

NASA Biosphere Poster Session Agenda

Biosphere Science Sphere Meeting

The Hotel at UMD, College Park, MD

July 7-10, 2026

MEETING REGISTRATION & INFORMATION

Wednesday July 8th

3:00 PM

Poster Session

Diurnal Dynamics of CyanoHABs in Large Inland Lakes Using GOES-ABI
Geostationary Data

Abhishek Kumar/University of Georgia

Remote Sensing for Biodiversity: Insights from the BioSCape Campaign

Adam Wilson/State University of New York, Buffalo

Reconstructing Cloud-Contaminated Pixels in Harmonized Landsat–Sentinel
Imagery with the Prithvi-EO-2.0 Geospatial Foundation Model and GeoNEX
Data

Africa Flores-Anderson/NASA Marshall Space Flight Center

Location-Specific Explanations of Species Occurrences

Akash Anand/University of Wisconsin-Madison

Linking urban growth trajectories to decadal surface urban heat island change in
four Indian cities

Anamika Shreevastava/New York University

Assessing Numerical Weather Model Sensitivity to Multi-Scale Surface Parameters Across Urban Land Cover and Land Use Configurations
Andrea Gaughan and Forrest Stevens/University of Louisville

Overview and Update of the Adaptation and Response in Drylands (ARID) Field Experiment
Andrew Feldman/NASA Goddard Space Flight Center

RangeSTAR: A Hybrid Model for High-Resolution Monitoring of Rangeland Soil Carbon Dynamics
Andrew Mullen/Woodwell Climate Research Center

Limited ecosystem carbon gains from tree plantations across semi-arid open natural ecosystems
Anisha Jayadevan/University of Maryland Baltimore County

Assessing The Local And Regional Impact Of The Palau Aquaculture Suitability Tool
Anne Holland and Brooks Mitchell/Space Science Institute

Leveraging NASA's multi-sensor observing system to resolve the dynamical 'inner workings' of the land biosphere
Anthony Bloom/NASA Jet Propulsion Laboratory

A Cloud-based Data Science Open Platform for the Ross Sea Marine Protected Area Research and Management Decisions
Jack Pan and Alex Orona/Ocean Motion Technologies, Inc.

Methane ALERT: Africa Land Emissions Reporting & Tracking
Ben Poulter/Spark Climate Solutions

Model selection approaches for pan-Arctic carbon budget assessments
Bethany Sutherland/Woodwell Climate Research Center

Beyond high-latitude carbon budgets: leveraging top-down and bottom-up approaches to constrain CO₂ and CH₄ fluxes

Jennifer Watts/Woodwell Climate Research Center

Investigating regime shifts in Atlantic Sargassum

Brian Barnes/University of South Florida

Evaluating gross primary production (GPP) trends due to changes in greenness from the satellite data-driven FluxSat product

Brian Bennett/University of Maryland

Imaging spectroscopy reveals species-specific spectral signatures of canopy flowering phenology in California shrublands and oak woodlands

Brooke Rose/San Diego State University

Conservation Decisions With Green, Open Source Agents

Carl Boettiger/University of California, Berkeley

CMS4D: A multi-scale data-fusion prototype system for the next generation of carbon dynamics monitoring from space: a case study in the Brazilian Cerrado – fire and fuel in a biodiversity hotspot

Carlos Alberto Silva/University of Florida

Soaring Across Scales: The key role of wind in shaping the flight of Atlantic pelagic seabirds

Caroline Ummenhofer and Francesco Ventura/Woods Hole Oceanographic Institution

Mega impacts of megaherbivores: unraveling the role of rhino restoration in savanna-fire dynamics

Celeste Mare, Andrew Abraham, Jessica Rothman/Hunter College of CUNY

Climate-event Framework for Analysis of Macro-Environmental Systems (C-FrAMES)

Charles Vorosmarty and Nicolas Maxfield/CUNY Advanced Science Research Center

Dynamic Earth Observation-derived Urban Representation for Improved Urban Climate Modeling

Chengbin Deng/University of Oklahoma

Light-driven Acclimation Sustains Amazon Dry-season Photosynthesis

Chi Chen/Rutgers University - New Brunswick

Enhancing Ground-to-Space Monitoring of Cyanobacterial Harmful Algal Blooms for US Freshwaters

