Friends & Partners in Aviation Weather

Planning for the Fall 2021 and Spring 2022 Meetings

Friends & Partners
IN AVIATION WEATHER

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12 May 2021 Virtual Meeting

FPAW Planning

2021 FPAW Fall Meeting

- Dates: 5 – 7 October
- Location: in person + virtual at MITRE in McLean, VA or completely virtual (tbd)

2022 FPAW Spring Meeting

- Dates: March/April/May (tbd, avoiding major events)
- Location: Washington, DC?

General Meeting Format

- Two (in person) or three days (virtual)
- 4 – 5 hours each day if virtual, full days otherwise
- One primary topic per half day, plus one short(er) topic/update
- Ensure ample time for discussion and breaks in between

FPAW Website

- https://fpaw.aero

List of General Topics

Emerging modes of transportation
- Unmanned aerial systems, urban air mobility
- Supersonic flight, commercial space launch (space weather)

Weather forecasts
- Trajectory-based operation, flight planning, optimization, etc.
- Uncertainty characterization of weather, traffic, etc.

Weather information integration
- Decision-making under uncertainty
- Weather, human factors, automation
- Data standardization (see notes)

Weather observations
- PIREPs, ADS-B, webcam (VWOS)
- Augmentation of surface observations
- Mandate to equip aircraft & share weather observations
- Visualization, and the use of data and information

Weather in cockpit
- CDM in cockpit
- Bring in pilots to solicit their concerns and what they would benefit from

Climate change impacts on infrastructure
- Increased temperatures, sea level rise, etc.
- Changing storms, more turbulence, lightning, etc.

General updates
- Research & development from labs, industry, etc.
- Policy, procedures, Weather Community of Interest/Practice, gathering of requirements
- Funding challenges

Previously Submitted Topic

Federal Agency Aviation Weather Technical Exchange Meeting [re-submitted by Randy Bass]

- A three day, in-person workshop consisting of federal agencies across the spectrum that conduct aviation weather research and/or use aviation weather information in operations directly or potentially indirectly impacting, assisting or supporting aviation. I can present more information and thoughts on this topic during the planning session.

Newly Submitted Topics (slide 1 of 3)

Low-altitude weather [submitted by Marilyn Pearson & Claudia McKnight]

- UAS operations need weather at low altitude and in areas not covered by approved weather forecasting, but we need to think beyond the small drones and consider the needs of the emerging eVTOL/AAM/SVO market. The anticipated boon in this market will encompass operations in congested airspace, into Vertiports, dealing with urban microclimates. These vehicles are assumed to be piloted at first, then remotely piloted, then autonomously operated. They will operate in Class B and all other classes of airspace. How will these vehicles safely navigate the environment? What are the weather needs to ensure safe operation?
- I would love to see a discussion on earth boundary layer weather (particularly below 1000 ft AGL) as it applies to small unmanned aerial systems (sUAS). As operators are requesting more and more operations beyond visual line of sight (BVLOS) weather information and forecasts for rural (and even urban)/ off-airport areas are becoming more important. Tools like HEMS may be applicable but there remains a gap in weather information as well as defined standards.

Spectrum interference concerns [submitted by Tom Fahy]

- Request consideration for an expanded session of Spectrum and 5G Interference issues for Aviation Safety.

Newly Submitted Topics (slide 2 of 3)

ABO weather benefits [submitted by Bryce Ford]

- Improvements in Forecast models due to Aircraft Based Observations (aka MDCRS/AMDAR & Water Vapor Measurement) and the direct use of ABO in Aviation Operations Weather support. I believe we should have better coverage of the data aviation can contribute to help improve Forecasts that support operations. We seem to always focus on what the Weather forecasts should do for aviation.

Weather concerns for space launch and landing [submitted by Matthias Steiner]

- Today's space launch weather criteria are conservative (e.g., cloud electrification & lightning criteria). However, pressure is increasing from the private sector to modify the criteria to be less stringent. It would be beneficial to have a session to capture current weather criteria supporting space launch from various agencies (e.g., NASA, USAF, FAA, Army) and the private sector. Criteria are the same; siting/instrumentation accuracy differs. The discussion would try to document current requirements and practices, plus emerging needs from the industry. Role of uncertainty vis-à-vis risk. Current capabilities via private industry to mitigate the risk by providing information with more certainty. Impacts should drive better sensing capabilities to produce better weather information with lower uncertainty.

Mixed-phase precipitation [submitted by Matthias Steiner]

- On behalf of the FAA, Scott Landolt has investigated issues surrounding the automated measurement of mixed-phase precipitation and how those issues may have holdover time application concerns. It might be worth giving the FPAW community an update on these matters.

Newly Submitted Topics (slide 3 of 3)

NextGen Status Update [submitted by Le Jiang]

- An update focusing on ATM-Weather Integration in NextGen. Remember the Ketchup-Mustard chart – are we there yet or has that vision been changed? Also, there appeared to be a congressional mandate (since the earlier vision in 2004) to put NextGen ATM System in place by 2025, but there seemed to be additional complexity that won't enable us to get there fully

2021 FPAW Fall Meeting or 2022 FPAW Spring Meeting (In Person)

Topic #1

- Primary: **Federal Agency Review of Aviation Weather**
  - Randy Bass (FAA) et al.

FAA, NOAA/NWS, NASA, USAF, Navy, Army, DOT, FEMA, USGS, etc.

2022 FPAW Spring Meeting (In-Person + Virtual) OR 2021 FPAW Fall Meeting (Virtual-only)

Topic #1

- Primary: **Low Altitude Weather (including ABO Wx Benefits?)**
  - Ralph Stoffler, Don Berchoff, Bryce Ford, Janet Ford/Jim Hasemann, Marilyn Pearson
- Secondary: **Ongoing FPAW Topics Review**
  - Tom Ryan (AvMet Applications) Topics TBD

Topic #2

- Primary: **NextGen Weather Status Update**
  - Le Jiang, Bill Bauman, Don Berchoff,
- Secondary: **The Role of Weather in Enhancing Aviation Efficiency and Reducing Carbon Emissions**
  - Gary Pokodner, Daniel Fuka, Nancy Mendonca

Topic #3

- Primary (Spring 2022 Only): **Weather Concerns for Space Launch and Landing**
  - New Mexico RV Man, Ralph Stoffler
- Primary (Fall 2021 Only): **Spectrum Interference and Mitigation**
  - TBD
- Secondary: **FPAW Organizational Updates**
  - Matthias Steiner (NCAR) and Matt Fronzak (MITRE)

- **Low-altitude weather** [submitted by Marilyn Pearson & Claudia McKnight]
- **Spectrum interference concerns and mitigation strategy** [submitted by Tom Fahy]
- **ABO weather benefits** [submitted by Bryce Ford]
- **Weather concerns for space launch and landing** [submitted by Matthias Steiner]
- **Mixed-phase precipitation** [submitted by Matthias Steiner]
- **NextGen Status Update** [submitted by Le Jiang]
- **Enhancing Aviation Efficiency to reduce Carbon Emissions** [verbal Gary Pokodner] (anti DBPP session)
- **Space Weather Needs** [verbal Ralph Stoffler, Justin Hilliard]