



NASA Biodiversity & Ecological Conservation (BDEC) Quarterly Newsletter

- 2025 Newsletter, February 7, 2025 -

We are excited to share the latest news on our initiatives, success stories, and developments from NASA's Biological Diversity and Ecological Conservation (BDEC) Programs.

Spotlight News

NASA Recognizes Dr. Jane Goodall's Presidential Medal of Freedom



Photo credits: Jane Goodall Institute,
<https://news.janegoodall.org/>

Dr. Jane Goodall's groundbreaking contributions, from reshaping our understanding of primates and human evolution to receiving the Presidential Medal of Freedom, continue to inspire. NASA's Biological Diversity Research and Ecological Conservation Applications Programs proudly acknowledge this prestigious recognition and are committed to their ongoing collaboration with the Jane Goodall Institute, under the leadership of Dr. Lilian Pintea, to implement groundbreaking chimpanzee habitat conservation strategies throughout Africa.

[Read Good For All News Here](#)

Congratulations to Dr. Chuanmin Hu's Lab on Winning the 2024 William T. Pecora Group Award



Brian Barnes and Chuanmin Hu (center left and center right) accept the 2024 William T. Pecora Group Award from David Applegate (left), director of the US Geological Survey, and Karen Germain (right), director of NASA's Earth Science Division.

The Optical Oceanography Lab (OOL) at the University of South Florida College of Marine Science has been honored with the prestigious 2024 William T. Pecora Group Award for its outstanding contributions to advancements in remote sensing technology, education, and community service. Led by Dr. Chuanmin Hu, the OOL has contributed to discovery of the Great Atlantic Sargassum Belt, developed new algorithms and used satellite data for various open-access services, including the NASA funded, Sargassum Watch System (SaWS), among other groundbreaking contributions.

[Read USF Awards News Here](#)

[New Opportunities](#)

Funding Opportunities

ROSES24 - A.60 Earth Action: Ecological Conservation

This program is seeking proposals for projects in any area of ecological conservation. Projects should apply Earth observations to improve or develop decision-making activities in ecological conservation and management.

Two proposal types are accepted:

1. **Feasibility Activities:** This Subelement is designed to support projects that are in the early stages of proving application concepts. Preference will be given to innovative activities leveraging one or more NASA instruments that are new or have been underutilized in applications.
2. **Decisional Activities:** This Subelement solicits proposals for activities and products that will achieve operational deployment and sustained use in decision-making by the end user(s) before the end of the award.

Notices of intent are requested by **February 14, 2025**, and proposals are due **March 14, 2025**. Presentations slides and a Questions and Answers document for the virtual meetings is now available in the [NSPIRES page for this program element](#).

[Go to Solicitation Information](#)

ROSES24 - A.65 Responsive Science Initiatives Research

This Responsive Science Initiatives (RSI) Research opportunity launches a new program with the goal of funding use-inspired research that leverages the wealth of data from NASA, as well as other U.S. government, international, and commercial Earth observing satellites, airborne and field campaigns, and in situ observations, alongside outputs and predictive capabilities from Earth science models. While the research should be foundational (ARL 1-3), it should also have the potential to benefit society, while informing the actions of stakeholders toward potential applications.

This element solicits scientific research required to address societal challenges in three thematic areas:

- Understanding and Forecasting Zoonotic Disease Events
- Minimizing Contrails in Commercial Aviation
- Downscaling Earth System Models (ESMs) to Address Regional and Local Challenges

Notices of intent were requested by **January 31, 2025**, and proposals are due **March 25, 2025**. Presentations slides and a Questions and Answers document for the pre-proposal webinar hosted on January 22, 2025, will be posted to the NSPIRES page for this program element.

ROSES-24 Amendment 74: A.63 Ecohydrology New Opportunity in ROSES-24

A.63 Ecohydrology is a special program element of the NASA Terrestrial Hydrology Program in recognition of the need for holistic, interdisciplinary approaches to evaluate and refine modeled coupled water, energy and carbon cycle process representation in a manner that more fully leverages NASA's modeling and Earth observing system. Interdisciplinary teams are invited to propose and implement novel strategies for evaluating and improving the realism of modeled ecosystem response sequences to human- and environmentally forced pulse events.

