 PM Committee Meetin 4:30 PM - 5:30 PM (TBD)	Main Entrance to Gate 18 4:00PM - 4:30 PM	
6:00 PM	FPAW Steering Committee Dinner ≥6:00 PM - ≥8:00 PM (TBD Location)	FPAW Dinner ≥6:00 PM - ≥8:00 PM (TBD Location)	
Key:	Motor vehicle transportation Walking transportation Hybrid (In-person and virtual) In-person only Lunch / Break FPAW Steering Committee only		

Day 1 – Tuesday, October 29, 2024

Welcome and Logistics

9:30 AM – 10:00 AM (Hybrid), Building 300 Auditorium **TBD** (FAA) and **Starr McGettigan** (FAA)

TBD (FAA) will welcome FPAW to the William J. Hughes Technical Center (WJHTC) for Advanced Aerospace and open the meeting with a keynote address. Our FAA host, Starr McGettigan, Branch Manager, ANG-C63 will go over WJHTC logistics. In-person participants who do not have a suitable federal ID (PIV Card) will want to pay particular attention to Starr's guidance.

Sessions 1a and 1b: CSS-Wx and NWP Comprehensive Review/Update

10:00 AM - 11:45 AM Building 300 Auditorium (Hybrid)

12:40 PM – 1:15 PM Building 300 Weather Labs (In-Person Only)

1:15 PM – 3:00 PM Building 300 Auditorium (Hybrid)

Session Leads: Doug Murphy (FAA) and Jeff Sarver (UPS)

It has been several years since FPAW last received a comprehensive briefing from the FAA on their future, soon to be present, flagship aviation weather systems, Common Support Services-Weather (CSS-Wx) and NextGen Weather Processor (NWP). Given that the meeting is being held at the facility in which preimplementation testing of both systems was conducted, and that the future is now (the FAA Program Management Office (PMO) successfully completed the initial rollout of both systems on September 12, 2024), the FPAW Steering Committee (FPAW SC) felt that a detailed, hands-on update for these two new systems was both desirable and appropriate. The morning portion, **Session 1a**, titled "Data Access and Overview," will focus on the new systems. Session Co-Lead **Doug Murphy (FAA)** will reintroduce the FPAW audience to CSS-Wx and NWP. **Tim Bonin (MIT LL)** will go over some of the key improvements that are part of the new systems. **Wil Brown (FAA)** will explain how the transition from current products and capabilities to those provided by CSS-Wx and NWP will be accomplished. After a short break, two important topics to external (non-FAA) users will be briefed. **Steve Viveiros (FAA)** will share information on how web access to NWP products will be made available, and then **Brian Kratky (Noblis)** will provide key information on how those products can be accessed via the FAA System Wide Information Management (SWIM) system. A thirty-minute Q&A panel will end Session 1a.

Following lunch, **Session 1b**, "AWD Demo and Practical Applications for FAA Weather Information," will kick off with an **in-person only** NWP Aviation Weather Display (AWD) demonstration led by **Ryan Low (FAA)** in the WJHTC Weather Labs. After returning to the Auditorium, the remainder of Session 1b, titled "Practical Applications for FAA Weather Data," will demonstrate the importance of FAA weather information to external users. **Chris Boner (Metron)** will show how Metron's AirCue system leverages FAA weather information to inform its trajectory predictions. **Jim Olivo (BCI)** will brief FPAW on how his organization uses government-furnished weather information. **Kim Copeland (NBAA)** (remote) will share information to brief their customers. Following a break, **Doug Lotter (UAL / ADF)** (remote) will review how aircraft dispatchers use weather information from the FAA as they conduct shared operational control of flights with the pilots-in-command. Session Co-Lead **Jeff Sarver (UPS)** will put an exclamation point on the topic when he goes over a day in the life of an airline meteorologist. Session 1b will conclude with a 20-minute Q&A panel with all the presenters, so have your questions ready to go!

