FEDERAL AVIATION ADMINISTRATION
REDAC Subcommittee on Aircraft Safety (SAS)
2020 Spring Meeting Minutes
February 25-26, 2020

The 2020 Spring REDAC SAS meeting was held on February 25-26, 2020 at the RTCA Office, 1150 18th Street NW, Suite 910, Washington, DC 20036. This document summarizes discussions and activities that occurred during the meeting. The meeting resulted in two findings and recommendations (F&Rs), which have been included as part of the official REDAC Chair's submission to the FAA. All presentation materials are available and can be downloaded through the FAA REDAC website – https://faa.gov/go/redac .

Day 1 – February 25, 2020

Introduction/Opening

The SAS Designated Federal Official (DFO) Mike Paglione, Technical Center Director Shelley Yak, and Subcommittee Chair Terry McVenes jointly kicked off the meeting with brief opening remarks, which were followed by introduction of SAS members and all attendees. Paglione kicked off the meeting with a few slides on plans for the meeting overall, purpose, and meeting agenda. Ms. Yak, during opening remarks, encouraged SAS to explore potential improvements within SAS to make the subcommittee more effective in general, and explore means for SAS to contribute in maintaining landscapes through systematic inputs and updates in particular. Dr. Eric Neiderman of the FAA commented that the subcommittee's F&Rs need to be actionable by the FAA meaning they should be within FAA's capability to address.

SAS Chair Report on Full REDAC Meeting

Mr. McVenes, SAS Chair, reported on the October 10, 2019 full REDAC meeting. He mentioned that the focus of the meeting was on the FAA's R&D landscapes initiative, aviation industry-based research drivers within the landscape document, UAS integration strategy, UAS and remote ID mandate out for public comment, and research gaps – ground and airborne collision risk of UAS with traditional aircraft. Mr. McVenes also presented a summary of other subcommittee reports including F&Rs from last meeting and then highlighted the other subcommittee F&Rs. Attendees discussed the SAS F&R on emerging issues and the potential means for allocating more resources for emerging issues. The FAA will take necessary steps to provide resources for emerging issues.

R&D Budget Update

Elizabeth Delarosby, Acting Manager of Researching, Engineering and Development (RE&D) Financial Management, presented the FAA FY20 RE&D budget. The FAA FY20 RE&D request was $120M, while the enacted budget is at $191M. Delarosby presented highlights of the enacted FY20 budget. She also mentioned that the FY21 RE&D request is $120M, and it was delivered to Congress in February 2020. The established target level of RE&D funding for FY22 is $170M, which will be delivered to the Office of the Secretary of Transportation in June 2020. The established target levels for FY23, FY24, FY25, and

FY26 are $170M. Attendees discussed the robustness of the FAA prioritization process in the context of the fixed level annual budget for next several years.

Ms. Delarosby mentioned that the current FAA Authorization signed by the President on Oct 5, 2018 extends the FAA authorization thru 2023.

Aviation Safety RE&D Program

Mark Orr, FAA Office of Aviation Safety (AVS) RE&D Manager, presented the FAA's reengineered RE&D prioritization process for AVS research portfolio and status of FY22 budget process, which was initiated to address the need for a more data driven and risk based prioritization process as well as to ensure alignment of AVS research portfolio with the FAA, DOT, and Congressional priorities. Mr. Orr and attendees reviewed the draft FY22 research portfolio. Mr. Orr mentioned that the next step is to obtain AVS-1 approval for the draft FY22 research portfolio in April 2020.

Discussion on F&Rs from SAS August 2019 Meeting

Dr. Neiderman led the discussion of two F&Rs, i.e., funding issues with new and emerging safety risks (F&R #1) and incorporating landscapes into R&D process (F&R #2).

Regarding F&R #1, he mentioned that the FAA is exploring the creation of a new budget line item (BLI) to address funding issues for emerging technologies. Meanwhile, the FAA will continue to utilize built-in flexibility in the AVS RE&D process including the aviation safety unbudgeted (i.e. "pop-up") process and the flexibility in appropriation process. This includes reprogramming of funds up to 10% among BLIs as specified in the Congressional language to provide funding for out-of-cycle emerging issues in the year of execution. A progress update will be provided in the next SAS meeting.

