

# REDAC Subcommittee on Human Factors WINTER/SPRING 2020 | MINUTES

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**Meeting date** | *March 10-11, 2020*

**Meeting location** | *Remote (In-Person meeting cancelled due to COVID-19)*

**Purpose:** Review the RE&D proposed requirements for fiscal year 2022

**Facilitator:** Dr. Bill Kaliardos, DFO

All releasable briefings can be found at: <https://redacdb.faa.gov/browse.cfm>. See HF Subcommittee, March 2020 meeting folder.

## **Minutes from meeting:**

**Tuesday, March 10<sup>th</sup>, 2020**

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**Welcome / Opening Comments / Introductions** | **Presenters** *Dr. Barbara Holder, HF Subcommittee Chair, Dr. Bill Kaliardos, DFO*

Drs. Bill Kaliardos and Barbara Holder welcomed the subcommittee and started introductions. The committee members and the audience members introduced themselves. The DFO reviewed the agenda and the meeting was called to order.

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**Update from Full Committee Meeting** | **Presenter** *Dr. Barbara Holder, HF Subcommittee Chair*

Dr. Barbara Holder provided an update on the Full Committee Meeting. She reminded the audience of the purpose of the REDAC committees, emphasizing the benefit their input brings in terms of guiding the broader R&D landscape. She listed various goals of the meetings (shown in briefing).

Dr. Holder moved on to a description of Finding and Recommendations (F&Rs) and the elements of a quality F&R, emphasizing especially that the recommendations must be actionable. Dr. Holder provided detailed updates from the Full Committee Meeting, reviewing the list of F&Rs for the various subcommittees. Dr. Holder finished her briefing by giving an overview of the “Human Factors Emerging Issues List” that the subcommittee has been developing over the last few years. She noted that the subcommittee will dedicate time to update the document at the Summer/Fall 2020 Meeting.

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**REDAC Mission & Opening Remarks** | **Presenters** *Shelly Yak, FAA Director of William J. Hughes Technical Center, REDAC Co-Chair*

Shelly Yak addressed the subcommittee and provided opening remarks. She provided an update on the Research Landscape that has been briefed at prior meetings, explaining that they are currently performing an analysis assessment of the current drivers. She informed the audience that the DOT and the FAA are reviewing options that would make changes to advisory committees, but it is not clear the effect, if any, this would have on the REDAC. Before concluding, Shelly made a request of the subcommittee, asking it to brainstorm to critically review the aspects of REDAC that work and suggest improvements.

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## Review of Summer/Fall F&Rs | Presenters *All*

The subcommittee spent time reviewing the Summer/Fall 2019 F&Rs and respective briefing materials. Topics included 1) Integration of Air/Ground Research, 2) Strategic Inputs to the Research Prioritization Process, and 3) Urban Air Mobility (UAM) Research Gap.

Bill Kaliardos led a discussion on the various research efforts that capitalize on Air/Ground Integration. Some of these include the FAA's work in Trajectory Based Operations (TBO), Multiple Airport Route Separation (MARS), Required Navigation Performance (RNP) Procedures, and clearance complexity in oceanic environments. With this review, the subcommittee decided to close F&R #1 and asked to be briefed updates on potential opportunities at future meetings.

The review of the F&R on the strategic inputs to the research prioritization process led to a discussion on the Emerging Issues list under development by the HF REDAC subcommittee. The group determined it would be best to expand on and continue to refine the list to fit within the context of the FAA. All agreed that this F&R should be closed and that the Emerging Issues List will be reviewed at the next meeting.

The discussion on the F&R regarding "Urban Air Mobility (UAM) Research Gap" was deferred until after the BLI discussions.