Time	Activity/Topic: Presenter
9:30 AM – 10:00 AM	Welcome and Logistics
9:30 AM – 9:45 AM	Keynote Address: TBD (FAA)
9:45 AM – 10:00 AM	Meeting Logistics: Starr McGettigan (FAA)
10:00 AM - 11:45 AM	Session 1a – CSS-WX and NWP Comprehensive Review/Update
10:00 AM – 10:15 AM	Reintroduction to the FAA's CSS-Wx and NWP Systems: Doug Murphy (FAA)
10:15 AM – 10:30 AM	NWP Products – Key Improvements: Tim Bonin (MIT LL)
10:30 AM – 10:40 AM	Transition of Existing Access: Wil Brown (FAA)
10:40 AM – 10:50 AM	BREAK
10:50 AM – 11:00 AM	External Web Access: Steve Viveiros (FAA)
11:00 AM – 11:15 AM	SWIM Access to FAA Data: Brian Kratky (Noblis)
11:15 AM – 11:45 AM	Q&A Panel Session: All Session 1a Presenters
11:45 AM – 12:40 PM	LUNCH
12:40 PM – 3:00 PM	Session 1b – AWD Demo and Practical Applications for FAA Weather Information
12:40 PM – 12:50 PM	Walk from Auditorium to Weather Labs
12:50 PM – 1:05 PM	Aviation Weather Display (AWD) Demonstration: Ryan Low (FAA)
1:05 PM – 1:15 PM	Walk from Weather Labs to Auditorium
1:15 PM – 1:30 PM	AirCue's Use of Weather Data for Trajectory Prediction: Chris Boner (Metron)
1:30 PM – 1:45 PM	Use of Government-Furnished Weather Data: Jim Olivo (BCI)
1:45 PM – 2:00 PM	FAA Weather Information and the ATCSCC NBAA Desk: Mitch Scott (NBAA) (r)

Time	Activity/Topic: Presenter	
2:00 PM – 2:10 PM	BREAK	
2:10 PM - 2:25 PM	Weather Information Use by Aircraft Dispatchers: Doug Lotter (UAL / ADF) (r)	
2:25 PM – 2:40 PM	A Day in the Life of an Airline Meteorologist: Jeff Sarver (UPS)	
2:40 PM – 3:00 PM	Q&A Panel Session: All Session 1b Presenters	
3:00 PM – 3:15 PM	BREAK	

Session 2: FAA Weather Community of Interest (Wx COI) Update

3:15 PM – 4:15 PM Building 300 Auditorium (Hybrid)

Session Leads: Randy Bass (FAA) (r) and Alfred Moosakhanian (FAA)

The FAA Weather Community of Interest (Wx COI) is a cross-agency aviation weather body. Although it is an internal FAA group, it is directed to appropriately engage with relevant external organizations. FPAW is considered one of those organizations.

Randy Bass and Alfred Moosakhanian will update the FPAW community on the proceedings of the FAA Wx COI over the last six months. They will share the list of Problem Statements (PS), both open and closed (resolved) with FPAW. They will provide a progress report on an effort to develop an FAA weather strategy, including the role of the Wx COI Strategic Planning Team (SPT) in that effort. Finally, they will review the work that has taken place in support of setting up a formal relationship between FAA Wx COI and FPAW, one intended to establish routine, effective two-way communications between the two groups.

Time	Activity/Topic: Presenter
3:15 PM – 4:15 PM	Session 2 – FAA Wx COI Update
3:15 PM – 4:00 PM	FAA Wx COI Update: Randy Bass (FAA) (r) and Alfred Moosakhanian (FAA)
4:00 PM – 4:15 PM	Q&A: All

This will conclude the first day of the Fall 2023 FPAW Meeting for all but the FPAW Steering Committee members.

FPAW Steering Committee Meeting

4:30 PM – 5:30 PM Location TBD (Hybrid)

Members of the FPAW Steering Committee members will meet to discuss matters of its organization, mission, and best ways to impactfully guide the FPAW movement going forward. It will be a closed session for FPAW Steering Committee members only.

FPAW Steering Committee Dinner

Exact times TBD Location TBD (In-Person only, no virtual food)

Day 2 - Wednesday, October 30, 2024

Pre-Meeting Tour #1: TPC, ERAM and STARS Labs

8:30 AM – 9:30 AM Building 300 Automation Labs (In-Person Only), POC Starr McGettigan (FAA)

The first pre-meeting tour of the world-class facilities at the WJHTC will take place on Wednesday morning. In-person participants will visit the Traffic Production Center (TPC), the En Route Automation Modernization (ERAM) lab and the Standard Terminal Automation Replacement System (STARS) lab. All

three are within walking distance of the primary meeting location in the Building 300 Auditorium. Tour signup sheets will be on a table in the Auditorium. Tour sizes are limited, so do not delay getting signed up.