Regarding F&R #2, Dr. Neiderman mentioned that at this time, the plan is to perform a review of the proposed FY22 FAA portfolio against the initial landscapes at the FAA level to identify any gaps or issues, to gain experience using the landscapes, to mature the landscapes. The FAA will then evaluate incorporation of the landscapes into the RE&D process.

Wes Ryan, Unmanned and Pilotless Aircraft Technology Lead, FAA's Policy and Innovation Division, addressed F&R #3, i.e., complex digital systems in UAS RE&D portfolio. Mr. Ryan's presentation focused on the improvement of safety through safe use of technology and automation as well as efficient and safe design and certification of complex systems. During the presentation, Mr. Ryan and attendees discussed leveraging NASA, DOD, and FAA efforts; verification and validation of complex systems (DO-178 versus other processes); full authority fly-by-wire systems; importance of standards and collaboration with industry; and resilient autonomy project. Finally, Mr. Ryan reported on his organization's participation in new university program on Artificial Intelligence (AI) to provide practical input from a government perspective.

Update on UAS Integration Research (Current & Planned)

Paul Strande, FAA's AUS-300 Division, provided an update on UAS integration research. While Mr. Ryan presented research plan version 2, he mentioned that a version 3 is being developed. His presentation focused on applied research. Mr. Strande discussed a functional framework for UAS integration into the NAS, operational capabilities as well as their research alignment, and collaboration and partnerships. He

then briefly presented a list of research projects for UAS integration into the NAS. Mr. Ryan and attendees discussed many aspects of the research plan during the presentation. Information on the FAA's UAS research activities can be found at: http://www.assureuas.org/.

Seat Pitch Study update

Stacey Zinke of FAA's The Civil Aerospace Medical Institute (CAMI) provided an update on the FAA's seat pitch study. Her presentation included three areas: anthropometry of current population, body types able to utilize seats, and effect of seat spacing/dimensions on egress. She described the experiment design and provided a status report. The data collection has been completed and the data analysis is ongoing. A report including study findings and results is expected in fourth quarter of FY20.

Briefing on the Automation Strategy

Wes Ryan of FAA's Policy and Innovation Division provided a briefing on automation strategy for UAS. His presentation included a discussion of past success and future challenges, expected automation levels for UAS and Urban Air Mobility (UAM), the challenge between what is technically envisioned and what is allowed by regulation, highlights of research work with NASA and other entities, and a discussion on challenges, opportunities, and next steps.

Cyber Safety CAT Status Update

Isidore Venetos of the FAA's Aviation Research Division provided a briefing on the Cyber Safety Commercial Aviation Team (Cyber Safety CAT). He presented the Cyber Safety CAT's vision, mission, goal, and outcomes. Mr. Venetos described aviation cyber safety in the context of the aviation ecosystem, cyber safety overlay and integration, Cyber Safety Data Management Model, preliminary partners/structures, and timeline for the Cyber Safety CAT initiative.

Closeout Discussion on Day 1

Mike Paglione and Terry McVenes led the close-out discussion for the first day of the meeting. Attendees discussed the role of SAS in providing recurring input to the landscape construct and its emerging technologies and drivers as well as what improvements, if any, should be considered in the REDAC SAS structure.

Day 2 – February 26, 2020

Review of Homework from Day 1

Attendees discussed improvements to the REDAC SAS including the presentation of a list priority research topics by SAS members and deep dive research presentations by the FAA. The FAA DFO, Mike Paglione, and SAS Chair, Mr. McVenes will meet and continue discussion on the need for new SAS members.

Review of FY2022 Research Portfolio

Mr. Paglione and Mr. Orr presented the FY22 research portfolio and provided answer to attendees' questions. This session lasted for about two and half hours.

Fatigue Risk Management

Dr. Katrina Avers of CAMI presented an update on the FAA's fatigue risk management working group. The working group covers the safety and efficiency concerns in the areas of air traffic controllers, pilots, flight attendants, technical operations, cargo loading, and maintenance. The purpose of the group is to:

- Formalize communication across types of operations with consideration for stakeholder concerns and priorities for aviation fatigue research,
- Provide data for prioritization of fatigue research recommendations and capitalize on overlapping opportunities, in-house resources, pooling of resources, and industry collaboration; and
- Meet annually with all stakeholders to re-assess priorities and research gaps relating to fatigue.

