

The National Academies of
SCIENCES • ENGINEERING • MEDICINE

DIVISION ON ENGINEERING AND PHYSICAL SCIENCES
SPACE STUDIES BOARD

Committee on Earth Science and Applications from Space

Fall Meeting: December 17-18, 2019

NAS Building, Room 250 (Day 1) / Board Room (Day 2)

2101 Constitution Ave NW, Washington, DC 20418

DAY 1 – DECEMBER 17, 2019; NAS Building, Room 250

9:00 AM ***Closed Committee Discussions: Committee Members and Staff Only***

OPEN SESSION

Zoom Remote Access Information - Day 1 Open

Phone: US: +1 646 558 8656 or +1 669 900 6833

Link: <https://nasem.zoom.us/j/300314679>

Meeting ID: 300-314-679

Unmanned Aerial Vehicles in Earth Sciences – Current and Future Capabilities

10:00 AM **Perspectives from NASA**
(30 minute presentation & 30 minute discussion period)
***Mr. Bruce Tagg, Program Director
ASP, Earth Science Division, NASA
Dr. Jack Kaye, Associate Director for Research,
Earth Science Division, NASA
Dr. Paul Newman, Chief Scientist, Earth
Science Division, NASA-GFSC
Mr. Matt Fladeland, Manager, ASP Office,
NASA-Ames***

11:00 AM **Panel 1: The Future of UAS, HAPS, and Airships for Earth Science Research**
(5-10 minute panel presentations followed by 30 minute discussion)
**ISSUE: What possibilities for Earth Science Research are enabled in the near future by
unmanned aircraft systems, high-altitude pseudo-satellites, and airships?**
Panelists: ***Dr. Malcolm Davidson, Head of Earth Observation Campaigns, ESA¹
Mr. Fabian Kluessendorf, System Engineer, Airbus North America
Ms. Elodie Koby and Mr. Michel Masselin,
Marketing Manager and VP of Sales, Thales Alenia Space¹
Dr. John Langford, CEO, Aurora Flight Sciences
Dr. Pam Millar, Director, NASA Earth Science Technology Office (ESTO)***

12:15 PM ***Working Lunch Available (informal discussions continue over lunch)***

1:00 PM **Keynote Talk**
(20 minute presentation & 10 minute discussion) ***Dr. Randy Friedl, Manager, Earth
System Science Formulation Office, NASA-JPL***

1:30 PM **Perspectives from the US Geological Service and
the Forest Service**
(30 minute presentation & 15 minute discussion) ***Dr. Bruce Quirk, Scientist,
UAS Program, USGS
Mr. Everett Hinkley, Remote Sensing
Program Manager, US Forest Service***

¹Attendance Via Zoom

2:15 PM	Perspectives from the Department of Energy (20 minute presentation & 10 minute discussion)	Dr. Sally McFarlane, Program Manager ARM User Facility, Dept. of Energy
2:45 PM	Perspectives from NOAA (30 minute presentation & 15 minute discussion)	Mr. Charles Alexander, Division Chief / Special Advisor, NOAA
3:30 PM	Break	

Current Applications of Unmanned Aircraft Systems in Earth Science

3:45 PM	UAS Research at the Alaska Center for Unmanned Aircraft Systems Integration and Integrating UAS in the National Airspace (20 minute presentation & 10 minute discussion)	Dr. Catherine Cahill, Director, ACUASI
4:15 PM	UAS Weather and Climate Research in Polar Regions (20 minute presentation & 10 minute discussion)	Dr. Gijs De Boer, Research Scientist, U. of Colorado, Boulder
4:45 PM	Roundtable Discussions and Topic Close	Led by Dr. Chelle Gentemann / Dr. Steve Running, CESAS Co-Chairs
5:30 PM	Closed Committee Discussions: Committee Members and Staff Only	
8:00 PM	Meeting Adjourns for the Day	

DAY 2 – DECEMBER 18, 2019; NAS Building, Board Room

8:30 AM **Closed Committee Discussions: Committee Members and Staff Only**

OPEN SESSION

Zoom Remote Access Information - Day 2 Open

Link: <https://nasem.zoom.us/j/300314679>

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Meeting ID: 300-314-679

9:00 AM	Update from NOAA (45 minute presentation & 15 minute discussion)	Dr. Steve Volz, Asst. Administrator for Satellite and Information Services, NOAA
10:00 AM	Update from the NASA Earth Exchange (30 minute presentation & 15 minute discussion)	Dr. Ramakrishna Nemani, Senior Earth Scientist, NASA-Ames
10:45 AM	Open Session Adjourns	
11:00 AM	Closed Committee Discussions: Committee Members and Staff Only	

OPEN SESSION

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1:00 PM	NASA Earth Science Division Update (60 minute presentation & 30 minute discussion)	Ms. Sandra Cauffman, Acting Division Director, Earth Science Division, NASA
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¹ Attendance Via Zoom

2:30 PM **Open Session Adjourns; Closed Committee Discussions: Committee Members and Staff Only**
3:30 PM **Meeting 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.

RECORDING OF THE MEETING

This meeting will be recorded on Zoom by the National Academies of Sciences, Engineering, and Medicine ("The Academies"). Please be aware that by attending the meeting, you consent to your voice being recorded for use by The Academies for the purpose of note-taking. This recording will not be publicly released, shared outside of The Academies, or used for other public purposes.

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.

ADDITIONAL LOGISTIC INFORMATION

NAS Building: Is located at 2101 Constitution Ave., NW, between the State Department and the Vietnam Veterans Memorial. The building may be accessed via entrances on Constitution Ave. or C Street (directly across the street from the State Department). Additional information about the NAS Building is available at <http://www.nas.edu/about/contact/index.html>.

Wi-Fi Connection: To connect to the Wi-Fi choose "Visitor Network" then open up a browser and click "Accept terms and conditions." You will then be connected to the internet.

Metro: The closest Metro station (10 minutes walk) is Foggy Bottom (on the Blue, Orange and Silver lines; exit and turn right onto 23rd St., then turn left onto C St. once you have passed the State Department). Information about the D.C. Metro can be found at <http://www.wmata.com/>.

Parking: Very limited parking is available onsite at the NAS building. The 22 available parking spaces are available on the east side of the NAS building (access from 21st St.) first come first served. Other available parking options are as follows:

- PMI (Columbia Plaza)—2400 Virginia Avenue NW. Phone (202) 785-2448. The daily rate is \$24.
- PMI—111 19th Street NW. Phone (202) 466-7557. The daily rate is \$16.
- Colonial Parking—2100 Pennsylvania Avenue NW. Phone (202) 295-8100. The daily rate is \$17.00.
- GW Elliot School Garage is located near the Department of Interior at 1957 E Street NW. The daily rate is \$26.00.

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