Chintan Maniyar/University of Georgia

Why VSWIR-PLANTS Archives Radiance: Evidence from an Atmospheric Correction Experiment

Christiana Ade/University of California, Los Angeles/NASA Jet Propulsion Laboratory

Making Geospatial Data Easier to Access: NASA Earthdata's Application for Extracting and Exploring Analysis Ready Samples

Cole Krehbiel/United States Geological Survey EROS/NASA LP DAAC

VSWIR-PLANTS Database for Community and Mission Algorithm Development

Dana Chadwick/NASA Jet Propulsion Laboratory

Coastal Land Change Under Sea Level Rise

Daniel Donahoe/Virginia Polytechnic Institute and State University

From Plots to Pixels to Policy: A Forest Carbon MRV Prototype Linking Inventory, LiDAR, and Carbon Models in Maine's Working Forests

Daniel Hayes/University of Maine

Ocean modeling to inform marine carbon dioxide removal

Daniel Whitt/NASA Ames Research Center

Enhanced biodiversity monitoring in the Northern California Current: aligning timeseries across scales, sensors, and trophic levels from physics to plankton to whales

Dawn Barlow/Oregon State University

Continuing Impacts of Ocean Observing Data for Protected Species Modeling and Management

Debbie Brill/Duke University

Integrated LiDAR and SAR Methods for the Detection and Monitoring of Vernal Pools

Dorthea Vander Bilt/Michigan Technological University

Mapping Dominant Plant Species in Grassland Communities across Mongolia Using 10-m Satellite Data and AlphaEarth Foundations

Elbegjargal Nasanbat/University of Wisconsin-Madison

250+ Datasets and Growing: Making NASA's ABoVE Arctic Research Archive Accessible to All

Elizabeth Hoy/NASA Goddard Space Flight Center/GST, LLC

BiomeE: A demographic vegetation model scaling individuals to global ecosystems

Ensheng Weng/Columbia University/NASA GISS

A discerned hierarchy of environmental conditions driving wetland carbon assimilation using multi-sensor remote sensing

Eric Romero/University of California, Berkeley

An Alkalinity and Inorganic Blue Carbon Monitoring System

Eric Ward/University of Maryland/NASA Goddard Space Flight Center

Remote sensing of intraspecific genetic variation in quaking aspen

Erin Carroll/University of California, Berkeley

Simultaneous modelling of water leaving reflectance and sun and sky glint contributions from imaging spectroscopy measurements

Evan Greenberg/NASA Jet Propulsion Laboratory

Quantifying the elusive, small-scale tree mortality events that dominate tropical forest carbon cycling

Evan Gora/Cary Institute of Ecosystem Studies

Integrating Imaging Spectroscopy and Avian Functional Diversity for Biodiversity Monitoring

Festus Adegbola/State University of New York, Buffalo

PACE Terrestrial Products – Global and Seasonal Functional Trait Maps

Fred Huemmrich/University of Maryland Baltimore County

Scaling the Structure, Composition, and Function of Terrestrial Ecosystem Biodiversity

Gabriela Shirkey/Chapman University

Institutional Changes, Novel Programs, and Regional Conflict: Recent Agricultural Land Cover Dynamics in Romania

Geoffrey Henebry/Michigan State University

Multi-scale Modeling for Terrestrial Ecosystem Dynamics

George Hurtt/University of Maryland

Cropland dynamics in the Brazilian Cerrado

Gillian Galford and Stephanie Spera/University of Vermont

Integration of multi-frequency signals of opportunity (SoOp) reflectometry with polarimetric GNSS-R for biomass and root-zone soil moisture retrieval

James Garrison/Purdue University

New estimates of aboveground biomass density from GEDI's V003 processing improvements

Jamie Bruening/University of Maryland

A new ground-based remote sensing network of CO₂ and CH₄ in the US
*Jason St. Clair/NASA Goddard Space Flight Center/University of Maryland
Baltimore County*

My NASA Data Resources: Making NASA Earth and Ecological Data Accessible
to Educators and Beyond
Jessica Taylor/NASA Langley Research Center