Dr. Avers discussed several research projects including:

Study of performance decrements and genetic biomarkers during sleep loss or mistimed sleep; fatigue mitigation in flight operations: Part 117.7 FRMS for exceedances; study sleep loss, workload, and fatigue associated with short haul, multisegment flight operations; study impact of circadian rhythm adaptation following 8-9 hours' time zone transitions on aircrew sleep, behavioral performance, and recovery requirements; comparison of current air traffic controller sleep times with times recorded during a fatigue baseline study in 2012; gathering air traffic controller self-assessed workload and fatigue data and align with air traffic operational data, errors and incidents; and examining fatigue risk across aviation maintenance industry and develop effective fatigue risk management strategies that can be integrated into safety management systems.

SAS F&R Discussions and Feedback/Closing Remarks

Mr. Paglione and Mr. McVenes jointly led the F&R discussion as well as the closing remarks. SAS members agreed to work internally on the F&Rs and submit them to Paglione in a few weeks. Mr. McVenes briefly described the RTCA Global Symposium in Crystal City, VA in June 16-17, 2020. He mentioned that 200-250 industry people (see URL https://www.rtca.org/content/symposium-overview). Attendees decided to hold SAS summer/fall meeting at the William J. Hughes Technical Center on August 11-12 and the winter/spring meeting on February 23-24. The location is TBD.

Aircraft Safety Subcommittee
February 25, 2020 – Day 1

Name	Affiliation
Wes Ryan	FAA
Eric Neiderman	FAA
Mark S. Orr	FAA
David Polland	Boeing
Stacey Zinke-McKee	FAA
Rany Azzi	FAA
Rich Golden	FAA
Elizabeth Delarosby	FAA
Bryan Lesko	ALPA
Chris Heck	ALPA
Don Kauffman	Honeywell
Dave Atwood	FAA
Hossein Eghbali	FAA
Terry McVenes	RTCA
Steve Ramdeen	FAA
Paul Tan	FAA
John Crowley	Army Aeromed Lab
Chinita Roundtree Coleman	FAA
Ferne Friedmanberg	FAA
Paul Strande	FAA
William Oehlschlager	FAA
Jim Lignugaris	FAA
Shelley Yak	FAA (telecon)
Frank Wondowlowski	HQ (telecon)
George Fernandez	FAA (telecon)
Barbara Holder	FAA (telecon)
Steve Summer	FAA (telcon)
Akbar Sultan	NASA (telecon)
James Mangie	Delta (telcon)
Robert Maguire	Unlisted (telcon)
Mike Paglione	FAA (telcon)

Aircraft Safety Subcommittee
February 26, 2020 – Day 2

Name	Affiliation
David Polland	Boeing
Dres Zellweger	FAA/retired
Eric Neiderman	FAA
Mark S. Orr	FAA
Bryan Lesko	ALPA
Chris Heck	ALPA
Don Kauffman	Honeywell
Dave Atwood	FAA
Hossein Eghbali	FAA
Terry Mcvenes	RTCA
Chinita Roundtree-Coleman	FAA
Wes Ryan	FAA
Rany Azzi	FAA
Paul Tan	FAA
Rich Golden	FAA
Katrina Avers	FAA-CAMI
Stacey Zinke-Mckee	FAA-CAMI
John Crowley	Army
Mike Paglione	FAA
Alainna Randazzo	FAA (telcon)
Cliff Johnson	FAA (telecon)
O. Ahmet	Unlisted (telecon)
Jim Riley	Unlisted (telecon)
Frank Wondowlowski	FAA (telecon)

Appendix II

2020 Spring REDAC SAS Meeting
Agenda
February 25 – 26, 2020

Dress code: *Business Casual*
Location: RTCA Office, 1150 18th Street NW, Suite 910, Washington, DC 20036
GoToMeeting: https://global.gotomeeting.com/join/842742365
You can also dial in using your phone.
(For supported devices, tap a one-touch number below to join instantly.)
United States: +1 (571) 317-3122
- One-touch: tel:+15713173122,,842742365#
Access Code: 842-742-365
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Site Info: See Page 3 for Parking/transportation and lodging information

February 25 (Tuesday)