Sessions 3a and 3b: The Art of the Possible

09:50 AM – 10:45 AM Hangar Vertical Flight Aviation Simulation Technologies (VFAST) Lab (Hybrid)
10:45 AM – 11:30 AM Building 300 NextGen Integration and Evaluation Capability (NIEC) Lab (In-Person Only)
11:30 AM – 2:30 PM Building 300 Auditorium (Hybrid)

Session Leads: Starr McGettigan (FAA) and Mike Robinson (MITRE)

Aviation weather forecasts continue to get better and better, delivering incremental, improved predictions of impactful meteorological parameters farther into the future with each passing year. But are there other ways of looking at the problem/solution space that can also deliver benefits to NAS operations alongside the forecast improvements? This session is focused on challenging established, legacy paradigms and priorities, and turning the problem/solution space on its head, to see if alternative innovations, outcomes, and benefits may be achieved from deliberate, divergent thinking. It seeks to identify R&D and innovations that may be leveraged to spur alternative paradigms to aviation "weather proofing."

The morning portion, **Session 3a**, titled "New View of ATM-Weather Integration (AWI): Weather Resiliency from the Aviation Side," seeks to view AWI from the non-weather perspective. Once again, we will take advantage of our WJHTC location and start off with an in-person field trip from Building 300 to the VFAST Lab. After an introduction from Session Co-Lead **Starr McGettigan (FAA)**, **Cliff Johnson (FAA)** will showcase three vision systems across three simulators to discuss mitigation strategies through technology. Remote participants – don't step away! There will be virtual breakout rooms for each simulation, with **Johnson** providing explanatory remarks. Next, the in-person participants will bus back to Building 300 and head to the NIEC Lab, where **John Bradley (FAA)** will lead a demonstration of the Innovate 28 LAX Mixed Usage capabilities. The morning portion of the session will conclude in the Auditorium, where the session leads, presenters and panelists will conduct a Q&A Panel with all participants.

Following lunch, **Session 3b**, titled "Moving Further Outside the Box for Weather Resiliency and Optimization," will look at new, unusual ideas that might be used to further weather-proof NAS operations. Session Co-Lead **Mike Robinson (MITRE)** will set the stage for the afternoon presentations, which will start when **Victor Passetti (FAA)** and **Steve Maciejewski (FAA)** explore approaches to modernizing weather observation information from systems that are in sustainment. Next, **Jon Schleifer (FAA)** will review smart airport concepts and issues that were identified through the FAA Grand Challenge. **TJ Rancour (Ambient Network)** will discuss the incentivization of decentralized data access via blockchain technology concepts. Session 3b will end with a Q&A Panel featuring the session leads, presenters and panelists who, along with the audience, will explore the idea of leveraging successful non-aviation concepts to improve NAS performance in the face of impactful, uncertain weather.

Time Activity/Topic: Presenter	
8:20 AM – 9:40 AM	Pre-Meeting FAATC Tour #1
8:20 AM – 8:30 AM	Walk from Auditorium to Automation Labs
8:30 AM – 9:30 AM	Demonstrations – Traffic Production Center (TPC), Enroute Automation
	Modernization (ERAM) Lab and Standard Terminal Automation Replacement
	System (STARS) Lab: Starr McGettigan (FAA)
9:30 AM – 9:40 AM	Walk from Automation Labs to Auditorium
9:50 AM – 10:00 AM	Transport from Building 300 Main Entrance to Hangar

