

Spring 2021 FPAW Plenary Meeting Recap

Note: This meeting recap, and all associated presentations, chat logs, meeting recordings and referenced material, are freely available on the FPAW website at <https://fpaw.aero/events/2021/fpaw-2021-spring-meeting>.



Day 1 (Virtual, Tuesday, April 27, 2021, 11:00 AM – 3:30 PM EDT)

FPAW Co-Chairs Matt Fronzak and Matthias Steiner opened the meeting promptly at 11:00 AM EDT and, after preliminary remarks, handed the meeting off to first session team.

Day 1, Session 1: “Digital Transformation of Flight Service: Human Assisted Briefing to Pilot Self-Briefings.”

Co-leads: James Hasemann and Janet Ford (Capital Group)

Following a session kick-off from Jeff Black (FAA), Janet Ford provided an Overview of Flight Service, which included a very informative video. Next, Frankie Prott (FAA) provided an excellent review of the digital transformation of Flight Service, including its pilot briefing component, and Marilyn Pearson (CAE) went over the reasons for pursuing these changes.

Following a break, Joe Daniele (Leidos) reviewed the changes in the delivery of flight services, leading to Jim Hasemann’s deep dive into the nuts and bolts of the new pilot self-briefing method. Links to several excellent documents and publications were provided by Jim during his briefing, and these are contained in his presentation. Gary Pokodner (FAA) next went over ongoing research focused on enhancing weather information in the cockpit and, following a short break, Marilyn Pearson and Joe Daniele returned to peer into the future and discuss needed changes to the provision of aviation weather services.

During this session, several interactive polls were conducted, and the questions and result are included as part of the session material.

Day 1, Session 2: “Spectrum Interference and Weather Observations”

Lead: Tom Fahy (Capitol Meteorologics)

Following a short session overview and introduction of speakers by Tom Fahy, Jordan Gerth (NOAA) gave an excellent overview of spectrum interference. He discussed how radio frequency interference (RFI) has been observed in Earth observations from satellites and radars, and the consequences for accurate and reliable weather analysis and prediction. Gerth reminded the audience that proponents of next-generation telecommunications advocate for sharing spectrum currently allocated for sensing subtle atmospheric signals with new, louder, and noisier wireless signals, laid out the potential range of impacts to weather observations and forecasts, and advocated for proactive rulemaking by the appropriate federal oversight groups.

Sai Kalyanaraman (Collins Aerospace) delivered a talk on the impact of 5G RFI on aircraft radar altimetry, satellite navigation and other aircraft safety-of-life functions. His conclusions were both very interesting and highly concerning. Unlike some countries, which have taken steps to protect aircraft safety-of-life functions while allowing additional radio frequencies to be allocated to 5G providers, few if any similar actions seem to have been taken here in the U.S., and significant concerns exist about the impact of those frequency allocations on the safety of commercial aviation.

Day 2 (Virtual, Wednesday, April 28, 2021, 11:00 AM – 3:30 PM EDT)

After opening housekeeping remarks from the FPAW Co-Leads, FPAW Spring 2021 Day 2 Session 1 began.

Day 2, Session 1: “Emerging Standards and Certification Challenges for Novel Weather Observations”

Lead: Steve Darr (Dynamic Aerospace)

Steve Darr provided an overview of the session, whose intent was to explore the state-of-the-art and state-of-the-practice associated with several nascent aviation weather sources and provide an opportunity for the FPAW community to discuss their potential utility alongside their possible pitfalls.

Walter Combs (FAA) updated the FPAW audience on the progress of FAA Weather Camera (WCAM) project. WCAM work is proceeding on schedule, with additional FAA-sponsored installations in Hawaii and DOT-sponsored locations in Colorado and Montana on tap. Walter briefed the audience on the excellent WCAM website and data portal, located at <https://weathercams.faa.gov>. Next, Steve Darr, with an assist from Bob Maxson (NWS AWC), provided a review of ADS-B Weather (ADS-Wx) and an update on plans to distribute this crucial weather information to ground systems and all interested persons.

Following a break, two panel discussions took place. The first, led by Don Berchhoff (TruWeather Solutions), focused on the experiences and weather needs of small Unmanned Aircraft System (UAS) operations. Briefings were provided by Gary Graeff (TruWeather Solutions), Justin Hillard (UPS Flight Forward) and Jeff Massey (Amazon).