Notices of intent were requested by January 16, 2025, and proposals are due March 19, 2025. Proposals will be evaluated using dual-anonymous review, so they must be prepared according to the guidelines in Section 6 and in the associated "Guidelines for Anonymous Proposals" document under "Other Documents" on the NSPIRES page for this program element. Questions concerning A.63 Ecohydrology may be directed to Craig Ferguson at craig.r.ferguson@nasa.gov.

Launch NSPIRES page for A.63 Ecohydrology

Job Opportunities

Job Title	Location	Status and Timeline	Posted By	Link
Full-time Tenure-track Assistant Professor in Remote Sensing	UMass Boston	Open until filled. Posted December 4, 2024	School for the Environment at the University of Massachusetts Boston	Link
Scientist/Model Developer - Earth Observation Data	IIASA premises in Laxenburg, near Vienna in Austria	Open until filled. Posted January 28, 2025	IIASA	Link
Wildfire & Soil Biogeochemistry Postdoctoral Scholar	Bay Area, California	Open until filled. Application review begun 1/6/2025.	Berkeley Lab	Link
Tenure-Track Professor in Climate Science	Cambridge, MA	Open until filled. Application review begun 1/21/2025.	Harvard University	Link

[View more open job opportunities](#)

GEO SDG Awards - 2025 Nominations Open

The international Group on Earth Observations (GEO) is running their annual [GEO SDG awards program](#) to recognize organizations that have used earth observations and geospatial data (satellite, in situ, marine, airborne, etc.) to advance the Sustainable Development Goals. They are specifically looking for demonstrated examples of how the organization has already advanced the SDGs and sustainable development. Nominations are accepted across a range of categories, including national, civil society, academia, and intergovernmental. The deadline for nominations is March 2, 2025.

[Submit your Nomination](#)

Upcoming Events

ARSET Trainings

ARSET offers online and in-person trainings for beginners and advanced practitioners alike. Trainings cover a range of datasets, web portals, and analysis tools and their application to air quality, agriculture, disasters, land, and water resource management. Since 2009, the program has reached more than 100,000 participants from 183 countries and more than 17,000 organizations worldwide.



Introductory ARSET Webinar:
Calculating Spectral Indices for Land and Aquatic Applications Using QGIS

Feb.
27

Eng: 11:00 - 12:30 EST (UTC-5)
Esp: 14:00 - 15:30 EST (UTC-5)

