Fall 2021 FPAW / Aviation Weather TEM Chat Log

Day 2

[Tuesday, 10-5-21, 11:37 AM] Matthias Steiner (Guest)
The FPAW Planning Meeting on October 20 will be from 11:30 am till about 4 pm. Please suggest topics for future FPAW meetings on the FPAW website https://fpaw.aero.

[Tuesday, 10-5-21, 11:38 AM] dave mccarren N2N6E (Guest)
Could they show the detailed agenda again - just briefly?

[Tuesday, 10-5-21, 11:47 AM] George, Tom
Nice overview of DOI. Thanks!

[Tuesday, 10-5-21, 11:48 AM] Matt Fronzak
For Brad K - do DOI operations use the AWC's HEMS or GFA pages?

[Tuesday, 10-5-21, 11:48 AM] Gullett, Brian (Guest)
What is DOI's current UAS policy on flights, allowable platforms?

[Tuesday, 10-5-21, 11:49 AM] gordon brooks (Guest)
What percentage of flights would you say are UAS?

[Tuesday, 10-5-21, 11:49 AM] Apoorva Bajaj
What are the current sources of weather data for DOI UAS operations?

[Tuesday, 10-5-21, 11:50 AM] Joe Bracken
please repeat the exec order #

[Tuesday, 10-5-21, 11:50 AM] Joe Bracken
thank you very much

[Tuesday, 10-5-21, 11:51 AM] Michael McP (Guest)
What types of UAS data, if any, are directly fed to automation and decision supports tools (versus processed by an analyst before sharing)?

[Tuesday, 10-5-21, 11:51 AM] Mark Klopfenstein
What types of and severity of weather will cancel your non-helicopter missions

[Tuesday, 10-5-21, 11:56 AM] gordon brooks (Guest)
Fascinating to learn of the DOI/OAS work and all the angles!

[Tuesday, 10-5-21, 12:02 PM] Matt Fronzak
Which types of UAS can be operated BVLOS and which cannot?

[Tuesday, 10-5-21, 12:02 PM] Koeckeritz, Bradley S (Guest)
We operate all the systems BVLOS.

[Tuesday, 10-5-21, 12:03 PM] Koeckeritz, Bradley S (Guest)

Not all missions require BVLOS however

[Tuesday, 10-5-21, 12:03 PM] Matt Fronzak
Thank you, Koeckeritz, Bradley S (Guest).

[Tuesday, 10-5-21, 12:07 PM] Dr. Gabrielle Hedrick
What is the time between obtaining data and relaying it to firefighters?

[Tuesday, 10-5-21, 12:08 PM] Kopardekar, Parimal H. (ARC-A)
how do you decide whether the small UAS is safe to operate under the experienced winds

[Tuesday, 10-5-21, 12:08 PM] James Pinto (NCAR) (Guest)
Any feedback on the accuracy of the windnija information in particularly with regard to gusts and sudden changes.

[Tuesday, 10-5-21, 12:08 PM] Gullett, Brian (Guest)
How is the USFS deconflicting UAS and airplane flights on fires?

[Tuesday, 10-5-21, 12:09 PM] Ralph Stoffler (Guest)
Where should the higher resolution models be run. Can we run them in the field

[Tuesday, 10-5-21, 12:09 PM] Gupta, Mohan L (FAA) (Guest)
how do you define high resolution?

[Tuesday, 10-5-21, 12:10 PM] Koeckeritz, Bradley S (Guest)
We use procedural controls to separate UAS and manned aircraft. Those controls are outlined here https://www.nwcg.gov/sites/default/files/publications/pms515.pdf

[Tuesday, 10-5-21, 12:10 PM] gordon brooks (Guest)
Since fires can create their own sfc weather...how do you take raw NWP output and create wind speed and/or gust forecasts?

[Tuesday, 10-5-21, 12:11 PM] Gullett, Brian (Guest)
Thanks Brad!

[Tuesday, 10-5-21, 12:15 PM] Gupta, Mohan L (FAA) (Guest)
250m or less - do we have modeling capability at that level?

[Tuesday, 10-5-21, 12:16 PM] Gupta, Mohan L (FAA) (Guest)
I do not think so - model physics/numerics will not support that resolution.

