

BIOSPACE25

Biodiversity Insight from Space

10–14 February 2025 | ESA–ESRIN | Frascati (Rome), Italy



Presentations - BIG HALL

OPENING SESSION at director level

Time: Monday, 10/Feb/2025: 2:00pm - 3:30pm

Moderator:

- Giuseppe Ottavianelli (ESA), Head of the Earth Observation Applications Section, Green Solutions Division

Speakers:

European Space Agency (ESA)

- Rune Floberghagen, Head of the Climate Action, Sustainability and Science Department, on behalf of Simonetta Cheli, ESA Director of Earth Observation Programme.

National Aeronautics and Space Administration (NASA)

- Julie Robinson, Deputy Director for Earth Science (video recording)

European Commission, DG RTD (research & Innovation)

- Joanna Drake, Deputy Director-General

European Commission DG ENV (Environment)

- Humberto Delgado-Rosa, Director for Biodiversity

European Commission DG JRC (Joint Research Centre)

- Ivan Kulis, Head of Unit for "Biodiversity Conservation and Observations", presenting on behalf of Bernard Magenhann, Acting Director-General

Convention on Biological Diversity (CBD) Secretariat

- Astrid Schomaker, Executive Secretary (video recording), introduced by Jillian Campbell, Head of Monitoring, Review and Reporting

Ramsar Convention on Wetlands Secretariat

- Musonda Mumba, Secretary General

Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) Secretariat

- Anne Larigauderie, Executive Secretary (video recording), introduced by Aidin Niamir, Head of IPBES Data and Knowledge Technical Support Unit

United Nations Educational, Scientific and Cultural Organization (UNESCO) – Intergovernmental Oceanographic Commission (IOC)

- Vidar Helgesen, Executive Secretary (video recording)

Group on Earth Observations (GEO) Secretariat

- Yana Gevorgyan, Director

Earth Observations for Biodiversity Actions: Advancing Biodiversity Policy monitoring and verification

Time: Monday, 10/Feb/2025: 4:00pm - 5:15pm

Location: Big Hall

Session Opening and Introduction (5 minutes)

Moderators: Gilles Doignon (EC RTD) & Marc Paganini (ESA)

- Welcome and introduction of the session.
- Presentation of the speakers and panelists.

Keynote Presentations: Setting the Stage (20 minutes)

- "Harnessing Biodiversity Data for better Decisions" – Jillian Campbell (CBD Secretariat)
- "Supporting the Processes underpinning Biodiversity Policy Monitoring and Reporting in Europe" – Grégoire Dubois (EC JRC)

Panel Discussion: Insights and Reflections (50 minutes)

Interactive discussion with panelists addressing key questions related to the integration of Earth Observation in Biodiversity policy monitoring and verification.

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Panelists:

- Jillian Campbell (CBD Secretariat)
- Jerker Tamelander (Ramsar Secretariat)
- Ilaria di Matteo (UN Statistics Division)
- Grégoire Dubois (EC JRC)
- Mona Naeslund (Swedish Environmental Protection Agency)
- Jappe Jongejan (Netherlands Space Office)

From Data to Biodiversity insight: Using EO to Address Biodiversity Knowledge and Observation Gaps

Time: Monday, 10/Feb/2025: 5:15pm - 6:30pm

Location: Big Hall

Session Opening and Introduction (5 minutes)

Moderators: Fabian Schneider (Aarhus univ, ex NASA JPL) & Stefanie Lumnitz (ESA & EC RTD)

Keynote Presentations: Setting the Stage

(20 minutes)

- "How will we know if we are bending the curve of biodiversity?" – Andy Gonzalez (GEO BON, McGill Univ)
- "Implementation of Earth Observations for Biodiversity Monitoring in Europe" – Petteri Vihervaara (BIODIVERSA+, SYKE)

Panel Discussion: Insights and Reflections

(50 minutes)

- Interactive discussion with panelists addressing key questions related to addressing key Biodiversity knowledge gaps.
- Panelists:
 - Aidin Niamir (Senckenberg, IPBES)
 - Andres Marmol (IDIV, EuropaBON)
 - Susana Baena (UNEP WCMC)
 - Maria Santos (UZH)
 - Kyle Copas (GBIF)

Concluding remarks

- Andy Gonzalez (GEO BON, McGill Univ)
- Petteri Vihervaara (BIODIVERSA+, SYKE)

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The future of biodiversity monitoring: New Earth Observation missions and Initiatives from Space Agencies

Time: Tuesday, 11/Feb/2025: 8:45am - 9:45am

Location: Big Hall

Moderators: Steven Ramage (CEOS)

Speakers:

Representatives from Space Agencies will present their upcoming Earth Observation missions and their significance for biodiversity monitoring. They will also showcase large-scale initiatives designed to support and benefit the biodiversity community.