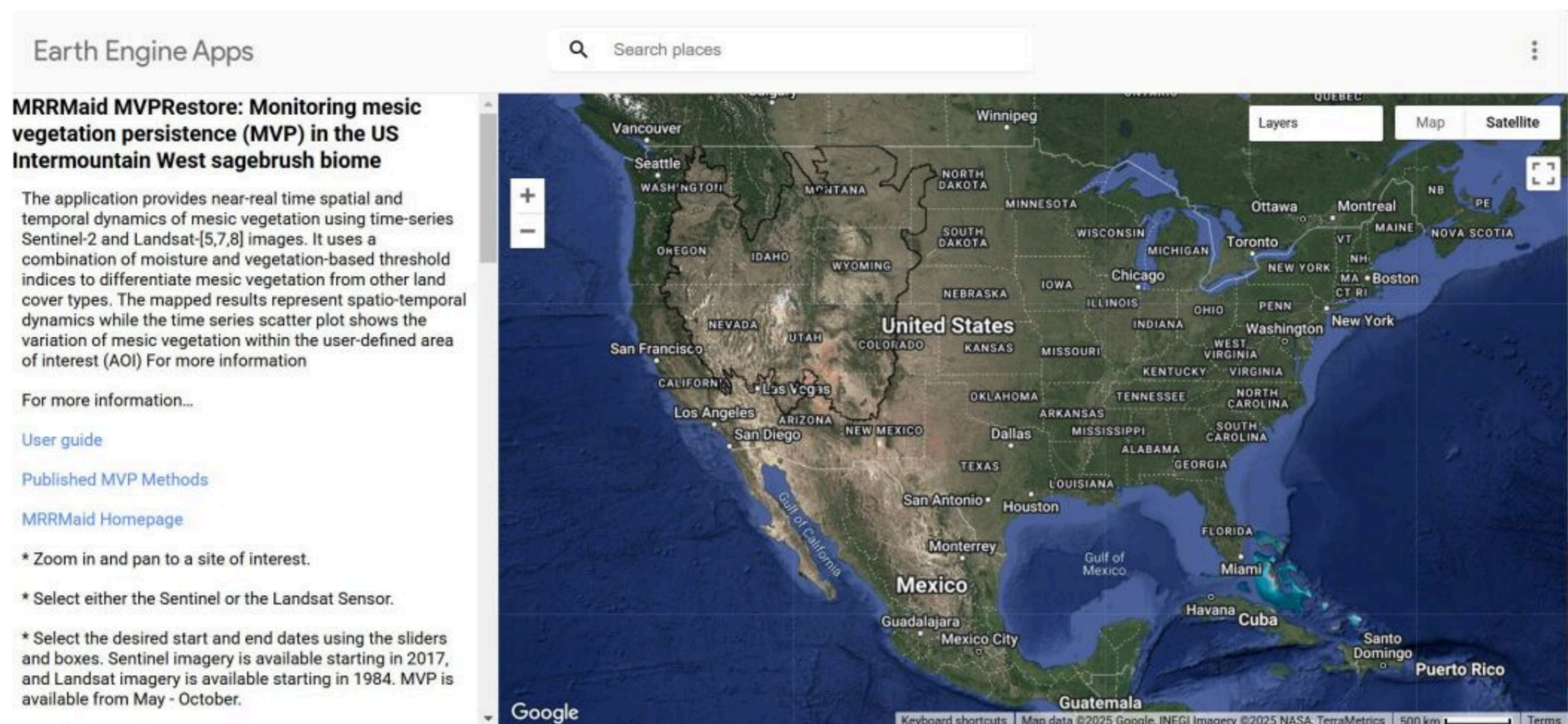
The training is also available in Spanish.

[Register: 11:00-12:30 EST \(UTC-5\)](#)

[Take me to all ARSET trainings](#)

New Tool Spotlight

MRRMaid MVPRestore: Monitoring mesic vegetation persistence (MVP) in the US Intermountain West sagebrush biome



A healthy coral reef in the Tumon Bay Marine Preserve off Tumon, Guam. Curt Storlazzi, USGS Pacific Coastal and Marine Science Center, Public domain

Researchers at Boise State University have been constantly evolving and improving the Mesic Resource Restoration Monitoring Aid (MRRMaid) toolbox, which consists of satellite-based decision support tools for beaver rewilding. Recently, they developed a new Google Earth Engine app called MVP-Restore. The app is specifically designed so that end users can apply the mesic vegetation persistence (MVP) products at their restoration sites and measure the impact of restoration activities on mesic ecosystem condition. MRRMaid is the product of a NASA-funded project (20-ECOF20-0021) to provide decision support for beaver rewilding. The project contains three main components: research, extension and outreach. POC: Dr. Jodi Brandt, Boise State University, jodibrandt@boisestate.edu.