[Tuesday, 10-5-21, 12:16 PM] Austin Cross (Guest)
Aviation Weather Testbed has experimented with using 333 m resolution modeling. Very challenging.

[Tuesday, 10-5-21, 12:17 PM] Matthias Steiner (Guest)
Yes, we have modeling capabilities that go down to meter resolution, but typically these models are not operationally available.

[Tuesday, 10-5-21, 12:17 PM] Gupta, Mohan L (FAA) (Guest)
I agree.

[Tuesday, 10-5-21, 12:17 PM] James Pinto (NCAR) (Guest)
FYI: Also, NCAR developed a system that can runs at 100 m resolution in real time and has delivered to the State of Colorado.

[Tuesday, 10-5-21, 12:17 PM] Matthias Steiner (Guest)
Check out: https://news.ucar.edu/132811/gpus-open-potential-forecast-urban-weather-drones-and-air-taxis

[Tuesday, 10-5-21, 12:26 PM] Joe Bracken
what types of data are collected by fha uas operations?

[Tuesday, 10-5-21, 12:29 PM] Steve Weygandt (Guest)
GSL has run real-time runs down to 750 m resolution for some special projects. I think there is more that can be done at the sub-1km resolution (like the NCAR runs that James Pinto referenced) and that the numerics / physics can support that resolution.

[Tuesday, 10-5-21, 12:35 PM] Marilyn Pearson (Guest)
ForeFlight, WingX, Aloft all use NWS repurposed weather for their products. It may not be satisfactory for UAS real time operations

[Tuesday, 10-5-21, 12:41 PM] Matt Fronzak
A comment - it seems to me that between the state DOTs and federal agencies flying UASs, there is a significant opportunity for self-help, i.e., putting weather sensors on those UASs and sending wind, temperature, pressure and humidity information back to the ground for mission use and in numerical weather prediction models.

[Tuesday, 10-5-21, 12:43 PM] Dr. Brian Pettegrew
I've talked to a few academic institutions that are testing on those and are always looking for ways to apply their work

[Tuesday, 10-5-21, 12:43 PM] Gray, James (FHWA) (Guest)
Agreed and is actually part of a conversation around smart infrastructure and even automated vehicles and how that could help provide useful data

[Tuesday, 10-5-21, 12:50 PM] Dave Kochevar (NWS) (Guest)
Brian, the NWS in Alaska would be happy to help with your project with UAF. If you can send me details to david.kochevar@noaa.gov, I can get you in touch with the correct people.

[Tuesday, 10-5-21, 12:52 PM] Steve Darr (Guest)
Matt, the file link you provided is in the Mitre SharePoint and isn't allowing access

[Tuesday, 10-5-21, 12:53 PM] Matthias Steiner (Guest)
I greatly appreciate the presented wide range of UAS applications by the agency representatives and the associated weather guidance needs.

[Tuesday, 10-5-21, 12:53 PM] George, Tom
Poker Flat has a met 285 ft met tower which should help with low altitude wind for the EPA test.
https://www.pfrr.alaska.edu/facilities

[Tuesday, 10-5-21, 12:55 PM] Matt Fronzak
Steve Darr (Guest) - thanks. Let me fix it. You can get to the paper via this AMS Annual Meeting link:
https://ams.confex.com/ams/2020Annual/webprogram/Manuscript/Paper369277/U-ABO_Final.pdf

[Tuesday, 10-5-21, 12:56 PM] Kopardekar, Parimal H. (ARC-A)
would love to connect aviation weather testbed with NASA ATM testbed

[Tuesday, 10-5-21, 12:58 PM] Eick Donald
Looks like we're starting to use UAS's where we can. We have been using them for a couple of years now at NTSB to help document aircraft, highway, and train accidents.

[Tuesday, 10-5-21, 1:00 PM] George, Tom
How are you coming on changing the name of the HEMS tool to reach the broader community?

[Tuesday, 10-5-21, 1:01 PM] Apoorva Bajaj (Guest)
For Austin and all the other federal agency panelists, what types of weather services are you seeking from the private sector?