Quantifying the increasing contribution of dryland vegetation to future western
US carbon stocks
Jiaming Lu/University of Utah

PACE hyperspectral observations enable a new paradigm for global mapping of
terrestrial gross primary production
Jingfeng Xiao/University of New Hampshire

BIOScape - Mapping of phytoplankton functional types from space in support of
coastal resource management and decision support activities
Jinghui Wu/Lamont Doherty Earth Observatory at Columbia University

Decision and Information System for the Coastal Ocean waters of the South
African Cape (DISCO-SCape)
Joaquim Goes/Lamont Doherty Earth Observatory at Columbia University

Evidence of low watershed resilience across the Western United States
Jodi Brandt/Boise State University

Monitoring Carbon Hotspots in Patchy Landscapes from Sparse Lidar and
Satellite Time Series
Jodi Brandt/Boise State University

The Earth Dynamics Geodetic Explorer (EDGE) mission: Tracking change in the
3D structure of terrestrial ecosystems and surface topography of ice using
satellite laser altimetry
John Armston/University of Maryland

Daily Sturgeon Forecasts to Reduce Harm
John Grady/Saint Mary's College of Maryland

Microbes from space: Comparing patterns in microbial community parameters to satellite ocean color
Julia Brown/Bigelow Laboratory for Ocean Sciences

From rain to radiance - Dominant climate drivers of tropical carbon flux interannual variability depend on local hydroclimate
Junjie Liu/NASA Jet Propulsion Laboratory

Satellite Observations and Modeling Show Eddies as a Significant Organic Carbon Export Pathway at BATS
Katarina Merk/Brown University

The Arctic Marine Biodiversity Observing Network (AMBON)
Katrin Iken/University of Alaska Fairbanks

Can remote sensing and eDNA solve the mystery of disappearing muskrats?
Laurence Smith/Brown University

Millions of Artillery Craters in Agricultural Fields Impact Production and Land Use in Ukraine Due to the Ongoing War
Leonid Shumilo/University of Maryland

Watersheds, Water Quality, and Coastal Communities in Puerto Rico (Water2Coasts): An interdisciplinary island landscape to coastal ocean assessment with socioeconomic implications
Liane Guild/NASA Ames Research Center

Towards Diurnal GPP using Machine Learning and TEMPO
Matt Bandel/NASA Goddard Space Flight Center

Tipping Point Threshold Detection in Tidal Wetlands Using Machine Learning
Nail Beisekenov/Texas A&M University

Advancing Understanding of Land Cover and Land Use Changes (LCLUC) and Management Impacts on Biophysical Variables in South and Southeast Asia (SSEA)

Pengyue Du/University of Illinois Urbana-Champaign

AVUELO: Capturing Tropical Forest Diversity and Function from Leaf to Landscapes with AVIRIS-3

Sarah Graves, Patrick Cannon and Philip Townsend/University of Wisconsin-Madison

Foliar functional traits from EMIT: large-scale mapping using spaceborne imaging spectroscopy

Shuwen Liu and Philip Townsend/University of Wisconsin-Madison

Variation in Foliar Traits across Earth's Vegetation

Philip Townsend/University of Wisconsin-Madison

A Remote-Sensing-Based Bird Friendly Certification System for Sustainable Agroforestry

Qiongyu Huang and Jin Xu/Smithsonian Institution

Integration of Three Novel Methods to Characterize Marsh Change Using a Time Series of Maps for a Coastal Ecosystem

Robert Gilmore Pontius Jr/Clark University

Assessment of BioSCape Aircraft Imaging Spectrometer Retrievals of South African Inland Waters

Samantha Sharp/NASA Ames Research Center

Synthesis Study of Land Cover, Land Use, and Demographic Change under Multi-Dimensional Developments and Climate Pressures in Asia and SE Asia

Son Nghiem/NASA Jet Propulsion Laboratory

Wildfire impacts on communities in the Wildland Urban Interface and on ecosystems in protected areas

Volker Radeloff/University of Wisconsin-Madison

5:00 PM **Adjourn**

Thursday July 9th

3:00 PM **Poster Session**

AVUELO Campaign (AVIRIS Flights over Panama 2005)