[Launch MRRMaid MVPRestore!](#)

[Learn more about MRRMaid](#)

Publication Highlights

Airborne fluid lensing can be used to predict fish diversity

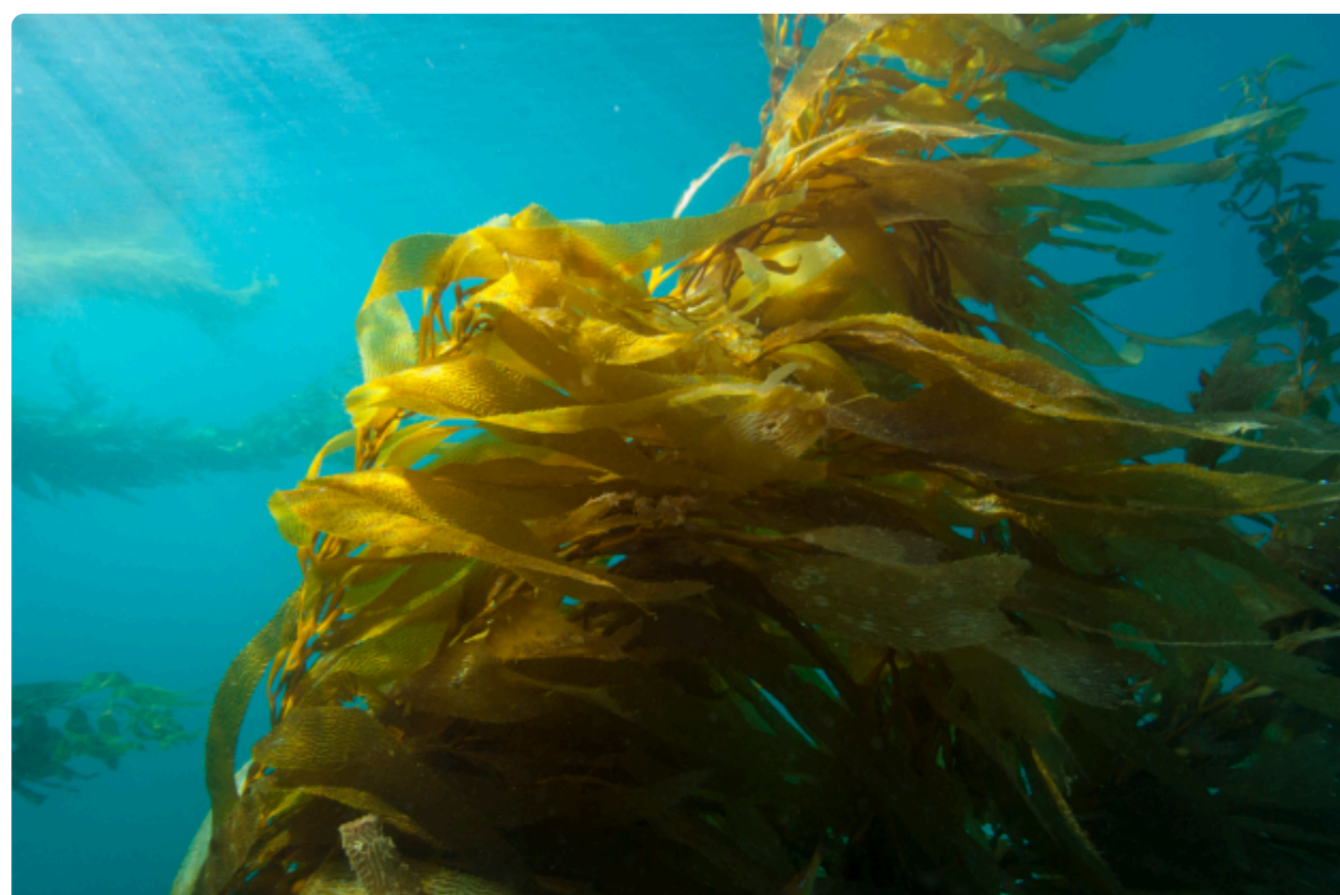


A healthy coral reef in the Tumon Bay Marine Preserve off Tumon, Guam. Curt Storlazzi, USGS Pacific Coastal and Marine Science Center, Public domain