Time	Activity/Top	ic: Presenter
10:00 AM – 12:00 PM	Session 3a – The Art of the Possible: Weather Resiliency from the Aviation Side	
10:00 AM – 10:05 AM	Introduction: Starr McGettigan (FAA)	
10:05 AM – 10:35 AM	Weather Mitigation through Technology: V	ision Systems for Low Visibility
	Conditions: Cliff Johnson (FAA)	
10:35 AM – 10:45 AM	Transport from Hangar to Building 300 Ma	in Entrance to 2nd Floor Elevator D Doors
10:45 AM – 11:05 AM	Group A – Innovate 28 LAX Mixed Usage	Group B – Break
10:45 AM – 11:05 AM	Demo: John Bradley (FAA)	
11:05 AM – 11:25 AM	Group A – Break	Group B – Innovate 28 LAX Mixed Usage
11:05 AM – 11:25 AM		Demo: John Bradley (FAA)
11:25 AM – 11:30 AM	Walk from NIEC Lab to Auditorium	
11:30 AM – 12:00 PM	Q&A Panel Session: All Session 3a Presenters	
12:00 PM – 1:00 PM	LUNCH	
1:00 PM – 3:00 PM	Session 3b – The Art of the Possible: Moving Further Outside the Box	
1:00 PM – 1:05 PM	Introduction: Mike Robinson (MITRE)	
1:05 PM – 1:30 PM	Approaches to Modernizing Weather Observation Data Access through Sustainment	
	Technology (with Demo): Victor Passetti (F	AA)
1:30 PM – 1:45 PM	Smart Airport Concepts and Issues Identi	ied through FAA Grand Challenge efforts:
	Jon Schleifer (FAA)	
1:45 PM – 2:00 PM	Blockchain Technology Concept Lessons for Incentivizing Decentralized Data	
	Access: TJ Rancour (Ambient Network)	
2:00 PM – 2:30 PM	Panel Discussion – Leveraging Successful Non-Aviation Concepts to Improve	
	System Resiliency and Optimization: All S	ession 3b Presenters
2:30 PM - 3:00 PM	BREAK and / or Wx Obs Research (WOR) Lab Visit	

Session 4: FPAW Organizational Updates and Mini Planning Meeting

3:00 PM – 4:00 PM Building 300 Auditorium (Hybrid)

Session Leads: Matt Fronzak (MITRE) and Matthias Steiner (NCAR)

FPAW Co-Chairs **Matt Fronzak (MITRE)** and **Matthias Steiner (NCAR)** will provide FPAW organizational updates, starting with announcing the results of the recent FPAW Steering Committee election. Any of the new FPAW SC members in attendance will have an opportunity to introduce themselves to the audience. They will also update the group on the status of the FPAW ADS-B Wx position paper. Next, the location, dates, and target session topics for the Spring 2025 FPAW Meeting will be discussed and decided upon in this shortened FPAW Planning Meeting. Potential locations, dates, and session topics will be similarly reviewed and catalogued for the Fall 2025 FPAW Meeting. Proposed topics that are submitted to https://fpaw.aero/form/submit-a-topic will be included in these discussions.

Time	Activity/Topic: Presenter
3:00 PM – 4:00 PM	Session 4 – FPAW Organizational Updates and Mini Planning Meeting
3:00 PM – 3:30 PM	FPAW Organizational Updates: Matt Fronzak (MITRE) and Matthias Steiner (NCAR)
3:30 PM – 4:00 PM	FPAW Mini Planning Meeting: Matt Fronzak (MITRE) and Matthias Steiner (NCAR)

This will conclude the second day of the Fall 2024 FPAW Meeting, but it will not necessarily be the last we see of one another this day C.

FPAW Dinner

Exact times TBD Location TBD (In-Person only, still no virtual food)

Day 3 – Thursday, October 31, 2024

Pre-Meeting Tour #2: TPC, ERAM and STARS Labs

8:20 AM – 9:50 AM NAPT and ARFF Tours (In-Person Only), POC Starr McGettigan (FAA)

The second pre-meeting tour of the world-class facilities at the WJHTC will take place on Thursday morning. In-person participants will visit the National Airport Pavement Test Facility and the Aircraft Rescue and Fire Fighting (ARFF) Research Facility. Both sites are a good distance from the meeting location and will require bus transportation from and to Building B. Tour sign-up sheets will be on a table in the Auditorium. Tour sizes are limited, so do not delay getting signed up. **Pro tip #1**: You won't want to miss this tour!

<u>Sessions 5a and 5b</u>: Artificial Intelligence (AI) and Aviation Weather 9:55 AM – 3:00 PM Building 300 Auditorium (Hybrid) Session Leads: Matt Wandishin (NOAA GSL) and John Williams (The Weather Company)

While artificial intelligence (AI) methods have been used in aviation weather since at least the 1980s, recent advances in AI methodologies and computing power signal a sea change in their performance and applicability that will have dramatic ramifications in our field for years to come.