[Tuesday, 10-5-21, 1:04 PM] Austin Cross (Guest)
More data is always helpful. If say there are ways to get observational data from new platforms being deployed to help feed back into better forecasts.

[Tuesday, 10-5-21, 1:08 PM] McClure, Andrew (FAA) (Guest)
@Steve Bradford: PIREPs have to be both tactical and strategic. Feed local critical data to those who need it, AND feed the mass of data to the modelers.

[Tuesday, 10-5-21, 1:09 PM] Austin Cross (Guest)
More automated turbulence observations would be very useful. and could measure where piloted craft might not go

[Tuesday, 10-5-21, 1:10 PM] Bob Avjian
Steve: Well, those are the key policy questions (including the goals) we will be exploring in strategic modernization of the PIREP system.

[Tuesday, 10-5-21, 1:11 PM] Steve Arbogast (Guest)
We brief pilots daily using pireps, especially our HELO operators.

[Tuesday, 10-5-21, 1:12 PM] Siegel, Joel M-CTR (FAA) (Guest)
PIREPs also come through FIS-B through ADS-B in

[Tuesday, 10-5-21, 1:12 PM] McClure, Andrew (FAA) (Guest)
Today? the end goal is ... both. It will require massive, speedy manipulation and delivery of data to make sure it goes where it's needed. "Gap fillers" are super important in Alaska and other areas where reporting is scarce.

[Tuesday, 10-5-21, 1:14 PM] Kowalewski, Debbie
Airline dispatchers relay the pertinent Pireps to our pilots. We also collect Pireps and enter them into the system.

[Tuesday, 10-5-21, 1:17 PM] Kopardekar, Parimal H. (ARC-A)
improved awareness and prediction - is the goal

[Tuesday, 10-5-21, 1:17 PM] Bob Avjian
Those answers to Steve's questions are not mutually exclusive though...

[Tuesday, 10-5-21, 1:19 PM] McClure, Andrew (FAA) (Guest)
My opinion: "automated " and "manual" PIREPs are not necessarily mutually exclusive terms. The human factor is needed to moderate and elaborate on the raw data.

[Tuesday, 10-5-21, 1:19 PM] McClure, Andrew (FAA) (Guest)
I agree with Dave that the system is in need of an overhaul!

[Tuesday, 10-5-21, 1:19 PM] Rother, Gordon (FAA) (Guest)
Airep versus Pirep, in the braking action world we now have both.

[Tuesday, 10-5-21, 1:20 PM] Marilyn Pearson (Guest)
or UREP Gordy

[Tuesday, 10-5-21, 1:21 PM] McClure, Andrew (FAA) (Guest)
@Gordy & Marilyn - all correct! Now we need to redefine the terms...

[Tuesday, 10-5-21, 1:21 PM] Arnaud Dumont (NCAR/RAL) (Guest)
PIREPs will be disseminated through CSS-Wx in USWX XML format. The schemas are being updated now.

[Tuesday, 10-5-21, 1:22 PM] Rother, Gordon (FAA) (Guest)
yes Andy and it is Urgent we get this done

[Tuesday, 10-5-21, 1:23 PM] Bob Avjian
Hi @Arnaud! So, what the latest wxxm version that CSS-Wx plans to use for PIREP messages?

[Tuesday, 10-5-21, 1:23 PM] Rother, Gordon (FAA) (Guest)
Spot on Don!

[Tuesday, 10-5-21, 1:23 PM] Marilyn Pearson (Guest)
BVLOS is here now, operating with waivers since 2015 and now approved through the newly published amendments to part 107. The need for wx for these aviators is now

[Tuesday, 10-5-21, 1:25 PM] Arnaud Dumont (NCAR/RAL) (Guest)
Bob Avjian PIREPs are being moved out of the IWXXM namespace, as they aren't an extension of an ICAO schema. It's currently under development for the USWX namespace.

[Tuesday, 10-5-21, 1:25 PM] dave mccarren N2N6E (Guest)
Yaaay Don - - that is the real issue - reliance on Climatology to fill the holes in data - to try and constrain the models at startup - results in errors at startup and propagation

[Tuesday, 10-5-21, 1:27 PM] Rother, Gordon (FAA) (Guest)
BINGO Standards, got have that

[Tuesday, 10-5-21, 1:30 PM] Donald Berchoff
We can do something new...the technology is there. How do we work together to accelerate progress.