In this publication, scientists at the University of Miami contend that remote sensing data are underutilized when used to simply map benthic habitat and show that spectral variation can clearly serve as a proxy for *in situ* reef biodiversity. Using WorldView-2 multispectral and panchromatic and UAV imagery, the authors find positive correlations between spectral variability and fish diversity showing the potential for remote sensing to upscale biodiversity assessments, especially with imagery processed with fluid lensing corrections. The *in situ* measurements of biodiversity from traditional SCUBA diver-based surveys are expensive and limited in spatial extent. This publication demonstrates a complementary way to indirectly, but efficiently, survey the biodiversity of coral reefs at scale using remote sensing. Lead author Anna Bakker was supported by the National Science Foundation Graduate Research Fellowship Program (NSF GRFP) and by the Coral Reef Alliance via a grant from Lyda Hill Philanthropies. Dr. Sam Purkis, Dr. Art Gleason, Dr. Ana Tarano, and Dr. Ved Chirayath were supported by NASA ROSES Biodiversity Award 20-BIODIV20-0108 (MarineVERSE). POC: Dr. Sam Purkis, spurkis@earth.miami.edu.

[Access the publication here](#)

Marine Protected Areas That Preserve Trophic Cascades Promote Resilience of Kelp Forests to Marine Heatwaves

