FALL MEETING OF THE AERONAUTICS AND SPACE ENGINEERING BOARD
162nd Meeting
October 10th-12th, 2018
Beckman Center — Huntington Room
100 Academy Way, Irvine, CA

DAY 1 – OCTOBER 10TH

OPEN SESSION	
Zoom Remote Access Information - Day 1 Open	*Phone: (646) 558-8656 or (669) 900-6833*
Link: https://nasem.zoom.us/j/817006096	*Meeting ID: 817-006-096*

Focus on Aeronautics Technology

9:15 AM	**Welcome and Introductions**	***Alan Epstein, ASEB Chair***
9:30 AM	**ARMD Program and Budget Update** (30 minute presentation & 20 minute discussion)	***Robert Pearce, NASA***
10:15 AM	**Update from NASA Armstrong Flight Research Center** (20 minute presentation & 10 minute discussion)	***Patrick Stoliker, NASA AFRC Deputy Director***
10:45 AM	**Update from NASEM Air Force Studies Board** (20 minute presentation & 10 minute discussion)	***Ellen Chou, AFSB Staff (via Zoom)***
11:15 AM	**Break**	
11:30 AM	**Update from DARPA/TTO** (20 minute presentation & 10 minute discussion)	***Fred Kennedy, Director (via Zoom)***
12:00 PM	***Working Lunch in the Beckman Dining Room (informal discussions continue over lunch)***	

Focus on Civil Aviation Part 1

1:00 PM	**Keynote Speaker**	***Richard Aboulafia, Teal Group***
	Maintaining US Leadership in Civil Aviation (2 Panels)* **See next page for more information on these panels*	
2:00 PM	**Panel I: Innovation and Technology Opportunities** (5 minute panel presentations followed by discussion - Staff: Dwayne Day)	
	Moderator:	***Ilan Kroo, Stanford***
	Panelists:	***Eric Ducharme, Vice President, Advanced Tech, GE Aviation***
		Mike Sinnett, Vice President, Product Strategy and Future Airplane Development, Boeing Commercial Airplanes
		John Tylko, CIO, Aurora Flight Sciences
		Klaus Tritschler, KT-DESIGN
3:40 PM	***BREAK***	

4:00 PM	**Panel 2: Aeronautical Business Disruption** (5 minute panel presentations followed by discussion - Staff: Alan Angleman with Sarah Brothers)	
	Moderator	***Mark Lewis, ASEB Member***
	Panelists	***Parimal Kopardekar, Director, Aeronautics Res. Institute, ARC***
		Myles Walton, UBS
		David Silver, VP, AIA
		Kevin Michaels, Aerodynamic Advisory
		Christopher Grames, Director, Airplane Product Strategy, Boeing
5:10 PM	**Observations and Closing Discussion**	***All***
Reception and Dinner - All Members, Speakers, and Guests are invited to attend (please RSVP in advance)		
5:30 PM	***Reception – Beckman Center Patio***	
6:00 PM	***Working Dinner – Beckman Center Dining Room (adjourn after)***	**Dinner Speaker: Paul Wooster, SpaceX**

*** Details of October 10th Afternoon Panels**

Maintaining US Leadership in Civil Aviation

Introduction: For many decades, the United States has been the dominant force in civil aviation. It has been at the forefront of technology, its products have been leaders, and its regulatory standards have set benchmarks. One result of this dominance is that aerospace products are the largest manufactured export of the United States. However, dominance may no longer be an appropriate term as other nation-states invest in industrial capacity, technology, and education to capture this strategically and economically important industry. At the same time a host of new technologies are arising that have the potential to energize or to disrupt aerospace markets and equilibriums. The two panels today will explore these opportunities and challenges.

Panel 1: Innovation and Technology Opportunities

Aeronautics is an unusual business—innovative but highly regulated, incorporating high technology but with product cycles in decades—dominated by a few, very sophisticated national champions. New technologies present the opportunity to open new markets, vitalize current ones, and challenge industry structure. Examples include innovate transport design concepts, new propulsion technologies, automation and AI, and new manufacturing technologies. Together these offer new possibilities such as urban air mobility, high speed civil flight, dramatic noise reduction, new economy of air transportation. This panel explores how innovation and new technologies may change aerospace. It will also address (1) what the United States must do to capitalize on these opportunities rather than leave them to other nations, and (2) whether new modalities of industry-government-university interactions and investment are needed.

Panel 2: Aeronautical Business Disruption

These are boom times for civil aviation. Decades of steady growth show few signs of slowing down, much less turning down. Orderbooks are bursting, with today's challenge one of how do we make all this stuff? Is this a bubble? Will changes disrupt a market that is now the United States' largest manufacturing export? Disruptive factors might include: the rise of new nation-state actors and nationalistic, economic, or policy upheavals, climate change concerns and impacts, other environmental factors, changes in the financial community, terrorism or epidemics, and the rise of new technologies. Will business as usual continue or are big changes in the offing? Are there policies and/or U.S. investments that can help preserve a robust civil aviation future for the United States?

DAY 2 – OCTOBER 11TH

OPEN SESSION

Zoom Remote Access Information - Day 2 Open *Phone: (646) 558-8656 or (669) 900-6833*
Link: https://nasem.zoom.us/j/359921815 *Meeting ID: 359-921-815*

Focus on Human Exploration

9:30 AM	**Welcome and Introductions**	***Alan Epstein, Chair***
9:45 AM	**HEOMD Program and Budget Update** (30 minute presentation & 15 minute discussion)	***Toni Mumford, Acting Deputy Associate Administrator for Policy and Plans and Director, Resources Management Office, HEOMD, NASA (via Zoom)***
10:30 AM	**Update on Gateway** (30 minute presentation & 15 minute discussion)	***Julie Robinson, HEOMD, NASA***
11:15 AM	**Report from CBPSS Standing Committee** (30 minute presentation & 15 minute discussion)	***Betsy Cantwell, CBPSS Co-Chair and ASEB Vice Chair***
12:30 PM	***Working Lunch in the Beckman Dining Room (informal discussions continue over lunch)***	

Focus on Space Technology

1:30 PM	**STMD Program and Budget Update** (30 minute presentation & 15 minute discussion)	***Jim Reuter, AA of STMD, NASA (via Zoom)***
2:15 PM	**Update from Office of the Chief Technologist, NASA HQ & JPL** (40 minute presentation & 20 minute discussion)	***Doug Terrier, NASA Chief Technologist*** ***Fred Hadaegh, JPL Chief Technologist***

Focus on Civil Aviation Part 2

3:15 PM	**Panel on Technical Challenges from Regulatory Constraints (e.g., "Detect and Avoid")** **ISSUE: What are the technical challenges stemming from regulatory barriers to the introduction of new aviation technologies, systems, and procedures?** (10 minute panel presentations followed by 30 minute discussion - Staff: Alan Angleman)	
	Moderator	***Brian Argrow, ASEB Member***
	Panelists	***Paul McDuffee, Boeing/HorizonX*** ***John Hansman (via Zoom)*** ***Sean Cassidy, Amazon Prime Air*** ***Taylor Martin, FAA***
4:15 PM	***END OF OPEN PORTION OF THE MEETING***	