Time	Topic	Presenter(s)
0730 - 0800	Arrival	RTCA Office
0800 - 0815	Opening Remarks	Shelley Yak
0815 - 0830	Opening remarks/Purpose of the Meeting	Mike Paglione
0830 - 0900	SAS Chair Opening & Report on REDAC Meeting	Terry McVenes
0900 - 0930	R&D Landscapes initiative	Steve Summer
0930 - 1000	FAA Budget Update	Beth Delarosby
1000 - 1015	Comfort Break	
1015 - 1045	Update on FY2022 research portfolio/revised process	Mark Orr
1045 - 1115	Update on funding of new & emerging safety risks (FY19 F&R #1)	Eric Neiderman
1115 - 1145	Update on incorporating Landscapes into R&D process (FY19 F&R #2) – progress briefing on gap analysis	Eric Neiderman/Mark Orr
1145 - 1300	Lunch	
1300 - 1330	Update on UAS Integration Research (Current & Planned)	Paul Strande, AUS-300/Nick Lento, ANG-C2
1330 - 1400	Complex digital systems in UAS R&D portfolio (FY19 F&R #3)	Wes Ryan, AIR
1400 - 1415	Comfort Break	
1415 - 1500	Seat Pitch Study update	Stacey Zinke
1500 - 1545	Briefing on the Automation Strategy	Wes Ryan
1545 – 1630	Cyber Safety CAT Status Update	Isidore Venetos
1630 – 1700	First Day Review – Homework Assignments	
1800 - Group Dinner	Location: TBD	

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February 26 (Wednesday)

Time	Topic	Presenter(s)
0730 - 0800	Arrival	RTCA Office
0800 - 0830	Review of homework from first day	All
0830 - 0945	FY2022 Aircraft Safety Assurance Portfolio (Fire Research and Safety, Propulsion and Fuel Systems, Advanced Materials/Structural Safety, Continued Airworthiness – Systems, Continued Airworthiness – Structures, Aircraft Catastrophic Failure Prevention Research, and Terminal Area Safety)	Mark Orr/Mike Paglione
0945 - 1000	FY2022 Digital Systems & Technologies Portfolio (Digital System Safety and Aircraft Systems Information Security Protection)	Mark Orr/Mike Paglione
1000 - 1015	Comfort Break	
1015 - 1025	FY2022 Environment & Weather Impact Mitigation Portfolio (Aircraft Icing)	Mark Orr/Mike Paglione
1025 - 1040	FY2022 Human Performance & Aeromedical Factors Portfolio (Flight Deck/Maintenance/System Integration Human Factors and Aeromedical Research)	Mark Orr/Mike Paglione
1040 - 1130	FY2022 Aviation Performance & Planning Portfolio (System Safety Management and Unmanned Aircraft Systems Research)	Mark Orr/Mike Paglione
1130 - 1200	Fatigue Management Working Group briefing	Katrina Avers
1200 - 1230	SAS F&R discussions and feedback/Closing remarks	Terry McVenes/Mike Paglione/Mark Orr
12300	Adjourn	

Meeting Site Info: Lodging, Transportation, & Parking

Visitor Information

RTCA is located at 1150 18th NW, Suite 910, Washington, DC 20036.

