

FEDERAL AVIATION ADMINISTRATION
REDAC Subcommittee on Aircraft Safety (SAS)
2018 Spring Meeting Minutes
March 14-15, 2018

The 2018 Spring REDAC SAS Meeting was held on March 14-15, 2018 at the General Aviation Manufacturers Association, 1400 K Street NW, Suite 801 Washington, DC 20005. The meeting agenda is attached in Appendix I. Attendee sign-in sheets are attached in Appendix II. On the second day of the meeting, the representatives from FAA's Aviation Safety Office (AVS) Senior Leadership participated in a forum with SAS members on the strategic needs of aviation safety research as well as emerging challenges and opportunities. This document summarizes discussions and activities that occurred during the meeting. All presentation materials are available and can be downloaded through the FAA REDAC website.

Day 1 – March 14, 2018

Introduction/Opening

The SAS Chair, Ken Hylander, and the SAS Designated Federal Official (DFO), Eric Neiderman, jointly kicked off the meeting with brief opening remarks, which were followed by introduction of the Subcommittee and all attendees.

FAA Director of Research Overview

Shelley Yak, Director of the FAA William J. Hughes Technical Center, began by thanking the Subcommittee for reviewing the research portfolio. She then discussed the National Aviation Research Plan (NARP), which was being redesigned to be a goal-driven strategic overall plan for research.

SAS Chair Opening & Report on REDAC Meeting

Ken Hylander announced that he had taken a new position with Amtrak effective January 22, 2018. A search is underway for a new Chair/Member. The full REDAC meeting was held in October 2017. One of the main topics discussed at the meeting was the new FAA Cybersecurity plan, along with the need to take a broader system-wide look at industry to truly understand vulnerabilities. There was also a discussion regarding Unmanned Aviation Systems (UAS), and there was frustration expressed because an integration plan was not shared that would help to understand the big picture. REDAC members expressed the desire for the other subcommittees to reexamine strategic issues.

FY2021 Strategic Guidance & SAS Input

Mark Orr, Aerospace Engineer, presented strategic guidance for development of the 2021 Office of Aviation Safety (AVS) research portfolio. The strategic guidance identified some hazards, risks, and safety issues based on samples of data that drive AVS research needs. While the data covered a variety of operations, it is only a subset of extensive aviation safety data that affect the FAA, and specifically AVS. Following Mr. Orr's presentation, the Subcommittee discussed the strategic guidance.

SAS Emerging Issues Overview and Expectations

A discussion took place on emerging issues. It was noted that the Subcommittee can look out further and make a more compelling argument for emerging issues. There was also a discussion about how the strategic guidance related to Office of Management and Budget (OMB) guidance and inherently governmental activities.

OMB Memo M-17-30

Mark Orr provided information on OMB Memo M-17-30. Issued on August 17, 2017, the memo listed four priority areas (American Security, American Prosperity, American Energy Dominance, and American Health) and five Priority Practices (Increasing Government Accountability and Efficiency, Supporting Innovative Early-Stage Research, Maximizing Interagency Coordination, Developing a Future-Focused Workforce, and Modernizing and Managing Research Infrastructure).

Mark Orr discussed how to apply the guidance, including re-assessing FY19 & FY20 portfolios and further reviews with upper management. Additionally, he mentioned that the FY20 portfolio was subject to change.

Budget Update

Mike Gallivan, Manager of Research, Engineering and Development (RE&D) Financial Management, presented the FAA RE&D budgets. He indicated that the FAA did not have a finalized budget and was operating under a Continuing Resolution (CR) until March 23, 2018. The FY2018 RE&D budget request was \$150 million. The House Appropriation Committee (full committee) Introduced to House on July 21, 2017 a budget that funded RE&D at \$170M while the Senate Appropriation Committee (full committee) Introduced to Senate on July 27, 2017 a budget that funded RE&D at \$179M. An Omnibus funding bill was expected in March of 2018.

Further, Mr. Gallivan reported that the budget deal did establish an overall FY 2019 funding agreement of \$1.32Trillion, with Congressional Hearing and Reports this spring or summer. The House and Senate Marks may be available for the Summer REDAC meeting.

Looking past FY 2019, the FY 2020 target is \$74 million. The request will be delivered to Office of Secretary of Transportation (OST) in June 2018 with submission to OMB in mid-September. The President's budget request will be submitted to congress on February 4, 2019. Targets for out-years (subject to change) will be \$74 million each year for FY 2020 to FY 2024.