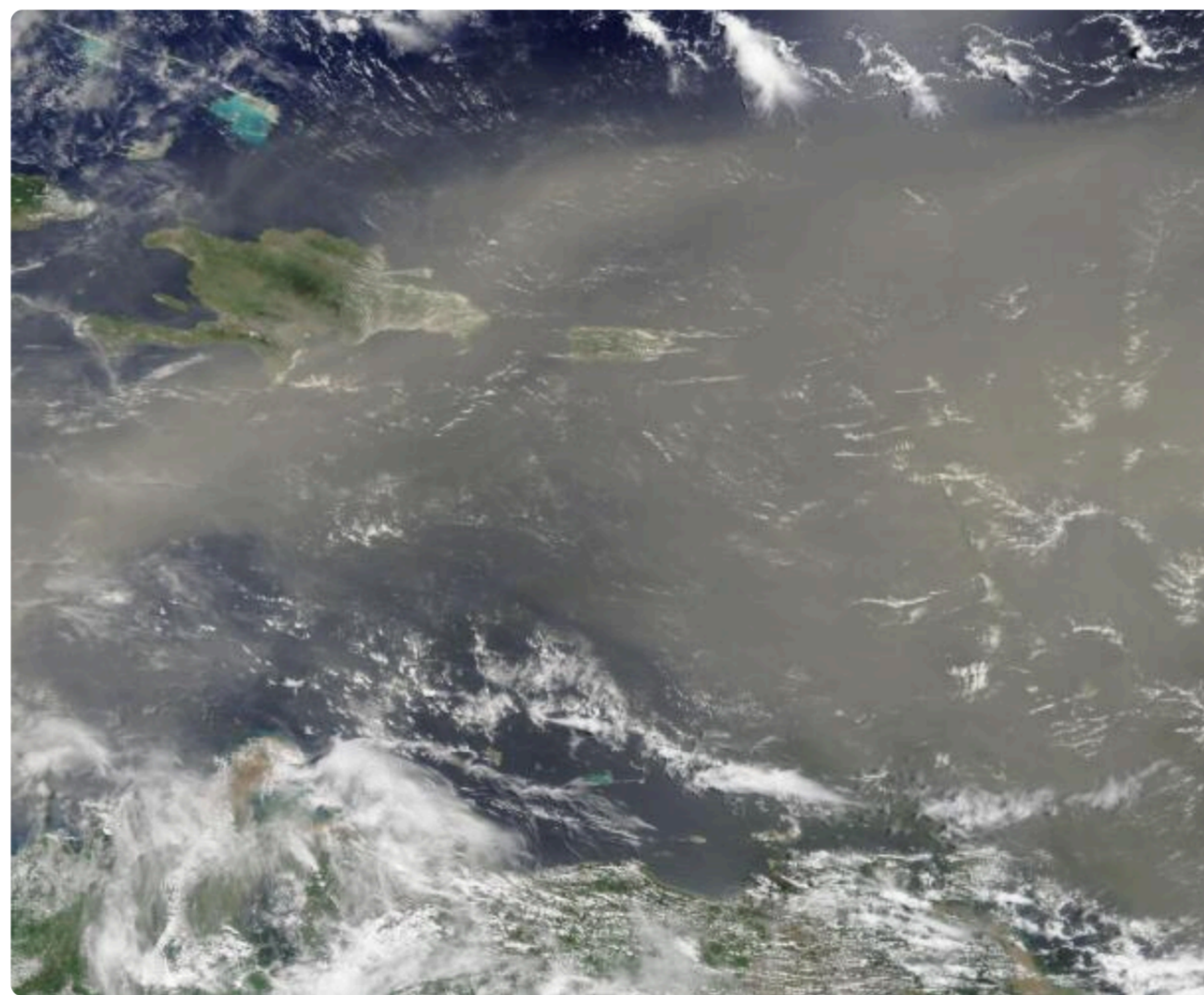


Kelp forest near Point Conception, California. Robert Schwemmer/NOAA, Public domain

The authors of this new publication analyzed 38 years of satellite-derived kelp cover data to assess whether a network of 58 temperate coastal Marine Protected Areas (MPAs) in Central and Southern California improved the resilience of kelp forest ecosystems during and after the extreme 2014–2016 marine heatwave. Their results indicate that fully protected MPAs significantly increased kelp forests' resistance to and recovery from marine heatwaves in Southern California, but not in Central California. These regional differences in resilience are partly driven by trophic interactions involving kelp, sea urchins, and urchin predators. In Southern California, fully protected MPAs exhibited lower sea urchin densities and higher predator abundances during and after the heatwave. The authors find that fully protected MPAs can serve as effective tools for climate adaptation, but their success in enhancing resilience to extreme climate events depends on region-specific environmental conditions and trophic dynamics. Dr. Tom W. Bell at Woods Hole Oceanographic Institution and the kelp canopy and environmental dataset were funded by the NASA Biodiversity and Ecological Conservation award #80NSSC22K0169. POC: Dr. Tom Bell, Woods Hole Oceanographic Institution, tbell@whoi.edu.

[Access the publication here](#)

Assessing conditions favoring the survival of African dust-borne microorganisms during long-range transport across the tropical Atlantic



Saharan Dust over the Caribbean (MODIS 2020-06-24), MODIS Land Rapid Response Team, NASA GSFC

Every year, a significant amount of dust from northern Africa travels across the Atlantic Ocean, reaching the southeastern U.S., the Caribbean, and even the Amazon. While much attention has been given to the transport of dust particles, less is known about how this phenomenon also carries a diverse range of microorganisms. Using NASA's MERRA-2 reanalysis data, we explored how seasonal changes in the dust's travel path, altitude, and weather conditions may impact the concentration, diversity, and survival of these microorganisms. Our findings indicate that winter offers more favorable conditions for microorganisms to survive and reach the Amazon. However, during this season, a larger portion of the dust trajectories encounter heavy rainfall, which may wash out many microorganisms along the way. This

[Check out the publication here](#)

Establishing bio-logging data collections as dynamic archives of animal life on Earth

