163rd MEETING OF THE

AERONAUTICS AND SPACE ENGINEERING BOARD

Monday, June 8, 2020

Teleconference Meeting

ALL TIMES IN US EASTERN DAYLIGHT TIME (UTC-4:00)

This agenda is a draft, subject to change, and was last updated on 6/9/2020 6:17 PM

AGENDA

MONDAY, JUNE 8, 2020

11:00 AM	***Committee Meets in Executive Session***	
11:25 AM	*Executive Session Adjourns*	

OPEN SESSION

Livestream Access – ASEB Open Session
Link: https://livestream.com/accounts/7036396/events/9150540

11:30 AM	**Welcome and Introduction of Members and Attendees**	***Dr. Alan Epstein, ASEB Chair***
11:45 AM	**Update and Discussion with NASA Aeronautics Research Mission Directorate (ARMD)** (40 minute presentation & 30 minute discussion period)	***Mr. Robert Pearce, Associate Administrator, ARMD, NASA***
12:55 PM	*Break* (35 minute break period)	
1:30 PM	**Presentation of the Advanced Aerial Mobility Committee Report** (35 minute presentation & 20 minute discussion period)	***Mr. Nicholas Lappos, Chair, AAM Committee***
2:25 PM	*Break* (35 minute break period)	

Note: Zoom remote connection details for all sessions are available at the end of this agenda.

3:00 PM **Panel 1: Advanced Aerial Mobility (AAM) Ecosystem Update***

(5 minute presentations & 45 minute discussion period)

ISSUE: What is the overall approach to the Advanced Air Mobility National Campaign including elements of developmental testing? What are the requirements associated with each aircraft system and subsystem? What critical research and development, especially efforts led and/or encouraged by NASA, will facilitate AAM integration?

Moderator: ***Mr. Nicholas Lappos, ASEB Member***

Panelists: ***Dr. Eric Allison, Head of Elevate, Uber***

Mr. JoeBen Bevirt, Founder and CEO, Joby Aviation

Mrs. Starr Ginn, Chief Engineer, NASA-Dryden

Mr. Michael Hirschberg, Executive Director, Vertical Flight Society

Mr. Peter Shannon, Founder and Managing Director, Radius Capital

Mr. Basil Yap, Program Manager, Unmanned Aircraft Systems, North Carolina Division of Aviation

4:15 PM *Committee Adjourns to Closed Session*

4:45 PM ***Committee Meets in Executive Session***

5:45 PM *Executive Session Adjourns*

*** Panel 1: Advanced Aerial Mobility (AAM) Ecosystem Update**

Advanced Air Mobility (AAM), encompassing a wide variety of autonomous and pilot-supervised aircraft performing a variety of mission profiles, has the possibility to be a transformative technological development in the coming years. Adopting advanced air mobility and safely integrating it into the National Airspace System is a challenge that goes beyond technical hurdles; it requires reconsideration of how the National Airspace is managed and foundational decisions that will have an impact on how the public views and accepts this potentially disruptive technology. In March 2020, NASA announced the redevelopment of its previous "Grand Challenge", the Advanced Air Mobility National Campaign, meant to develop testing to "Address key safety and integration barriers across AAM vehicle and airspace systems, Emphasize critical operational challenges towards commercial viability and public confidence in AAM operations, and Identify requirements for AAM system development." What is the optimum overall approach to the Advanced Aerial Mobility National Campaign? What requirements are necessary in order to safely integrate these systems into the National Airspace? What critical technological milestones can NASA encourage development of through the use of this Campaign?

JOINT SPRING MEETING

AERONAUTICS AND SPACE ENGINEERING BOARD (163rd Meeting)
and SPACE STUDIES BOARD (178th Meeting)
Tuesday, June 9, 2020
Teleconference Meeting
ALL TIMES IN US EASTERN DAYLIGHT TIME (UTC-4:00)

AGENDA

TUESDAY, JUNE 9, 2020

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

12:05 PM *Executive Session Adjourns*

OPEN SESSION

Livestream Access – Joint Session Open Session
Link: https://livestream.com/accounts/7036396/events/9150540

12:10 PM **Introduction and Opening Remarks** ***Dr. Alan Epstein, ASEB Chair / Dr. Margy Kivelson, SSB Chair***

12:25 PM **Update from the National Space Council** ***Dr. Scott Pace, Executive Secretary, National Space Council***
(35 minute presentation & 20 minute discussion period)

1:20 PM **Keynote Talk – Hubble 30th Anniversary Tributes** ***Moderated by Dr. Colleen Hartman, ASEB/SSB Director***
(50 minute presentation & 20 minute discussion period)
Dr. Heidi Hammel, Vice President for Science, AURA
Dr. Wendy Freedman, Professor, U. of Chicago
Dr. Garth Illingworth, Professor, U. of California, Santa Cruz
Dr. Adam Riess, Professor, Johns Hopkins University
Dr. John Grunsfeld, President, Endless Frontier Associates

2:30 PM *Break*
(30 minute break period)

3:00 PM **Update and Discussion with NASA Human Exploration and Operations Mission Directorate (HEOMD)** ***Mr. Kenneth Bowersox, Acting Associate Administrator, HEOMD, NASA***
(40 minute presentation & 30 minute discussion period)

4:10 PM	**Update from Office of Science and Technology Policy** (40 minute presentation & 30 minute discussion period)	***Dr. Aaron Miles, Principal Deputy Asst. Secretary for National Security and International Affairs, OSTP***
5:20 PM	*Break* (30 minute break period)	
5:50 PM	**NASA Response to CoViD-19 Pandemic** (35 minute presentation & 20 minute discussion period)	***Mr. Steve Jurczyk, Associate Administrator, NASA***
6:45 PM	**Closing Remarks**	***Dr. Alan Epstein, ASEB Chair /*** ***Dr. Margy Kivelson, SSB Chair /*** ***Dr. Colleen Hartman, ASEB and SSB Director***
6:50 PM	*Open Session Adjourns*	