Discussion of Budget Impacts and Research Priorities

There was a discussion on the budget impact on the FY 2019 research priorities as well as on PC&B. It was noted that privatization of the ATO is off the table.

The M-17-22 Memo, dated April 12, 2017, on the Comprehensive Plan for Reforming the Federal Government and Reducing the Federal Civilian Workforce was also noted. The Memo aims to make government lean, accountable, and more efficient.

FY2020 Portfolio Review:

Mark Orr and Eric Neiderman led the discussions on the following subject areas:

- Fire Safety, Propulsion Systems, Structure Integrity of Composites, and Aircraft Icing
- Digital System Safety/Aircraft Systems Information Security Protection, Continued Airworthiness-Systems, Continued Airworthiness -Structures, and Catastrophic Failure Prevention
- Human Factors, System Safety Management, Terminal Area Safety, & Weather
- Aeromedical Research & Unmanned Aircraft Systems

Preparation for AVS Management Team Forum

The committee prepared for the AVS management team forum scheduled for Day 2.

First Day Review

The last agenda items for the first day of the meeting were a Subcommittee member caucus in preparation of the SAS meeting with the AVS Management Team the next day as well as a review of the

first day and homework assignments. The Subcommittee DFO and AVS R&D Manager participated in the caucus.

Topics included the strategy of emerging issues/presentation by Chief Scientific and Technical Advisors and the budget formulation for this, budget issues/balance property, and membership/leadership/succession planning.

Day 2 – March 15, 2018

Review Day-1 Homework and Feedback

Mr. Hylander started the meeting with a summary of the first day and reviewed homework assignments. Comments on commercial resources and in-house impacts were made. There was a general concern regarding loss of critical skills. The impact on economy and industry, the need to protect the human in the environment (e.g. oblique seats), global standards, autonomy and green aviation, cyber as well as other topics were discussed.

National Academy of Sciences Report on In-Time Aviation Safety Management

Ken Hylander and John Cavolowsky (NASA) gave a presentation on the National Academy of Sciences Report on In-Time Aviation Safety Management. NASA's Aeronautics Research Mission Directorate (ARMD) conducts research related to several of these topics, including aviation safety. For example, ARMD is conducting research to support development of a real-time safety assurance system for the NAS. Such a system would operate in real time or near real time to monitor the state of the NAS, identify unsafe risks as they arise, and then assist in mitigating those risks. Research by many organizations other than NASA is relevant to the development of a real-time safety assurance system. Accordingly, ARMD requested that the National Academies of Sciences, Engineering, and Medicine convene a committee to develop a national research agenda that would (1) identify key challenges to the development of a real-time safety assurance system for the NAS and (2) identify high-priority research projects that would overcome those challenges.

Validation of Analytical Models to Demonstrate Compliance

David Polland from Boeing Commercial Airplanes provided a presentation "Toward Increased Use of Predictive Technologies in Civil Certification." He discussed the current hardware-centric approach vs the future model-based-engineering-centric approach. Challenges for both approaches were discussed as well as the need for research and collaborative opportunities in this area.

Fatigue Management Workshop (SAS Fall 2017 Finding and Recommendation (F&R))

The Subcommittee discussed the 2017 SAS Finding on Fatigue Mitigation and follow-up research on Fatigue Risk Management System/Fatigue Risk Management Plan.

UAS Research Status (SAS Fall 2017 F&R)

The Subcommittee discussed the 2017 SAS finding on UAS Research and placing added emphasis on communicating research findings that can provide parallel benefits within the unmanned and manned aviation sectors.

Additive Manufacturing Research Activities & National

The FAA Chief Scientist and Technical Advisor (CSTA) for Fatigue and Damage Tolerance, Michael Gorelik and FAA Engineer Kevin Stonaker, jointly presented the FAA Additive Manufacturing (AM) program. They provided an overview, discussed AM certification challenges, FAA's research role and supporting members, long-term research plan overview, and details of the research task.

Electric Propulsion

Gary Horan (FAA) presented on the Path to Electric and Hybrid/Electric Engine Regulations. The current regulatory framework and how new technologies such as e-motors fit in was discussed. FAA industry committee involvement for standards includes: ASTM, GAMA, SAE, Propulsion and Power Systems Alliance, and more. E-motors and how they fit into current regulations were discussed.