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## Break

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### **AVS Core Flight Deck Research Requirements | Presenter *Dr. Michelle Yeh, Human Factors Specialist/Aircraft Certification RED Team Lead***

Dr. Michelle Yeh briefed the subcommittee on the proposed AVS Core Flight Deck Research Requirements for FY22. She briefed to her slides, outlining the various subtasks to be performed for research area. These areas include certification gaps for automated systems, minimum information requirements for managing potential and kinetic energy, and reduced crew operations. In addition, there is a proposal for research in automated systems crew interfaces. Her briefing can be accessed using the link at the top of the page.

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### **AVS NextGen Flight Deck Research Requirements | Presenter *Dr. Kathy Abbott, Chief Scientific and Technical Advisor for Flight Deck Human Factors***

Dr. Kathy Abbott briefed the subcommittee on the proposed AVS NextGen Flight Deck Research Requirements. She outlined the various research areas and the proposed research topics for each area. Her briefing can be accessed using the link at the top of the page.

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### **ATC Core Research Requirements | Presenter *Dan Herschler, ATC Core HF Portfolio Manager***

Dan Herschler briefed the subcommittee on the proposed FY22 ATC Core Research Requirements. The briefing began with an overview of the Air Traffic Control / Technical Operations Human Factors BLI and

the Core Program Team that carries out and supports this work. Dan stepped through various accomplishments achieved in FY20, before moving on to the anticipated research for FY21 and focal areas for FY22. A subcommittee member asked if there is research looking into crew resource management for human-human (ATC-pilot) interactions. Dan confirmed that some work has been done in the past. The subcommittee member urged to consider this topic in research decisions. Dan’s briefing can be accessed using the link above.

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**NASA UAM Research and Considerations for HF Research | Presenter *Savita Verma, NASA***

Savita Verma briefed the REDAC on NASA’s UAM research. She provided an overview of UAM, and NASA’s recent and current research on UAM, which includes industry collaboration. Human factors related topics were also identified, for discussion, and as examples of possible future research.

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**ATC NextGen Research Requirements | Presenter *Karl Kaufmann, ATC NextGen HF Portfolio Manager***

Karl Kaufmann briefed the subcommittee on the proposed FY22 ATC NextGen Research requirements. He began with an overview of the Enterprise ATC BLI and the benefits gained from the work. He moved on to list the team that supports the work as well that the laboratories that perform it. Karl stepped through accomplishments from the current year before moving on to the anticipated research for FY21 and focal areas for FY22. An audience member asked about the importance of using cases like GIM-S Utilization (from the Core ATC presentation) as an example of NextGen technologies that are not used by controllers as intended by design. In the GIM-S case, the technology was implemented and deemed successful from the implementation perspective, but it does not provide the information controllers need, so it goes unused. The FAA agreed it is important to consider such considerations from the user perspective.

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**Break**

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**Action Item #1: UAS Human Factors Research Update | Presenter *Dr. Michelle Yeh, Human Factors Specialist/Aircraft Certification RED Team Lead***

Dr. Michelle Yeh briefed the subcommittee on an overview of the FY20 UAS Human Factors R&D projects within AVS. She listed the currently ongoing projects including Minimum Detect and Avoid (DAA) Display and Flight Path Information, UAS Automation and Intelligent Systems, High Visual Contract for UAS, Air Carrier Operational Considerations, for Unmanned Aircraft Systems, UAS Human Factors “General Guidance.” She covered details on each of these projects, which can be found in her briefing accessible using the link at the top of the page. The subcommittee agreed that this Action Item could be closed.

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## **F&R Discussion and Homework Assignments | Presenter *All***

A group discussion was called to review any planned F&Rs and Action Items, as well as discuss feedback to improve the Human Factors REDAC process. Subcommittee members were tasked with developing a list of potential improvements to the REDAC process. There was discussion of developing an F&R regarding UAM and the FAA's research in this area. There was also discussion regarding the distribution of technical reports, and how these can be better shared with the community. A final discussion emphasized the need more cross-cutting research between the FAA BLIs.