[Tuesday, 10-5-21, 1:31 PM] Steve Darr (Guest)
Standards have been published for aircraft based observations and PIREPS over ADS-B, which will facilitate additional data collection from all operators, potentially including AAM operators

[Tuesday, 10-5-21, 1:31 PM] Bass, Randy (FAA) (Guest)
I do agree that the current PIREP system can't handle UAS inputs, and the whole system needs to be tossed out and redesigned. The issue is developing a new system while keeping the old one in place until then.

[Tuesday, 10-5-21, 1:32 PM] Kopardekar, Parimal H. (ARC-A)
Systems thinking is needed

[Tuesday, 10-5-21, 1:59 PM] Bass, Randy (FAA) (Guest)
Hi Kerin, could you put up that last slide again with the research needs?

[Tuesday, 10-5-21, 1:59 PM] Bass, Randy (FAA) (Guest)
I think that's a good slide for folks to see regarding the scope of support needed

[Tuesday, 10-5-21, 2:00 PM] Bruce Baker (Guest)
What is the time frame to begin BVLOS operations for weather research??

[Tuesday, 10-5-21, 2:15 PM] Rother, Gordon (FAA) (Guest)
Thanks Don

[Tuesday, 10-5-21, 2:15 PM] Bradford, Steve (FAA) (Guest)
i like kevin's alos

[Tuesday, 10-5-21, 2:16 PM] Marilyn Pearson (Guest)
Kevin, Gordy and John, Great job with the SWAT!

[Tuesday, 10-5-21, 2:16 PM] Marilyn Pearson (Guest)
love the logo

[Tuesday, 10-5-21, 2:17 PM] Bass, Randy (FAA) (Guest)
The Special Weather Action Teams within the Wx COI to include Wind, UAS, PIREPs and others, have really helped in determining what the problems really are and in focusing future research projects to fill those gaps.

[Tuesday, 10-5-21, 2:24 PM] Bass, Randy (FAA) (Guest)
This data is fantastic for flight planning. Now we need to figure out how to get it to the pilots while they're flying.

[Tuesday, 10-5-21, 2:24 PM] Eick Donald
Will the VWOS system be able to provide a visibility estimate directly?

[Tuesday, 10-5-21, 2:25 PM] Schoen, Michael CTR (FAA) (Guest)
I'm not sure if I heard correctly: If the FAA determines that VWOS is feasible, we're expecting private industry to ...
Too late!

[Tuesday, 10-5-21, 2:25 PM] Rother, Gordon (FAA) (Guest)
good Job Colleen

[Tuesday, 10-5-21, 2:26 PM] Reiche, Colleen K-CTR (FAA) (Guest)
Michael, if the FAA determines that the VWOS is feasible, the short-term goal is to deploy the system in locations currently without weather (AK, etc.) but the long-term application to UAS/UAM would likely involve industry using the VWOS as a "blueprint" to develop customized solutions to meet their needs

[Tuesday, 10-5-21, 2:27 PM] Matt Fronzak
Re Visibility Estimation through Image Analytics (VEIA) - FAA will be conducting an SRMP later this month on it.

[Tuesday, 10-5-21, 2:29 PM] Branham, Robert (Guest)
Would be interested in discussing the VWOS capability more. The DAF is looking at sensing in the Arctic.

[Tuesday, 10-5-21, 2:29 PM] Ian Johnson (FAA) (Guest)
Great point Randy!

[Tuesday, 10-5-21, 2:30 PM] Matt Fronzak
Bruce Baker (Guest) - what kinds of sensor packages do your UASs fly?

[Tuesday, 10-5-21, 2:30 PM] Reiche, Colleen K-CTR (FAA) (Guest)
Re: VEIA, I should have noted that the VEIA has been tested and evaluated at non-VWOS camera sites in Alaska this year....and will become part of the VWOS once the VEIA algorithm is adapted to run on the 360 degree camera images

[Tuesday, 10-5-21, 2:31 PM] Bass, Randy (FAA) (Guest)
Thanks Colleen. And the C&V PDT is considering a project to determine the feasibility of automating visibility estimation at night.