AVS Senior Leadership Forum

FAA Associate Administrator of Aviation Safety Peggy Gilligan and members of AVS Management Team, participated in discussions with the Subcommittee.

GA Exploratory Study – PEGASAS COE

Bill Crossley from Purdue University facilitated a discussion on research that was conducted under a Partnership to Enhance General Aviation Safety, Accessibility, and Sustainability (PEGASAS) grant -- General Aviation 2030 - GA Exploratory Analysis. The purpose of the research was to document strategic general aviation research topics that, when addressed in the near term, could help the FAA and other GA stakeholders better prepare for issues that general aviation may face in 2030. The report documents the approach taken during and outcomes resulting from a benchmarking activity to search available literature and other discussions of the future of general aviation and from two workshops that engaged participants from industry and government to gather the view of the future of general aviation from these subject matter experts. The benchmarking exercise identified six major topical areas for GA in 2030: new energy, infrastructure, advanced design & manufacturing, automation, airspace management, and certification.

Based upon the commonality of topics across the benchmarking and workshops, along with the energy the participants in the workshops used to develop the themes, the project team summarizes that the four themes with the highest apparent priority are: airspace management, airport infrastructure, automation, and connectivity. The team recommends that all ten themes, perhaps with an emphasis on the four high-priority themes mentioned above, guide work to allow the development of a true general aviation research and development plan. While the workshop participants represented a broad spectrum of the general aviation community, input from additional sectors of GA would also ensure both that as many of the GA stakeholders as possible feel engaged in the research plan.

Closing Remarks

Subcommittee findings and recommendations were reviewed. The meeting ended at 5:00 PM with the Subcommittee Chair and DFO thanking all for organizing/participating in the meeting.

Appendix I
Meeting Agenda

Dress code: *Business Casual*

Location: General Aviation Manufacturers Association (GAMA)
1400 K Street NW, Suite 801
Washington, D.C., 20005

Telecon: Dial In Access: (USA Only) **888-924-3230** or **888-335-6670**
Dial In Access: (Direct Dial) **609-916-1975** or **405-225-2375**
Participant Passcode: **402773**
Instructions: Call the Dial-in Access number listed above.

When prompted, enter the Passcode followed by the # key to be connected.

WebEx: <https://aviationresearch.webex.com>

Meeting number: 990 777 977

Meeting password: march

Click [here or type/copy the following WebEx address to join the meeting directly:](#)

Site Info: See Page **Error! Bookmark not defined.** for Parking/transportation and lodging information

March 14, 2018 (Wednesday)		
Time	Topics	Presenter(s)
8:00 – 8:30	Arrival	
8:30 – 8:45	Introduction/Welcome/Opening Remarks	Eric Neiderman
8:45 – 9:00	FAA Director of Research Overview	Shelley Yak
9:00 – 9:15	SAS Chair Opening & Report on REDAC Meeting	Ken Hylander
9:15 – 9:30	FY2021 Strategic Guidance & SAS Input	Ken Hylander/Mark Orr
9:30 – 9:45	SAS Emerging Issues Overview and Expectations	Ken Hylander/SAS Members
9:45 – 10:00	OMB Memo M-17-30	Mike Gallivan/Eric Neiderman
10:00 – 10:15	Comfort Break	
10:15 – 11:00	FAA Budget Update	Mike Gallivan
11:00 – 12:00	Discussion of Budget Impacts and Research Priorities	Ken Hylander
12:00 – 1:00	Lunch	
1:00 – 1:30	FY2020 Portfolio Review: Fire, PS, SIC, & AI ¹	Mark Orr/Eric Neiderman
1:30 – 2:00	FY2020 Portfolio Review: SDS/ASISP, CASys, CAStr, & CAFP ²	Mark Orr/Eric Neiderman
2:00 – 2:30	FY2020 Portfolio Review: HF, SSM, TAS, & Wx ³	Mark Orr/Eric Neiderman
2:30 – 2:45	FY2020 Portfolio Review: AM, & UAS ⁴	Mark Orr/Eric Neiderman
2:45 – 3:00	Comfort Break	
3:00 – 4:30	Preparation for AVS Management Team Forum	Ken Hylander
4:30 – 5:00	First Day Review – Homework Assignments	Ken Hylander
6:00 - Group Dinner	Gordon Biersch 900 F St NW, Washington, DC 20004 gordonbiersch.com (202) 783-5454	