Al is also being used to relate forecasts to weather impacts on aviation, providing actionable information that can be used to streamline and optimize operations. Generative AI is showing promise as a flexible avenue for providing bespoke guidance and recommendations to support decision making to a wide variety of users. Methods for designing and evaluating AI methods to ensure that they are trustworthy will also be presented.

Session 5a will be kicked off by an introduction from co-leads **Matt Wandishin (NOAA GSL)** and **John Williams (The Weather Company).** Next, **Randy Chase (CIRA/CSU)** will present a primer on AI methods and describe their evolution and past applications in aviation weather. **Jaideep Pathak (NVIDIA)** will explain how AI is beginning to surpass traditional physics-based numerical weather prediction in accuracy and discuss how the incredible computational efficiency of AI-NWP will improve uncertainty quantification essential for optimizing decisions. Environmental Science applications of AI will be reviewed by **Phillipe Tussot (Texas A&M University – Corpus Christi** and **AI2ES). Guy Zunder (Skypath)** will brief the group on how rapid machine learning (ML) iterations and data validations are leading to a new era in turbulence prediction. The morning session will conclude with a presentation from **Somil Shah** (**FAA**) on the use of ML to predict aircraft braking performance in inclement weather conditions.

Following lunch, **Mark Veillete (MIT LL)** will kick off Session 5b with a talk on AI/ML in Aviation Weather Decision Support Systems. Next, **John Celenza (Zipline)**, who briefed FPAW last spring on some of Zipline's work in the AI arena, will once again be with us, this time to talk about establishing, growing the use of, trusting and increasing value from AI/ML-based weather DSTs. Following that, **Patty McDermott** and **Christine Taylor (MITRE)** will brief the group on an AI-Enabled TFM DST prototype that they have been working on. **Pro Tip #2** – this is fascinating work! Matt Fronzak has been a SME guinea pig in their work and has been amazed with the results. The session will conclude with a panel discussion and Q&A, with the panel being comprised of the session co-leads, the afternoon presenters, and as many of the morning presenters as we can convince to hang around and rejoin us!

Time	Activity/Topic: Presenter	
8:20 AM – 9:50 AM	Pre-Meeting FAATC Tour #2	
8:20 AM – 8:30 AM	Transport from Building 300 Main Entrance to NAPT and ARFF Facilities	
8:30 AM – 9:30 AM	Demonstrations – National Airport Pavement Test (NAPT) and Aircraft Rescue and	
	Fire Fighting (ARFF) Facilities: Starr McGettigan (FAA)	
9:30 AM – 9:50 AM	Transport from NAPT and ARFF Facilities to Building 300 Main Entrance	
9:55 AM – 12:05 PM	Session 5a – AI and Aviation Weather Predictions	
9:55 AM – 10:00 AM	Introduction: Matt Wandishin (NOAA GSL) and John Williams (The Weather Company)	
10:00 AM – 10:25 AM	A Primer on AI Weather Models: Randy Chase (CIRA/CSU) (r)	
10:25 AM – 10:50 AM	Kilometer-Scale Convection Allowing Model Emulation using Generative Diffusion	
	Modeling: Jaideep Pathak (NVIDIA)	
10:50 AM – 11:15 AM	Environmental Science Applications of AI - Philippe Tissot, Texas A&M University -	
	Corpus Christi and Al2ES	
11:15 AM – 11:40 AM	A New Era in Turbulence Prediction – Rapid Machine Learning Iterations and Data	
	Validations: Guy Zunder (Skypath) (r)	
11:40 AM – 12:05 PM	Using Machine Learning to Predict Aircraft Braking Performance in Inclement	
	Weather: Somil Shah (FAA)	
12:05 PM – 1:00 PM	LUNCH	
1:00 PM – 3:00 PM	Session 5b – Al and Decision Support	
1:00 PM – 1:25 PM	AI/ML in Aviation Weather Decision Support Systems: Mark Veillette (MIT LL)	
1:25 PM – 1:50 PM	Establishing, Growing Use of, Trusting, and Increasing Value from AI/ML-based	
	Weather Decision Support Services and Solutions: John Celenza (Zipline) (remote)	
1:50 PM – 2:15 PM	An AI-Enabled TFM Prototype: Patty McDermott and Christine Taylor (MITRE)	
2:15 PM – 3:00 PM	Panel Discussion – TBD: All Session 3 Presenters	

This will bring the Fall 2024 FPAW Meeting to a close.