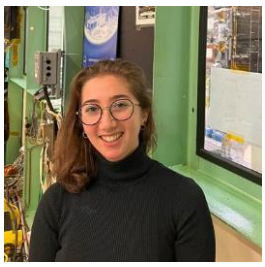
Forest SAT 2026

Association for Forest Spatial Analysis Technologies

May 4-8, 2026 | Gainesville, Florida, USA

Title: NASA's new PACE mission: introduction to PACE's hyperspectral, near daily observations of the world's forest ecosystems

Instructors/Affiliation:



- Morgaine McKibben, NASA Goddard Space Flight Center/SSAI
- Emil Cherrington, NASA Marshall Space Flight Center / UAH
- Skye Caplan, NASA Goddard Space Flight Center/SSAI
- Fred Huemmrich, University of Maryland, Baltimore County/NASA GSFC

Description: Launched in February 2024, NASA's new Plankton Aerosol Cloud Ocean Ecosystem (PACE) observatory uniquely provides global, hyperspectral (5 nm resolution, from UV-VIS-NIR) coverage of Earth's surface, plus hyperspectral and hyper angular polarimetry. PACE delivers all new, space-based information on the health and diversity of aquatic and terrestrial life (algae, plants), aerosol properties (smoke, dust), cloud types, and more. Hyperspectral data products are moderate spatial resolution (1.2km^2), enabling a relatively high time frequency of 1-2 days. This combination of coverage and capabilities is unmatched by any other satellite platform, public or private.

In this workshop, NASA-affiliated experts in PACE terrestrial science and applications will connect forestry end users with PACE's new land data products through informative presentations and hands-on lessons. PACE is continuing several heritage terrestrial indexes, such as Normalized Difference Vegetation Index (NDVI), as well as providing new, hyperspectral-based, terrestrial data products with novel opportunity for forestry monitoring and management from space. New capabilities and insights being discovered with PACE, as well as best practices and case study scientific examples to aid in applying and interpreting the data, will be presented.

Learning Objectives: Introduce attendees to the PACE mission and its available land data products; provide hands-on, interactive data acquisition and visualization experience in different platforms.

Target audience: Researchers, applied scientists, policy makers, state/government agencies and other satellite remote sensing data end users that utilize remote sensing data in their work and are interested in how PACE's near-daily, hyperspectral capabilities may compliment their work.

Format & Activities: Presentation on PACE mission & terrestrial data products; GEE presentation and demo, working with PACE spectral land data; Jupyter Notebook presentation and demo/tutorial on accessing and visualizing PACE land data with Python. Attendees will have open access to all code and data after the workshop for working on their own.

Expected outcomes:

- Learn about NASA's new PACE satellite mission, with an emphasis on available terrestrial data products & how they are unique.
- Scientific insights from utilizing PACE's spectral surface reflectance (SFREFL) and land vegetation indices (LANDVI) terrestrial data product suites that demonstrate their unique capabilities.
- Examples of utilizing SFREFL and LANDVI products for applications critically important to ecologists and land managers: monitoring terrestrial ecosystem traits, identifying land cover types, and calculating vegetation productivity.
- Understand best practices to use PACE land data.
- Obtain hands-on, interactive lessons on data access, visualization, and analysis using popular platforms/software. All code and data are open source.
- Leave the workshop with resources necessary to get to work with PACE data on their own projects.

Language: English

Requirements:

- Field of study: All remote sensing of terrestrial ecosystems, including vegetation biology & productivity, land use/land cover, etc. Attendees can be foundational researchers, applied researchers, etc., or anyone who utilizes terrestrial remote sensing data products for their work and is interested in learning about what the PACE mission offers.

- Level: Moderate to expert levels of remote sensing and some coding background preferred.
- Equipment: NASA Earth data account to access the PACE data. Google Earth Engine account if interested in following the GEE lecture (free account for researchers). Need a computer log into the online workshop.

Schedule: February 5, 2026, 9:00 AM – 2:00 PM (EST)

Duration: 4 hours.

Instructor Biography:

- Morgaine McKibben, morgaine.mckibben@nasa.gov, NASA Goddard Space Flight Center/SSAI. Dr. McKibben has a research background in satellite remote sensing of coastal regions and is currently Applications Program Lead & Senior Research Scientist with the NASA PACE mission. As Applications Lead her goal is to accelerate translation of PACE's unprecedented data into on-the-ground action for decision makers, forestry/land managers, and other applied end users. She has expertise in the PACE mission and applications of PACE data across aquatic, atmospheric, and terrestrial domains.
- Emil Cherrington, emil.cherrington@nasa.gov, NASA Marshall Space Flight Center / UAH. Dr. Cherrington has a background in remote sensing of forests and is a PACE Mission Early Adopter. He is a Principal Research Scientist at the University of Alabama in Huntsville's Earth System Science Center. He supports the SERVIR Science Coordination Office at the NASA Marshall Space Flight Center as SERVIR's Ecosystem & Carbon Management Thematic Lead. Dr. Cherrington is also a Google Developer Expert for Google Earth Engine.
- Skye Caplan, skyelar.caplan@nasa.gov, NASA Goddard Space Flight Center/SSAI. Ms. Caplan is a Scientific Analyst for NASA's PACE team, within the PACE Applications Program. She is the PACE mission's Land Lead, in charge of creating and implementing the algorithm code behind PACE's land data products. Ms. Caplan has a diverse background with a bachelor's degree in geology and astronomy and a masters in remote sensing and biological science. She has extensive expertise working with remote sensing data in both GIS and Python environments.
- Fred Huemmrich, University of Maryland, Baltimore County/NASA GSFC. Dr Huemmrich is a research professor, and his research focuses on using remote sensing to describe biophysical characteristics of terrestrial ecosystems and utilizing that information to improve understanding and modeling of ecosystem processes. He has performed fieldwork in a variety of different ecosystems,

including working on NASA field studies in grasslands, boreal forests, and arctic tundra. He is a current member of the competed PACE Science and Applications Team and has worked extensively on research with PACE's new terrestrial remote sensing data products.

Agenda

Eastern Time (ET)	**Topic**	**Instructor**
9:00 - 10:30	Lecture: PACE Mission, Applications, and Land Data Products	Morgaine McKibben
10:30 - 11:00	Lecture: PACE Terrestrial Products – a New View of Ecosystem Traits, Land Cover, and Productivity	Fred Huemmrich
11:00 - 11:40	Hands On, Interactive Jupyter Notebook Tutorial in Python: PACE Terrestrial Data Access & Visualization, and Analysis	Skye Caplan
11:40 - 12:40	Break	-
12:40 - 13:00	Demonstration: Using PACE OCI land data in desktop GIS	Skye Caplan
13:00 - 13:40	Development of a Cloud-based Toolkit for PACE OCI Land Data	Emil Cherrington
13:40 - 14:00	Workshop wrap up and final questions/answers.	All speakers