[Tuesday, 10-5-21, 2:31 PM] Matthew Wandishin (Guest)
Colleen, yes, the recent QA evaluation of VEIA was on the (generally) four individual cameras rather than 360-degree images.

[Tuesday, 10-5-21, 2:31 PM] Matthias Steiner (Guest)
For Bruce Baker: Have you explored how to most benefically sample the atmosphere by UAS depending on a given weather situation?

[Tuesday, 10-5-21, 2:31 PM] gordon brooks (Guest)
NWP can sure use help with PBL... Plus sounds like these UAS obs can help collaborate RAOBs and vice-versa

[Tuesday, 10-5-21, 2:33 PM] Donald Berchoff
How would you scale this approach to cover the whole US?

[Tuesday, 10-5-21, 2:34 PM] John Walker - NOAA UxS R&D (Guest)
gordon brooks (Guest) ... Exactly! We are looking at using the same data in 4 useful ways -- 1) Forecaster Situational awareness, 2) NWP output validation, 3) Current NWP assimilation, 4) Updated PBL parameterization for new NWP models

[Tuesday, 10-5-21, 2:34 PM] Donald Berchoff
Meteomatics and meteodrone has 2500 BVLOS hours and have conducted lots of research already around CIG/Vis.

[Tuesday, 10-5-21, 2:34 PM] Michael McP (Guest)
Do you weight UAS observations differently than MDCRS obs in your assimilation?

[Tuesday, 10-5-21, 2:36 PM] Bruce Baker (Guest)
Don we actually use Meteomatics vtols that was the swiss example..

[Tuesday, 10-5-21, 2:36 PM] Dr. Brian Pettegrew
@Bruce Baker, let me know if you need assistance, I've captured all previous questions in the chat for you

[Tuesday, 10-5-21, 2:37 PM] Matt Fronzak
Bruce Baker (Guest) Have you worked at all with Dr. Jamey Jacobs/OK State Univ and his NASA ULI WINDMAP project?

[Tuesday, 10-5-21, 2:37 PM] James Pinto (NCAR) (Guest)
Don, we ultimately would benefit if many commercial UAS also downlinked their met obs to extend the benefit beyond local influences.

[Tuesday, 10-5-21, 2:37 PM] Bruce Baker (Guest)
Don I think we can scale this concept at least at most all of the WFIO's. The technology is there, conops need to be developed, and obtaining permission to fly higher, i.e., BVLOS and being able to do so autonomously

[Tuesday, 10-5-21, 2:39 PM] Bruce Baker (Guest)
Matt Yes I have we talk quite frequently

[Tuesday, 10-5-21, 2:39 PM] Matt Fronzak
Bruce Baker (Guest) Good!

[Tuesday, 10-5-21, 2:40 PM] James Pinto (NCAR) (Guest)
Matt Fronzak We work with Bruce as well!

[Tuesday, 10-5-21, 2:40 PM] Bruce Baker (Guest)
Gordon to some extent. Ironically we have used the raob to validate the Uas data.

[Tuesday, 10-5-21, 2:41 PM] Matt Fronzak
@James Pinto (NCAR) (Guest) Double good!

[Tuesday, 10-5-21, 2:43 PM] Bruce Baker (Guest)
Michael the NWS is doing the assimilation into the local forecasts we do provide the UAS data but I am not familiar how they may use the MDCRS

[Tuesday, 10-5-21, 2:45 PM] Bruce Baker (Guest)
Brian please let me know if I have missed someone...

[Tuesday, 10-5-21, 2:45 PM] Dr. Brian Pettegrew
I've only caught one you didn't see....from Matt Fronzak, what kinds of sensor packages do your UASs fly?

[Tuesday, 10-5-21, 2:50 PM] Donald Berchoff
Bruce--the AF does not want to own weather UAVs. They want to buy "weather data as a service." The concept of using drones to collect data is good, but I do not see how the NWS puts this into operations. You should consider the "buy the data as a service concept" and let the private sector manage the launches, sustainment, training burden. The private company can monetize the data for private sector uses, amortize the cost across many groups, and NWS can buy the data for your concept at a much lower cost. NWS can focus on its core mission...forecasting, and not running new weather systems. Just a thought.