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## **End of Day 1**

**Wednesday, March 11<sup>th</sup>, 2020**

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## **Update on FY22 Research Portfolio/ Revised Process | Presenter *Mark Orr, Aviation Safety Research & Development Manager***

Mark Orr updated the subcommittee on the FY22 Research Portfolio and the revised prioritization process. He explained that the RE&D Management Team is currently redesigning the Portfolio Development Process. He outlined the key steps in the process, as well as showed a timeline of these activities. He went on to explain the number of factors and steps that go into the development of the FY portfolios, before reviewing the timeline leading up to the final briefing to AVS-1. Mark noted that an important function of the REDAC subcommittees is to not only recommend what research should be funded, but also what research should not be funded. Further information can be found in his slides accessible using the link at the top of the page.

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## **NASA UAM Research and Considerations for HF Research | Presenter *Dr. Mike Feary, NASA***

Dr. Mike Feary briefed the subcommittee on the various research projects underway at NASA. These include Monitoring for Flight Path Management: Assessing Pilot Monitoring Training, Human Performance Assessment Methods for Safety Analysis, and Simplified Handling Qualities and Simplified Vehicle Operations. Information on each of these research areas can be found in the briefing accessible using the link at the top of the page.

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## **FAA Budget Update | Presenter *Elizabeth Delarosby, FAA Budget Analyst***

Elizabeth Delarosby updated the subcommittee on the FAA Budget. She reviewed financial details for FY20 before covering pertinent conference language describing areas of research. She then moved on to update on the statuses of the FY21 and FY22 budgets, as well as the out year targets until FY26; however,

these targets are expected to change. Financial information can be found in these slides accessible using the link at the top of the page.

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## **Break**

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### **F&R Finalizing and Wrap-up | Presenter *All***

A group discussion was called to review the intended F&Rs and Action Items. Notes were reviewed from the meeting, and drafting duties were assigned by the committee chair. There was further discussion surrounding an Action item requesting a higher level of details in the FAA briefings, as this helps the subcommittee identify research gaps. A listing of the F&Rs and Action Items developed from this meeting can be found below.

## **End of Day 2**

**Agenda:**

**DAY 1 – Tuesday, March 10, 2020**

<b>Time</b>	<b>Topic</b>	<b>Presenter</b>
10:00 – 10:15 EDT	Welcome / Introductions	<b>Dr. Barbara Holder</b> , HF Subcommittee Chair; <b>Dr. Bill Kaliardos</b> , Designated Federal Official (DFO)
10:15 – 10:30 EDT	Update from Full Committee Meeting	<b>Dr. Barbara Holder</b> , HF Subcommittee Chair
10:30 – 10:45 EDT	REDAC Mission & Opening Remarks	<b>Shelley Yak</b> , FAA Director of William J. Hughes Technical Center, REDAC Co-Chair
10:45 – 11:15 EDT	Review of Summer/Fall F&Rs: 1) Integration of Air/Ground Research 2) Strategic Inputs to the Research Prioritization Process	<b>Group Discussion</b>
11:15 – 11:30 EDT	Review of Summer/Fall F&Rs (cont'd): 3) Urban Air Mobility (UAM) Research Gap	<b>Dr. Bill Kaliardos</b> , Designated Federal Official (DFO), <b>Karl Kaufmann</b> , ATC NextGen HF Portfolio Manager, <b>Dr. Michelle Yeh</b> , Human Factors Specialist/ Aircraft Certification RED Team Lead
11:30 – 12:15 EDT	Lunch Break – 1 (East Coast)	
12:15 – 12:45 EDT	AVS “Core” Flight Deck Research Requirements  AVS NextGen Flight Deck Research Requirements	<b>Dr. Michelle Yeh</b> , Aircraft Certification RED Team Lead  <b>Dr. Kathy Abbott</b> , Chief Scientific and Technical Advisor for Flight Deck Human Factors
12:45 – 13:15 EDT	ATC “Core” Research Requirements  ATC NextGen Research Requirements	<b>Dan Herschler</b> , ATC Core HF Portfolio Manager  <b>Karl Kaufmann</b> , ATC NextGen HF Portfolio Manager
13:15 – 13:30	Break	
13:30 – 14:00 EDT	NASA UAM Research and Considerations for HF Research	<b>Savita Verma</b> , NASA
14:00 – 14:30 EDT	Initial F&R Discussion	<b>All</b>
14:30 – 15:15 EDT	Lunch Break – 2 (West Coast)	
15:15 – 15:30 EDT	Action Item #1: UAS Human Factors Research Update	<b>Multiple FAA Speakers</b>
15:30 – 17:00 EDT	F&R Discussion and Homework Assignments	<b>All</b>