Andrés Baresch/NASA Goddard Space Flight Center/University of Maryland

Innovative integrating ocean-atmosphere observing systems

Dan Whitt/NASA Ames Research Center

Understanding the Effects of Agricultural Land Use Transformations on Weather Dynamics in Southern High Plains

Guofeng Cao, Xiaopeng Song, Zhe Zhang, and Yangchengsi Zhang/University of Colorado

HI-GRASS: Holistic Investigation of Grassland Systems across Scales

Hamed Gholizadeh/Oklahoma State University

Assessing the Distribution, Dynamics, Drivers, and Impacts of Forest Edges from Regional to Global Scales by Integrating Multisource Remote Sensing and Land-Surface Modeling

Hangkai You/University of Wisconsin-Madison

Tropical forest structural responses to fragmentation vary regionally and along biophysical gradients

Hasan Ahmed/University of Maryland Baltimore County

Improving Operational Prediction of Urban Rainfall and Heat Extremes through Multi-Source LCLU Remote Sensing

Huanhuan Wang/Cornell University

Systematic Bias in Field-Based Tree Height Measurements: Implications for Biomass Estimation and Ecosystem Monitoring

Huiqi Wang/University of California, Berkeley

The Colorado Headwaters Ecological Spectroscopy Study: Unpacking Drought-driven Vegetation Change

Ian Breckheimer/Rocky Mountain Biological Laboratory

Satellite based monitoring of post-fire coastal waters: A case study following the 2025 Palisades Fire

Ileana Galdamez/NASA Jet Propulsion Laboratory/Biola University

Linking Thermal Observations Across Scales: Building a near-surface thermal remote sensing observation network (ThermONet)

Jen Diehl/NASA Goddard Space Flight Center/University of Maryland ESSIC

Burned Floors, Lowered Ceilings: Continental-Scale Suppression of Biomass Recovery in Amazonian Second-Growth and Degraded Forests

Jessica McCarty/NASA Ames Research Center

Upscaling eddy covariance measurements of carbon and water fluxes to the continental scale by incorporating GEDI-derived canopy structural metrics

Jingfeng Xiao/University of New Hampshire

NASA Crowdsourcing: Use Cases for Biospheric Sciences

Kristen Weaver/NASA Goddard Space Flight Center/ADNET Systems, Inc.

Analyzing patterns of forest growth, loss, and degradation in global protected areas with GEDI

Laura Duncanson/University of Maryland

Comparing sinking fluxes and advective fluxes of organic carbon at an eddy edge

Leah Johnson/University of Washington

Resolving Cities at Scale in Next-Generation Earth System Models

Lei Zhao/University of Illinois Urbana-Champaign

Global Expansion of Winter Cropland
Leonid Shumilo/University of Maryland

PVST AirSHARP (Airborne aSsessment of Hyperspectral Aerosol optical depth
and water-leaving Reflectance for PACE)
Liane Guild/NASA Ames Research Center

AI and Sub-weekly NASA OPERA Land Surface Disturbance Alerts Launch a
New Era in Chimpanzee Conservation in Tanzania and Uganda
Lilian Pintea/Jane Goodall Institute

Extreme 2016 El Niño heatwave weakened carbon export and respiration in the
Equatorial Pacific
Lionel Arteaga/NASA Goddard Space Flight Center/University of Maryland

Quantifying impacts of agricultural land use and irrigation practice on high-
resolution regional weather prediction
Liping Di/George Mason University

Aboveground Carbon Stock Changes in Dynamic Tropical Forests
Luciana Alves/University of California, Los Angeles

Assessing the impacts of invasive plants on ecosystem characteristics using multi-
scale imaging spectroscopy
M. Ny Aina Rakotoarivony/Oklahoma State University

ECOSTRESS Science and Applications
Madeleine Pascolini-Campbell/NASA Jet Propulsion Laboratory

Improved global estimates of terrestrial evapotranspiration using the MODIS and
VIIRS sensors
Maosheng Zhao/NASA Goddard Space Flight Center/SSAI