¹ Fire, PS, SIC, & AI: Fire Safety, Propulsion Systems, Structure Integrity – Composite, Aircraft Icing

² SDS/ASISP, CASys, CAStr, & CAFP: Digital System Safety/Aircraft Systems Information Security Protection, Continued Airworthiness – Systems, Continued Airworthiness – Structures, & Catastrophic Failure Prevention

³ HF, SSM, TAS & Wx: Human Factors, System Safety Management, Terminal Area Safety, & Weather

⁴ AM & UAS: Aeromedical Research & Unmanned Aircraft Systems

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March 15, 2018 (Thursday)		
Time	Topics	Presenter(s)
8:00 – 8:30	Arrival (Aviation Research Division Video)	
8:30 – 9:00	Review Day-1 homework, feedback, etc.	Ken Hylander/Eric Neiderman/Mark Orr
9:00 – 9:15	National Academy of Sciences Report on In-Time Aviation Safety Management	Ken Hylander/John Cavolowsky
9:15 – 9:30	Validation of Analytical Models to Demonstrate Compliance	David Polland
9:30 – 10:00	Comfort Break	
10:00 – 10:30	Fatigue Management Workshop (SAS Fall 2017 F&R)	Katrina Avers/Carla Hackworth
10:30 – 11:30	UAS Research Status (SAS Fall 2017 F&Rs)	Claude Jones/Nick Lento/Sabrina Saunders-Hodge
11:30 – 12:15	Additive Manufacturing Research Activities & National Plan	Michael Gorelik/Kevin Stonaker
12:15 – 1:15	Lunch	
1:15 – 2:00	Electric Propulsion	Gary Horan (FAA)
2:00 – 3:15	AVS Senior Leadership Forum	AVS Senior Managers
3:15 – 3:30	Comfort Break	
3:30 – 4:00	General Aviation Safety and Emerging Challenges – SAS/Industry Perspective in FAA Research Needs	Greg Bowles, GAMA
4:00 – 4:30	GA Exploratory Study – PEGASAS COE	Bill Crossley (Purdue University)
4:30 – 5:00	Closing remarks SAS F&R discussions and feedback	Ken Hylander/Eric Neiderman/Mark Orr
5:00	Adjourn	

Aircraft Safety Subcommittee Winter/Spring 2018

March 14, 2018

March 15, 2018

Name	Affiliation	Name	Affiliation
Jackie Simmons	FAA/AUS	Richard Mendell	FAA
Stacey Zinke-McKee	FAA/CAMI	John A. Catolowsky	NASA Aeronautics
Daniel Brock	FAA/Flight Std	Jimmy Bruno	FAA
Katrina Avers	FAA/AVS/CAMI	Don Kauffman	Honeywell
Bill Crossley	PEGASAS/PURDUE	Frank Wondolowski	FAA
David Polland	Boeing	Jim Schroeder	FAA
Chris Heck	ALPA	Ryan King	FAA
Ken Knopp	FAA	Bill Crossley	PEGASAS
Dres Zellweger	Consultant	Daniel Brock	FAA
Andrew Lacher	MITRE	Steve Ramdeen	FAA-AIR HQ
Jim Mangie	Delta Airline	Michelle Yeh	FAA
Don Kauffman	Honeywell	Stacey Zinke-McKee	FAA
Michel Hovan	FAA	Kevin Stonaker	FAA
Jim Schroeder	FAA	Mike Paglione	FAA
Maureen Molz	FAA	Mark S. Orr	FAA
Shelley Yak	FAA	Sabrina Saunders-Hodge	FAA/AUS
Mike Gallivan	FAA	Ken Hylander	FSF
Eric Neiderman	FAA	Eric Neiderman	FAA
Ken Hylander	Flight Safety Foundation	Bill Oehlschlager	FAA
Steve Ramdeen	FAA-AIR	John Crowley	US Army
James Bruno	FAA	Chris Kmetz	Pratt and Whitney
Frank Wondolowski	FAA	David Polland	Boeing
Michelle Yeh	FAA	Chris Heck	ALPA
Ryan King	FAA	Ken Knopp	FAA
Chinita Roundtree-Coleman	FAA	Dres Zellweger	Consultant
		Jim Mangie	Delta Air Lines
		Chinita Roundtree-Coleman	FAA