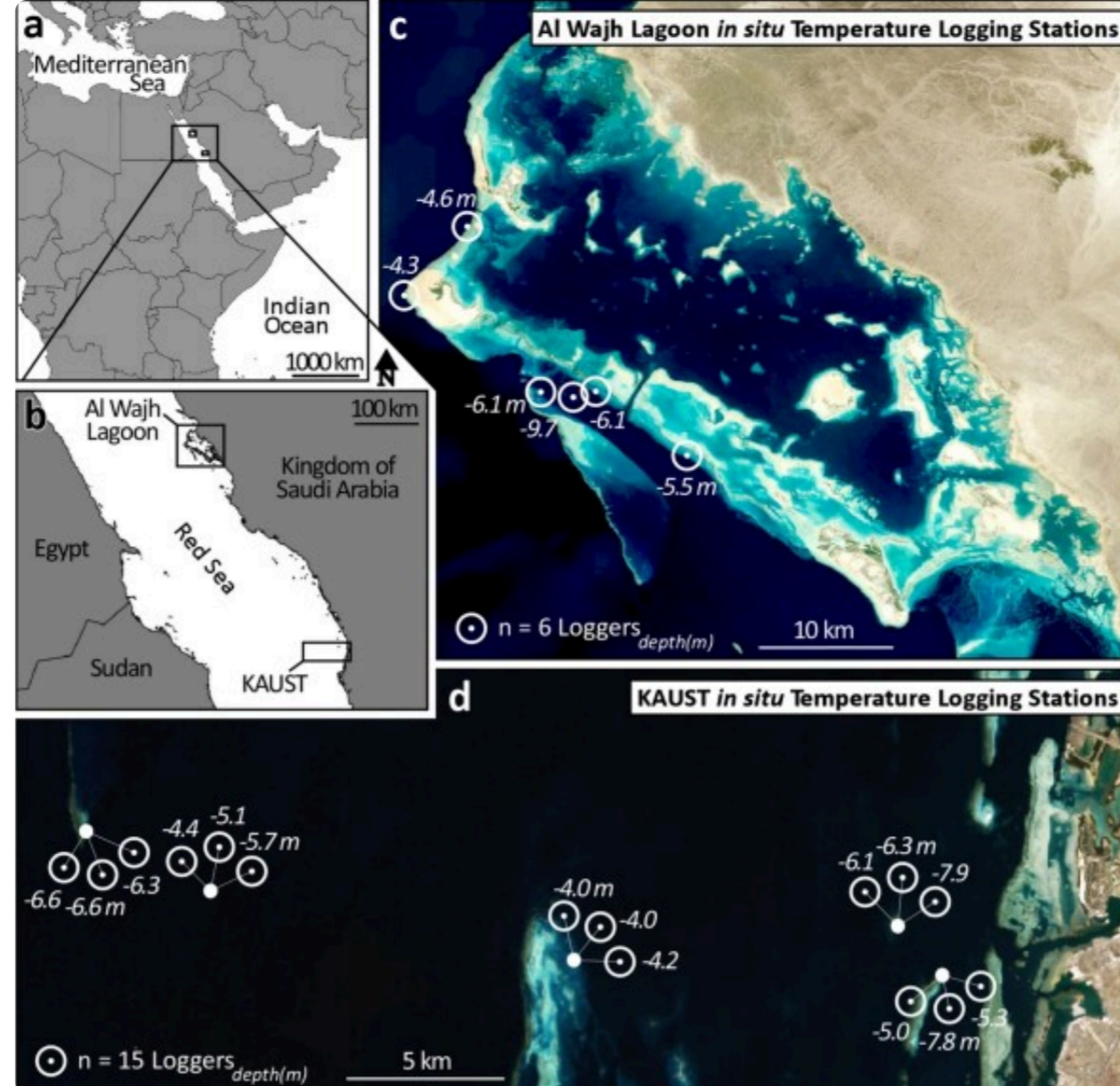


U.S. Fish and Wildlife Service, Public domain

Billions of animal occurrences and sensor measurements from animal-borne biologgers include decades of information and tens of thousands of tags currently deployed around the world. But integration of these data to remote sensing and biodiversity data products is still in its infancy, due to a lack of data standards and data spread across disconnected community and government platforms. Worse, likely only a small portion of data collected are harmonized and stored on such platforms—and for those that are, there is no long-term strategy to retain access to the large majority of datasets that are not public. Co-authors representing biologging researchers from marine and terrestrial domains, biologging data repositories, equipment manufacturers, and 12 countries provide a detailed path forward to ensure these data can be curated, archived and put to good use. This research was supported by NASA's Ecological Conservation Program (80NSSC21K1182; to S.C.D.). POC: Sarah Davidson, Ohio State University, sdavidson@ab.mpg.de.