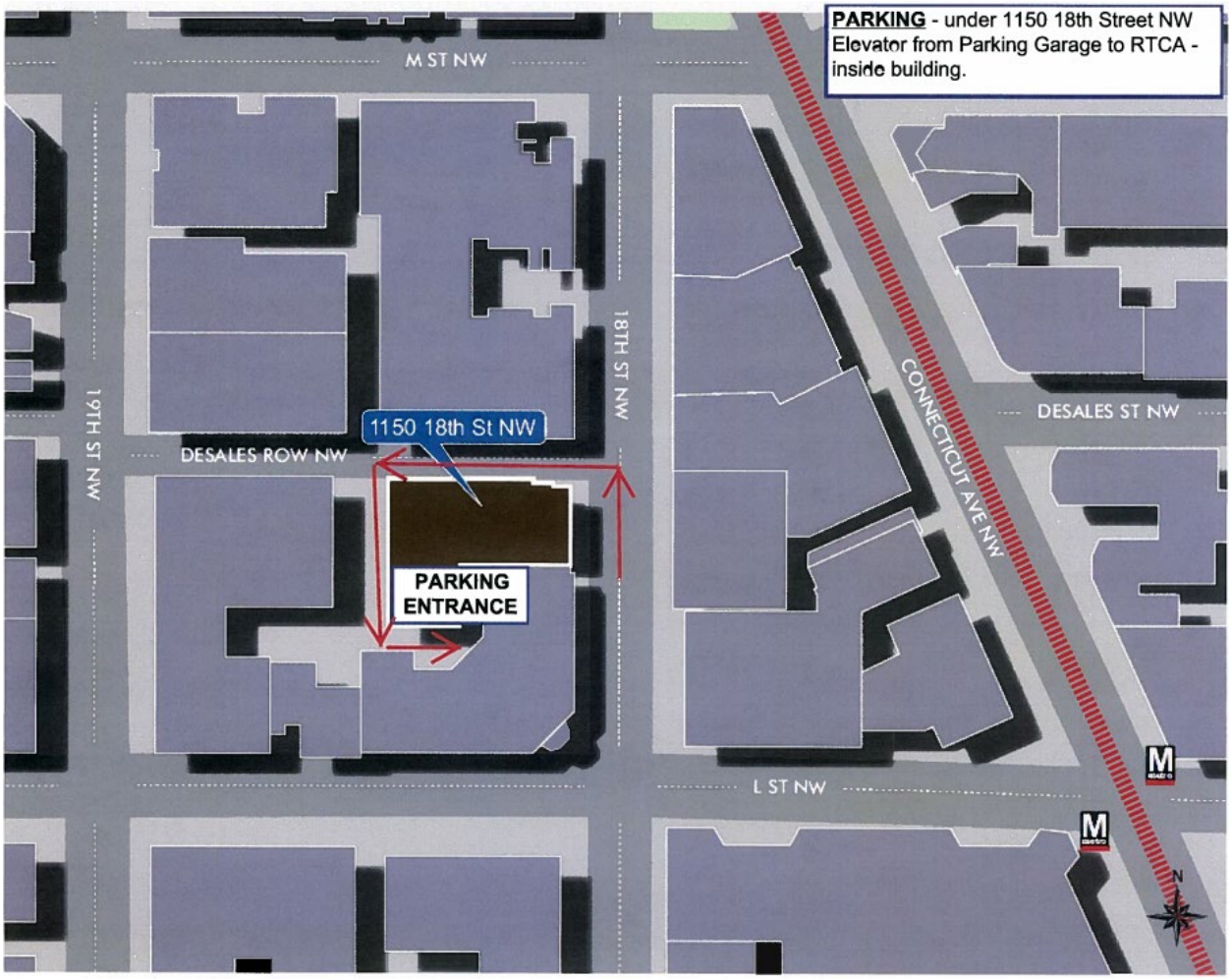
Directions from Metro

Nearest Metro Stations are Farragut West (Orange/Blue/Silver Line) or Farragut North (**Red** Line)

Exit the Farragut West (Orange/Blue/Silver Lines) metro station onto 18th Street heading north (left). Continue on 18th Street until 1150 18th Street. If taking Red Line, exit at Farragut North onto L St. heading west (left). Continue on 18th Street until 1150 18th Street.

Parking:

Parking is available at 1150 18th Street, NW.



Area Lodging:

AC Hotel Washington DC Downtown
1112 19th St NW,
Washington, DC 20036
(202) 303-0190

Beacon Hotel & Corporate Quarters
1615 Rhode Island Ave NW,
Washington, DC 20036
(202) 296-2100

Hampton Inn Washington
1729 H St NW
Washington, DC 20006
(202) 296-1006

Hyatt Place Washington DC/Georgetown/West End
2121 M St NW
Washington, DC 20037
(202) 838-2222

Kimpton Hotel Madera
1310 New Hampshire Ave NW
Washington, DC 20036
(202) 296-7600

Kimpton Topaz Hotel
1733 N St NW
Washington, DC 20036
(202) 393-3000

Washington Marriott Georgetown
1221 22nd St NW
Washington, DC 20037
(202) 872-1500

The Mayflower Hotel
1127 Connecticut Ave NW
Washington, DC 20036
(202) 347-3000

Hotel RL Washington DC
1823 L St NW
Washington, DC 20036
(202) 223-4320
To make an individual reservation, please use the booking link provided with Corporate Code: RTCA, or call the hotel at (202) 223-4320. When making a reservation, please be sure to mention you are visiting RTCA.

The St. Gregory Hotel Dupont Circle
2033 M St NW
Washington, DC 20036
(202) 530-3600

The Westin Georgetown
2350 M St NW
Washington, DC 20037
(202) 429-0100