From Filaments to Climate: Submesoscale Eddy Dispersion Affects Community
Composition and Biogeochemistry Beyond the Coastal Upwelling Zone
Mara Freilich/Brown University

Diurnal GPP Profiles with Machine Learning and TEMPO

Matt Bandel/NASA Goddard Space Flight Center

Improving numerical weather forecasts with more representative land surface modeling: Implementation of updated satellite-derived land cover and land use change maps

Matthew Johnson/NASA Ames Research Center

Overview of Upgrades to the NASA Earth Science Research Results Portal

Maudood Khan/NASA Headquarters/Booz Allen

Assessing the spatial effects and longevity of fuel treatment strategies for wildfire mitigation using GEDI data on vegetation structure in California

Mengyu Liang/Stanford University

Effectiveness of Protected Areas on Post-disturbance Forest Regeneration

Mia Oser/Brown University

Multi-Source, Multi-Resolution Imaging of Urban Land Cover to Improve Predictions of Human Heat Exposures

Michael Wimberly/University of Oklahoma

A History of Biosphere Support from the NASA Earth Science Data and Information Project

Michele Thornton/ORNL DAAC/ESDIS Biosphere

The Hidden Pulse of Drylands: Global Insights into Ephemeral Vegetation Using PACE Hyperspectral Imaging

Min Chen/University of Wisconsin-Madison

Biologging technology provides cross-cutting global insights into the Biosphere, Atmosphere, and Hydrosphere

Morgan Gilmour/NASA Ames Research Center

Integrating Uncertainty in Fuel Properties for Wildland Fire Carbon Emissions Inventories

Nancy French/Michigan Technological University

SiB2 – The Simple Biosphere Model, Version 2 A Process-Based Land Surface Modeling Framework for Earth System Science

Niama Boukachaba/NASA Goddard Space Flight Center

Land cover and land use feedbacks to development of flash drought

Nicholas Parazoo/NASA Jet Propulsion Laboratory

Climate-event Framework for Analysis of Macro-Environmental Systems (C-FrAMES)

Nicolas Maxfield/City College of New York

Mapping Amazon Forest Structure and Constraints Using GEDI Spaceborne Lidar

Ovidiu Csillik/Wake Forest University

Spatial Co-benefits of Forest Biomass Density and Structural Diversity in Indonesia with GEDI

Paromita Basak/University of Maryland College Park

Harmonizing Global Land-Use Datasets with Remote-Sensing Observations of Forest-Based Land-Use Changes

Peter Lawrence/National Center for Atmospheric Research

Cascading Impacts of AMOC weakening and Collapse on Marine Biogeochemistry

Paul Lerner/NASA Goddard Institute for Space Studies

NISAR for Ecosystems: A new frontier

Paul Siqueira/University of Massachusetts

RTSOS: A Tool for High-Fidelity Polarized Radiative Transfer in the Earth System

Pengwang Zhai/University of Maryland Baltimore County

Mapping foliar traits across the Cape Floristic Region with AVIRIS-NG imaging spectroscopy

Henry Frye and Philip Townsend/University of Wisconsin-Madison

BioCube: Spatially harmonized data link to multiple dimensions of in-situ biodiversity data

*Ethan Shafron, Laura Berman, Fabian Schneider, and Philip Townsend)/
University of Wisconsin-Madison*

Foliar trait mapping and links to ecosystem function in the Arctic and boreal ABoVE domain

Kyle Kovach, Bethany Blakely and Philip Townsend/University of Wisconsin-Madison

Spatial and Temporal Variability of Anomalously High Phytoplankton Patches (AHPPs) Detected Using Remote Sensing Satellite Data

Rebecca Walsh/University of Delaware

Linking Biodiversity Observations Across Multiple Scales to Assess and Monitor Alterations in Planktonic Community Composition of the Arctic Ocean

Rick Reynolds/Scripps Institution of Oceanography, University of California San Diego

Marine Genomics from Orbit – MarGO

Sam Purkis and Art Gleason/University of Miami

Coordinating Conservation Across Landscapes: Using NASA Earth Observation Data to Estimate Relative Conservation Responsibility (ADALO 2.0)

Sam Veloz/Point Blue Conservation Science

Exploring the Nexus between LCLUC, Socio-Economic Factors, and Water for a Vulnerable Arid US-Mexico Transboundary Region