[Check out the publication here](#)

Coral reef thermal microclimates mapped from the International Space Station



Locations of 21 in-situ seawater temperature loggers used for ECOSTRESS validation.

A team of scientists led by the University of Miami has used NASA's ECOSTRESS instrument aboard the International Space Station to map coral reef thermal microclimates in unprecedented detail. Their study, just published in the journal "Coral Reefs", demonstrates how this high-resolution orbital data can improve monitoring of coral reef biodiversity and resilience. Existing sea surface temperature (SST) products lack the fine-scale resolution needed to capture the temperature fluctuations experienced by individual reefs. This study found that ECOSTRESS, with its 70-meter pixel resolution, provides >200 times finer detail than existing global SST products. The team validated ECOSTRESS data with in-situ temperature loggers in the Red Sea, confirming its accuracy in detecting small-scale temperature variations. These insights could improve marine protected area design, and the understanding of the how, when, and why ecosystems develop adaptive capacity. With upcoming high-resolution thermal satellite missions on the horizon, this study lays the groundwork for next-generation mapping of marine thermal microclimates. This project was supported by NASA ROSES Biodiversity Award 20-BIODIV20-0108 (MarineVERSE). POC: Dr. Sam Purkis, University of Miami, spurkis@earth.miami.edu.

[Read the publication here](#)

PI-Led Trainings/Conferences Spotlight

Workshops for Wildlife Connectivity Conservation in Asia



Laos Workshop, Vientiane, 2024.

Global Earth Observation & Dynamics of Ecosystems Lab research professor Patrick Jantz and Ph.D. candidate Ivan Gonzalez, with partners at the Wildlife Conservation Research Unit (WildCRU) at the University of Oxford, recently delivered three workshops in three countries to over 100 people. The workshops focused on how to use a NASA funded decision support system for connectivity conservation. The countries where the workshops took place (Laos, Thailand, and Bhutan) are high in biodiversity and are experiencing significant increases in infrastructure development. These are exactly the situations where planning for wildlife connectivity now can yield long-term benefits. The team are busy following up with participants to develop case studies and implementation projects.

[Learn more about the workshop here](#)

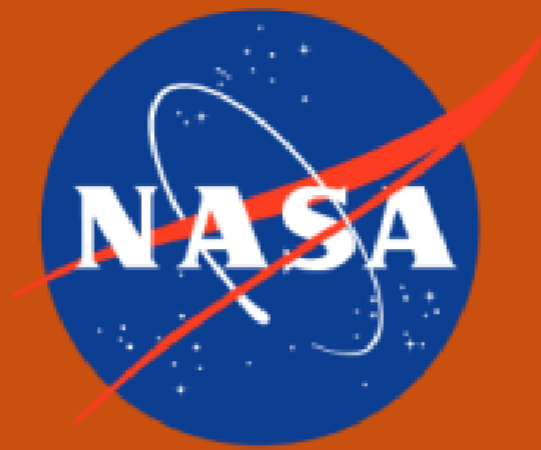
[Share your Accomplishments!](#)

NASA Earth Science Research Results Portal

The NASA Earth Science Research Results Portal is an internal database designed to make it easier for NASA Headquarters Leadership to find, communicate, and promote YOUR accomplishments. NASA funded investigators are encouraged to submit publications, impact stories, photos of field work, scientific visualizations and or other products that demonstrate how important NASA's unique perspective is for understanding Earth systems. Please direct questions to Megan McGroddy, megan.e.mcgroddy@nasa.gov.

Contribute Content for an Upcoming Newsletter

Thank you for sharing your highlights, news and publications with us! If you're part of a NASA-funded project (including students), we welcome your news, project updates, or announcements regarding published or forthcoming papers, reports, media, software, or events.



NASA's Biological Diversity & Ecological Conservation Program Managers:
Keith Gaddis and Woody Turner

Learn more about NASA's Biological Diversity & Ecological Conservation Program
<https://cce.nasa.gov/biodiversity/>

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