17:00 EDT	Day 1 Adjourned
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**DAY 2 – Wednesday, March 11, 2020**

Time	Topic	Presenter
10:00 – 10:30 EDT	Update on FY22 Research Portfolio/ Revised Process	<b>Mark Orr</b> , Aviation Safety Research & Development Manager
10:30 – 11:30 EDT	Overview of NASA Ames Human Factors Research	<b>Dr. Jessica Nowinski &amp; Dr. Mike Feary</b> , NASA
11:30 – 11:45 EDT	FAA Budget Update	<b>Elizabeth Delarosby</b> , FAA Budget Analyst
11:45 – 12:30 EDT	Subcommittee Member F&R Breakout Sessions	<b>Subcommittee Members</b>
12:30 – 13:15 EDT	Lunch	
13:15 – 14:15 EDT	Review of F&R Breakout Sessions	<b>All</b>
14:15 – 14:45 EDT	F&R Finalizing and Wrap-up	<b>All</b>
14:45 EDT	Meeting Adjourned	

\*F&R = Finding and Recommendation

**Subcommittee on Human Factors**  
**Winter-Spring 2020 - March 10 - 11, 2020**  
**Attendees Lists**

**DAY 1**

<b>Number</b>	<b>Name</b>	<b>Affiliation</b>
1	CA Roundtree-Coleman	FAA
2	Eddie Austrian	Fort Hill Group
3	Chick Perala	FAA
4	Mark Orr	FAA
5	Karl Kaufmann	FAA
6	Dan Herschler	FAA
7	Kathy Abbott	FAA
8	Bill Kaliardos	FAA
9	Tara Holmes	FAA
10	Evan Harvey	HumanProof
11	Kevin Comstock	ALPA
12	Lejia Collier	ALPA
13	Chris Reed	JetBlue
14	Cheryl Quinn	NASA
15	Sabreena Azam	FAA
16	Divia Chandra	Volpe
17	Dave McKenney	ALPA
18	Jason Demagalski	FAA/ATO
19	Terry King	FAA-CAMI
20	Maggie Ma	BOEING
21	Angel Mijan	BOEING
22	Rich Golden	FAA
23	Rachel Seely	FAA
24	Sherry Chappell	Consultant
25	Quang Dao	American
26	Brian Townsend	Airlines
27	Dan Brock	FAA
28	Steve Lang	
29	Leah Rowe	
30	Shelley Yak	
31	Barbara Holder	
32	Jerry	
33	Rany Azzi	

**DAY 2**

<b>Number</b>	<b>Name</b>	<b>Affiliation</b>
1	CA Roundtree-Coleman	
2	Karl Kauffman	
3	Carl Bernstein	
4	Eddie Austrian	
5	Kathy Abbott	
6	Tara Holmes	
7	Bill Kaliardos	
8	Evan Harvey	
9	Barbara Holder	
10	Mark Orr	
11	Mike Feary	
12	Maggie Ma	
13	Beth Delarosby	
14	Angel Mijan	
15	Dave McKenney	
16	Dan Brock	
17	Cheryl Quinn	
18	Dan Dellmyer	
19	Kevin Comstock	
20	Dave Atwood	
21	Dan Herschler	
22	Ken Allendoerfer	
23	Leija Collier	
24	Chris Reed	
25	Brian Townsend	