Justin Hillard led the second panel session, which looked at emerging technologies associated with remote observations. Briefings were provided by Gordy Rother (FAA), Ralph Stoffler (Raytheon), Walter Combs and Don Berchhoff.

Both panel discussions generated a significant amount of conversation, both by voice and MS Teams chat. It was satisfying to see the chat conversations leading to potential new collaborations, even though the meeting was virtual, proving that the magic of FPAW works both in person and remotely!

Day 2, Session 2: “Updates from Ongoing Topics”

Lead: Tom Ryan (AvMet Applications)

Tom Ryan introduced the three sets of speakers and the topics that they would be reviewing.

Bill Bauman (FAA) delivered an FAA Weather Community of Interest (Wx COI) status update to the group. He reported that there is a great deal of interest and energy in the Wx COI, which first stood back up in July 2020.

Josh Paurus (MSP Airports) and Seth Linden (NCAR) provided a status update on the Runway Friction Closure Prediction System (RFCPS) that was trialed at MSP airport during the winter of 2020-2021.

Following up on his presentation at the Fall 2020 FPAW meeting, Mike Robinson (MITRE) briefed the group on COVID-related aviation metrics. While some increases in traffic were noted, there is still ways to go to reach pre-COVID demand levels, especially in the northeast U.S.

Day 3 (Virtual, Thursday, April 29, 2021, 11:00 AM – 3:30 PM EDT)

After brief opening remarks from the FPAW Co-Leads, FPAW Spring 2021 Day 3 Session 1 began.

Day 3, Session 1: “Characteristics of Operational ATFM Decision Making Relative to Airspace Capacity, and the Need for Decision Support Tools”

Co-Leads: Le Jiang (IMSG) and Ernie Stellings (NBAA)

Following an overview of the session provided by Le, Greg Byus (FAA) reviewed the characteristics of ATFM decision making during convective weather and described factors to consider in determining traffic flow rate reductions in the context of current FAA programs. Bill Tuck (Delta Air Lines) and Tim Niznik (American Airlines) jointly presented a recent convective weather example from 4/11/21 that impacted Florida. They emphasized the need for a more scientific method to assess airspace reduction, more targeted geographical FCAs, more dynamic FCAs, and more dynamic recovery of airspace. Ernie Stellings, representing the CDM Flow Evaluation Team (FET), presented the conclusions from its 2018 tasking on AFP capacities and strategies, and recommended that there would be considerable added value if an effective tool could be incorporated into FAA software to support decision making by traffic managers when setting the rates for AFPs.

Following a break, four different groups presented on methodologies and tools for quantifying airspace capacity. Chris Brinton (Mosaic ATM) briefed his organization’s approach towards sector congestion prediction. Curt Rademaker (FAA) went over how the FAA determines normal (or unconstrained) throughput and AFP rates. Ken Fenton (NOAA/OAR/GSL) briefed the group on the Flow Constraint Index (FCI)-based approach using hexagonal grids, and a simplified version using square grids developed by IMSG, Inc. Finally, Mike Matthews (MIT/LL) went over their Traffic Flow Impact (TFI) capability.

After another short break, Dean Fulmer (CGH) discussed the potential impact of new entrants in this problem space, and Jim Evans (MIT/LL) talked about complexity and uncertainty in AFP flow forecasts, and offered options to consider in improving operational outcomes for convection impacted FCAs in terms of capacity modeling, capacity forecast presentation, addressing ATC risk, and focusing on a small number of FCAs which may result in high benefit/cost ratio.

The presentations in this session stimulated active dialog among the panelists and the audience, revealing the breadth and depth of different aspects surrounding the core topic of airspace capacity forecast under convective weather. These included several noteworthy suggestions from audience questions and comments in the MS Teams chat log.

Day 3, Session 2: “FPAW Updates”

Co-Leads: Matt Fronzak (MITRE) and Matthias Steiner (NCAR)

The FPAW Co-Chairs provided an update on the status of FPAW and led the group in a discussion concerning the formation of an FPAW Steering Committee. Preliminary thoughts about the makeup of the Steering Committee can be found on the FPAW website at <https://fpaw.aero/about/organization>. All members were encouraged to visit the site and provide feedback.