Saman Ebrahimi/Arizona State University

Phytoplankton and Cyanobacteria Classification in Inland Waters using Hyperspectral Data

Samantha Sharp/NASA Ames Research Center

Co-variability in phytoplankton communities across methods during the EXPORTS North Atlantic field campaign

Sasha Kramer/Boston University

Linking NASA imaging spectroscopy with acoustics to explain animal diversity in a global biodiversity hotspot

Seungwon Lee/NASA Jet Propulsion Laboratory

Next Steps in the Adoption of P(L)ACE Terrestrial Data

Skye Caplan/NASA Goddard Space Flight Center/SSAI

Overview of Crowdsourced Data available for Earth System Research

Stephanie Schollaert Uz/NASA Goddard Space Flight Center

Predicting phytoplankton community composition from satellite ocean color - A machine learning, 'pigmentless' proof of concept

Susanne Craig/NASA Goddard Space Flight Center/UMBC GESTAR II

Mapping the resilience of mangrove forests across Mesoamerican Reef region with a time series model and remote sensing data

Suvarna Punalekar/Smithsonian Institution (NZCBI and SERC)

Co-developing California's Land Monitoring System for Wildfire and Ecosystem Resilience through Interagency Collaboration, Remote Sensing, and Data Innovation

Taejin Park/NASA Ames Research Center

Disagreements in estimates of urban land from global maps for the past, present, and future across scales

TC Chakraborty/Pacific Northwest National Laboratory

KAWS: A Kelp Advanced Warning System for Near Real-Time Monitoring and Management of California's Kelp Forest Ecosystems

Tom Bell/Woods Hole Oceanographic Institution

Vertical profile of post-fire forest canopy structure recovery over climate gradients in western United States

Ved N. Bhoot/University of California, Irvine

Upscaling the Connecting Landscapes (CoLa) decision support system for range-wide conservation of priority wild cat species

Victoria Hope/Northern Arizona University

PAN-tropical investigation of bioGeochemistry and Ecological Adaptation (PANGAEA): Characterization of the Biosphere and Beyond

Virginia Zaunbrecher/University of California, Los Angeles

Remote-sensing based fire risk and benefit assessments for imperiled species' habitats and ecosystems

Volker Radeloff/University of Wisconsin-Madison

Satellite-based grassland degradation and wildfire monitoring across Mongolia to support decision making by federal and regional agencies and the Wildlife Conservation Society

Volker Radeloff/University of Wisconsin-Madison

Supporting Biological Diversity and Ecological Conservation Research with Integrated GEO-LEO Satellite Observations

Weile Wang/NASA Ames Research Center

ISOFire: Real-time full-physics inversion for wildfire temperature retrieval from imaging spectroscopy

William Keely/NASA Jet Propulsion Laboratory

Improving Urban Climate Simulation by Integrating Remotely Sensed Albedo into the WRF Model

Xiaojing Tang/James Madison University

Fusing spatial and temporal satellite observations for enhancing land surface phenology detections

Xiaoyang Zhang/South Dakota State University

How well can we quantify and map spatial variation of plant taxonomic, functional and phylogenetic composition in South Africa's Greater Cape Floristic Region by integrating biodiversity observations and fine-resolution airborne remote sensing

Xin Chen/University of Maryland Center for Environmental Science

Non-forest fires drive the global decoupling of burned area and fire emissions

Xinyi (Skylar) Yang/Boston College

Detecting Forest Mortality in Western US Forests by Monitoring Spatial and Temporal Anomalies in Land Surface Temperature and Shortwave Infrared Reflectance

Yahampath Anuruddha Marambe/University of Utah

Toward AI-Powered Digital Twins of Earth's Terrestrial Ecosystems

Yiqun Xie/University of Maryland

Connecting Remotely Sensed Particulate Backscatter Observations Across Scales

Yuleny Gomez Rodriguez/University of Delaware

NASA's Black Marble: Revealing How Artificial Light at Night Shapes the Biosphere

Zhuosen Wang/University of Maryland/NASA Goddard Space Flight Center

5:00 PM

Adjourn