

FALL MEETING OF THE AERONAUTICS AND SPACE ENGINEERING BOARD 166th Meeting October 14th-16th, 2020 Virtual Meeting ALL TIMES IN US EASTERN DAYLIGHT TIME (UTC-4:00)

AGENDA

WEDNESDAY, OCTOBER 14, 2020

11:00 AM **Committee Meets in Executive Session**

11:25 AM **Executive Session Adjourns**

Livestream link: https://livestream.com/accounts/7036396/events/9341386

Focus on Aeronautics Technology

- 11:30 AM Welcome and Introductions
- 11:45 AM Update and Discussion with NASA Aeronautics **Research Mission Directorate (ARMD)** (40 minute presentation & 30 minute discussion period)
- 12:55 PM Break (35 minute break period)

1:30 PM **Mars Ingenuity Helicopter Project** (35 minute presentation & 20 minute discussion period)

2:25 PM Break (35 minute break period) Dr. Alan Epstein, ASEB Chair

Mr. Robert Pearce, Associate Administrator, ARMD, NASA

Ms. Mimi Aung, Project Lead, Mars Ingenuity, Mars2020, NASA-JPL

OPEN SESSION

3:00 PM	Panel 1: Quiet-Boom Supersonic Technology and Commercial Applications (10 minute presentations & 35 minute discussion period)			
	ISSUE: What are the technical challenges and regulatory requirements for the future implementation of commercial supersonic aircraft?			
	Moderator: Dr. Ilan Kroo, ASEB			
	Panelists:	Mr. Kevin Welsh, Executive Director, Office of Environment and Energy, FAA Mr. Peter Coen, Mission Manager, Low Boom Flight Demonstrator, NASA-LRC Dr. Alexandra Loubeau, Sonic Boom Community Testing Technical Lead, NASA-LRC Mr. Joe Salamone, Principal Acoustics Engineer, Boom Aerospace		
4:15 PM	Committee Adjourns to Exe	cutive Session		
4:45 PM	Committee Meets in Executive Session			
5:45 PM	Executive Session Adjourns			

* Details of October 14th Afternoon Panels

Panel 1: Quiet-Boom Supersonic Technology and Commercial Applications

Current FAA regulations prohibit civilian supersonic flights over land in the United States except for preauthorized tests of aircraft under development. However, the development of new civilian supersonic aircraft is well underway with the eventual goal of the return of supersonic passenger aircraft. However, unlike the previous Concorde produced by Aérospatiale and the British Aircraft Corporation, the goal of these new planes is routine supersonic flight across the country. In order to achieve this, new technology and design are centered on reducing the disruptive sonic boom. What technology is needed in order to make a commercial supersonic transport viable in today's aeronautics market? How much testing and development is required to convince regulators that overland supersonic aircraft will not be disruptive? How scalable is the technology used to develop these one-person test aircraft to a larger commercial transport?

THURSDAY, OCTOBER 15, 2020

OPEN SESSION				
Livestream lini	k: https://livestream.com/accounts/7036396/events/93413	<u>86</u>		
Focus on Space Technology				
11:00 AM	Reconvening Remarks	Dr. Alan Epstein, ASEB Chair		
11:05 AM	Update and Discussion with NASA Administrator (40 minute presentation & 30 minute discussion period)	Hon. Jim Bridenstine, Administrator, NASA		
12:15 PM	Break (25 minute break period)			
12:40 PM	Update and Discussion with NASA Space Technology Mission Directorate (STMD) (35 minute presentation & 20 minute discussion period)	Mr. Jim Reuter, Associate Administrator, STMD, NASA		
1:35 PM	Current and Future Operations and Challenges with International Space Station (ISS) (35 minute presentation & 20 minute discussion period)	Ms. Marybeth Edeen, Manager, ISS Research Integration Office, NASA		
2:30 PM	Break (30 minute break period)			
3:00 PM	Panel 2: Space-Based Quantum Sensors and Engineerin (10 minute presentations & 35 minute discussion period) ISSUE: What are the development challenges and the f space science and space engineering? Moderator: Panelists: Capt. George Some Dr. Babak Saif, Se Dr. Dat	uture applications of space-based quantum sensors for Gen. Ellen Pawlikowski, ASEB Member Dr. Mark Kasevich, Professor, Physics, Stanford U. decker, Defense Innovation Unit, Department of Defense cientist, Instrument and Technology Division, NASA-GSFC na Anderson, Professor, Physics, U of Colorado – Boulder		
4:15 PM	Committee Adjourns to Executive Session			

Executive Session Adjourns 5:45 PM

Committee Meets in Executive Session

4:45 PM

* Details of October 15th Afternoon Panels

Panel 2: Space-Based Quantum Sensors and Engineering

Quantum technologies, a branch of emerging technologies that relies on the principles of quantum mechanics to function, have the capacity to be game-changing advances in space based technology. Developments such as quantum sensors utilizing atom-wave interferometry can enable high precision measurement capabilities for space position, navigation, and timing. Quantum based communications could revolutionize data transfer technologies in both encryption and speed. This was identified as such a revolutionary technology that, in April 2020, the Pentagon's Defense Innovation Unit opened a solicitation for a prototype quantum sensor that would "achieve significant performance improvements for aerospace and other novel applications to include, but not limited to, inertial sensing, timing and gravimetry." What are some of the ongoing development efforts for these quantum-based technologies and what challenges do they face? What are the future applications for such technology in space engineering and development of future space platforms? How can the development of such technologies be facilitated by NASA and other federal agencies?

FRIDAY, OCTOBER 16, 2020

11:00 AM Committee Meets in Executive Session

1:45 PM Executive Session Adjourns

The following information is provided for any members of the general public who may be in attendance:

This meeting is being held to gather information to help the committee in its charge. This committee will examine the information and material obtained during this, and other public meetings, in an effort to inform its work. Although opinions may be stated and lively discussion may ensue, no conclusions are being drawn nor will recommendations be made. Observers who draw conclusions about the committee's work based on this meeting's discussions will be doing so prematurely.

Furthermore, individual committee members often engage in discussion and questioning for the specific purpose of probing an issue and sharpening an argument. The comments of any given committee member may not necessarily reflect the position he or she may actually hold on the subject under discussion, to say nothing of that person's future position as it may evolve in the course of the project. Any inference about an individual's position are therefore also premature.

NOTES FOR PRESENTERS

If your presentation contains unpublished data, ITAR controlled and/or other sensitive information, please be aware that the open sessions at the meeting may be recorded and/or webcast. Presentation materials given to the committee may be posted on a publicly accessible website. Please edit your presentations accordingly.

Mac users should assume that their presentation will be displayed via one of the NASEM's PCs. If your presentation is graphics heavy and best displayed via your own laptop, you should also bring a plain-vanilla pdf version of your presentation with you. The audience in the meeting room will see your presentation via your laptop and we will webcast the pdf file.

At some point a staff member will be asking you to sign a consent form allowing us to use your presentation, specifically to post it on our website.