In Memory of Arnie Aldrich: Space Adventurer Extraordinaire
We will miss you.
Rest in Peace

178th MEETING OF THE

SPACE STUDIES BOARD

Wednesday, June 10, 2020

Teleconference Meeting

ALL TIMES IN US EASTERN DAYLIGHT TIME (UTC-4:00)

AGENDA

WEDNESDAY, JUNE 10, 2020

OPEN SESSION

Livestream Access – SSB Open Session Day 1
Link: https://livestream.com/accounts/7036396/events/9150540

11:40 AM	**Welcome and Introduction of Members and Attendees**	***Dr. Margy Kivelson, SSB Chair***
11:55 AM	**Update and Discussion with NASA Science Mission Directorate (SMD)** (40 minute presentation & 30 minute discussion period)	***Dr. Thomas Zurbuchen, Associate Administrator, SMD, NASA***
1:05 PM	*Break* (30 minute break period)	
1:35 PM	**Update from Mars 2020 Perseverance Mission** (35 minute presentation & 20 minute discussion period)	***Dr. Adam Steltzner, Project Chief Engineer, Mars 2020***
2:30 PM	*Break* (30 minute break period)	
3:00 PM	**Update from the Committee on Astronomy & Astrophysics** (10 minute presentation & 5 minute discussion)	***Dr. Thomas Greene* / Dr. Vicky Kalogera, CAA Co-Chairs***
3:15 PM	**Update from the Committee on Solar and Space Physics & Astrophysics** (10 minute presentation & 5 minute discussion)	***Dr. Sarah Gibson / Dr. Maura Hagan, CSSP Co-Chairs***
3:30 PM	**Update from the Committee on Earth Science and Applications from Space** (10 minute presentation & 5 minute discussion)	***Dr. Chelle Gentemann / Dr. Steven Running, CESAS Co-Chairs***

**speaker*

3:45 PM	**Update from the Committee on Astrobiology and Planetary Science** (10 minute presentation & 5 minute discussion)	***Dr. Christopher House / Dr. William McKinnon, CAPS Co-Chairs***
4:00 PM	**Update from the Committee on Biological and Physical Sciences in Space** (10 minute presentation & 5 minute discussion)	***Dr. Robert Ferl / Dr. Dava Newman, CBPSS Co-chairs***
4:15 PM	*Committee Adjourns to Closed Session*	
4:45 PM	***Committee Meets in Executive Session***	
5:45 PM	*Executive Session Adjourns*	

THURSDAY, JUNE 11, 2020

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

12:55 PM *Executive Session Adjourns*

OPEN SESSION

Livestream Access – SSB Open Session Day 2
Link: https://livestream.com/accounts/7036396/events/9150540

1:00 PM **Opening Remarks** ***Dr. Margy Kivelson, SSB Chair***

1:05 PM **European Space Science Committee Update** ***Dr. Athena Coustenis, Chair,***
(35 minute presentation & 20 minute discussion) ***European Space Science Foundation-ESSC***

2:00 PM **Update from National Science Foundation** ***Dr. Fleming Crim, Chief Operating Officer, NSF***
(35 minute presentation & 20 minute discussion period)

2:55 PM *Break*
(30 minute break)

3:25 PM **Panel 2: Consideration of Satellite Constellations ***
(5 minute presentations & 45 minute discussion period)
ISSUE: Satellite constellations for internet and other high-bandwidth communications are being deployed rapidly, and they will likely interfere with astronomical observations at optical, IR, and radio wavelengths. What are the possibilities and the drawbacks of the increased use of satellite constellations for both space science and commercial purposes? Are there ways to mitigate loss of scientific capability and improve the science output of such systems while maintaining their commercial viability?
Moderator: ***Dr. Mary Lynne Dittmar, SSB Member***
Panelists: ***Dr. Constance Walker, Chair, Executive Committee WG on Dark and Quiet Sky Protection, IAU***
Mr. Tom Stroup, President, Satellite Industry Association
Dr. Tony Tyson, Distinguished Professor of Physics, Univ. of California, Irvine
Dr. Joel Parriott, Deputy Executive Officer, AAS
Ms. Patricia Cooper, Vice President of Satellite Government Affairs, SpaceX
Mr. Jeffrey Braxton, US Space Command, Department of Defense
Ms. Nathalie Ricard, Program Officer, Space Applications Office, UN Office of Outer Space Affairs

4:40 PM *Committee Adjourns to Closed Session*

5:10 PM ***Committee Meets in Executive Session***

6:00 PM *Executive Session Adjourns*

*** Panel 2: Satellite Constellations Effect on Space Science Capabilities**

Satellite constellations represent both an opportunity for unique measurement capabilities and a challenge to ground-based space observations. In the near future, private companies plan to launch thousands of these satellites for a variety of uses, including scientific observations and communications capabilities. However, unchecked expansion of satellite capabilities may threaten ground-based radio and optical observations of space as well create an increase collision hazard from space debris for future space missions. Balancing the benefits of expanded satellite coverage, both in communications and scientific capacity, with its potential drawbacks, requires agreements between private satellite corporations, scientists, and the US government. What are the possibilities and the drawbacks of the increased use of satellite constellations for both space science and commercial purposes? How can all parties ensure that we neither lose the positive capabilities granted by satellite constellations nor adversely impact ground-based science?

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