[Tuesday, 10-5-21, 2:52 PM] Bruce Baker (Guest)
Matt so we use different sensors depending on what we are measuring. For mean measurements we use a imet sensors from intermet, meteomatics have their own sensors and use the motion of the copter to derive wind speed and direction and on our fixed wing we use a fast response temperature and Rh sensor to sample at 10 Hz. We also have a 5 hole pressure probe that measures the U,v, and W component at 10 Hz. All of these sensors are calibrated in the lab against NIST traceable standards and then validated (as best as you can) to tower data in the field prior to using.

[Tuesday, 10-5-21, 2:56 PM] jim evans (Guest)
How in your simulation do you decide which weather (including convective storms) the planes/UAM will fly through (or, over)?

[Tuesday, 10-5-21, 2:57 PM] Bruce Baker (Guest)
Don I don't argue that point, Whichever route will be the most cost effective and provide routine data in this data sparse region is fine with me.

[Tuesday, 10-5-21, 2:58 PM] Matthias Steiner (Guest)
to Tom Rubino: Are you looking to examine/simulate past events or looking forward using predictive analytics as well?

[Tuesday, 10-5-21, 2:59 PM] Dr. Brian Pettegrew
Mendonca, Nancy (HQ-EO000), we did have one question from jim evans (Guest).
Rubino, Thomas How in your simulation do you decide which weather (including convective storms) the planes/UAM will fly through (or, over)?

[Tuesday, 10-5-21, 3:00 PM] James Pinto (NCAR) (Guest)
I will up vote Matthias' question too :)

[Tuesday, 10-5-21, 3:00 PM] Dr. Brian Pettegrew
Thanks James!

[Tuesday, 10-5-21, 3:03 PM] Matthias Steiner (Guest)
To David Wagner: Great efforts! I will reach out to you to talk more about it . . .

[Tuesday, 10-5-21, 3:03 PM] James Pinto (NCAR) (Guest)
David: same question - are you looking for particular urban areas?

[Tuesday, 10-5-21, 3:08 PM] Michael Splitt (Guest)
How does your work differentiate from NWS MOS?

[Tuesday, 10-5-21, 3:18 PM] Dr. Brian Pettegrew
Josh Cossuth (ONR) (Guest), you had one other question above from Michael Splitt (Guest)

[Tuesday, 10-5-21, 3:24 PM] Donald Berchoff
Great stuff Rob.

[Tuesday, 10-5-21, 3:25 PM] Steve Weygandt (Guest)
Sorry to be a bit late on this topic, but want to underscore the great need for getting more in situ meteorological observations from UAS. Assimilation of these observations could greatly improve short term ultra-hi-res model forecasts.

[Tuesday, 10-5-21, 3:27 PM] Bob Avjian
Hi Robb. My knowledge on IWEDA and AIR is a bit dated, but is Navy NITES also using AIR algorithms?

[Tuesday, 10-5-21, 3:39 PM] Matthias Steiner (Guest)
To all panelists: What would you consider a "big elephant" in the room that needs to get addressed?

[Tuesday, 10-5-21, 3:50 PM] Donald Berchoff
Good discussion. BVLOS is a year away. Will take a village of sensors--satellites are not the answer for low altitude weather in this decade; how can you hold a pilot accountable for weather when they cannot know what they are flying in; how do standards change to match the new environment -- the paradigm needs an overhaul. How do we accelerate operationalizing this science beyond the speed of government acquisition timelines?

[Tuesday, 10-5-21, 3:52 PM] Marilyn Pearson (Guest)
good point Don, but BVLOS is allowed now for part 107....

[Tuesday, 10-5-21, 3:52 PM] Donald Berchoff
Roger--I meant scale...thank you Marilyn (smile)

[Tuesday, 10-5-21, 3:55 PM] Matthias Steiner (Guest)
Go to https://www.fpaw.aero, sign up to become a member & be kept abreast of future efforts!