- Marco Celesti (ESA)
- Miranda Nuno (ESA)
- Woody Turner (NASA)
- Philippe Maisongrande (CNES)
- Osamu Ochiai (JAXA) video recording
- Lucie Viciano (CSA)
- Adriana Para (CSIRO)

2.03.1a: Ecosystem Extent

Time: Tuesday, 11/Feb/2025: 10:00am - 11:30am | Location: Big Hall

Session Chair: Sandra Luque, INRAE

Session Chair: Bruno Smets, VITO

10:00am - 10:10am

Global Ecosystems Atlas: Measure to Manage

Yana Gevorgyan

GEO secretariat, IGO

10:10am - 10:20am

Increasing engagement of the Committee on Earth Observation Satellites (CEOS) with biodiversity

Gary Geller¹, Shaun Levick², Sandra Luque³, Roger Sayre⁴

¹NASA Jet Propulsion Laboratory, California Institute of Technology; ²CSIRO; ³INRAE/CNES; ⁴USGS

10:20am - 10:30am

The utility of global ecosystem maps for national ecosystem reporting - A focus on the World Terrestrial Ecosystems

Roger G Sayre

U.S. Geological Survey, United States of America

10:30am - 10:40am

Availability and use of in situ data for European habitat mapping

Sander Mucher, Stan Los, Stephan Hennekens

Wageningen Environmental Research (WENR), the Netherlands

10:40am - 10:50am

Mapping ecosystem extent under the SEEA EA framework: complementarity of biodiversity and earth observation data needs

Ioannis Kokkoris¹, Bruno Smets², Lars Hein³, Marcel Buchhorn², Stefano Balbi^{4,5}, Lori Giagnacovo², Giorgia Milli², Mathilde De Vroey², Giorgos Mallinis⁶, Ján Černečý⁷, Panayotis Dimopoulos⁸, Ferdinando Villa^{4,5}

¹University of Patras, Department of Sustainable Agriculture, 2 G. Seferi St., 30131 Agrinio, Greece; ²Remote Sensing Unit, Flemish Institute for Technological Research NV (VITO), 2400 Mol, Belgium; ³Environmental Systems Analysis Group, Wageningen University, The Netherlands; ⁴Basque Centre for Climate Change (BC3), Scientific Campus of the University of the Basque Country, Sede Building 1, 1st Floor, Barrio Sarriena S/N, 48940 Leioa, Bizkaia, Spain; ⁵IKERBASQUE, Basque Foundation for Science, Plaza Euskadi, 5, 48009 Bilbao, Spain; ⁶Laboratory of Photogrammetry and Remote Sensing (PERS Lab), School of Rural and Surveying Engineering, Aristotle University of Thessaloniki, 54124 Thessaloniki, Greece; ⁷Institute of Landscape Ecology of the Slovak Academy of Sciences, Akademická 2, Branch Nitra, Slovakia; ⁸University of Patras, Department of Biology, Laboratory of Botany, 26504 Patras, Greece

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10:50am - 11:00am

From Indications to Insights: Mapping Annex I Forest Habitats

Camilla Jönsson

Swedish Environmental Protection Agency

11:00am - 11:10am

Mapping +30 Years of Mangrove Extent in Tanzania Using Historical Data and Remote Sensing: A Collaborative, Open-Source Approach

Helga U. Kuechly², Mwita M. Mangora^{1,5}, Sam Cooper³, Simon Spengler², Makemie J. Mabula⁴, Kelvin J. Kamnde^{1,5}, Carl C. Trettin⁶

¹Institute of Marine Sciences, University of Dar es Salaam, Buyu Campus, Zanzibar, Tanzania; ²World Wide Fund for Nature (WWF) Germany, Germany; ³Earth Observation Lab, Geography Department, Humboldt-Universität zu Berlin; ⁴East African Crude Oil Pipeline (EACOP), Msasani Peninsula, Dar es Salaam, Tanzania; ⁵Western Indian Ocean Mangrove Network, Zanzibar, Tanzania; ⁶Center for Forest Watershed Research, Southern Research Station, USDA Forest Service, Cordesville, SC 29434, USA

11:10am - 11:20am Warning: The presentations finish prior to the end of the session!

Integrating Remote Sensing and Machine Learning for Biodiversity Net Gain Assessments in the United Kingdom

Brianna Pickstone¹, Sareh Rowlands², Richard Delahay³, Karen Anderson¹

¹Environment and Sustainability Institute, University of Exeter, Penryn Campus; ²Department of Computer Science, Faculty of Environment, Science and Economy, University of Exeter; ³RSK Biocensus, Suites 1-3 Bank House, Bond's Mill, Gloucestershire

2.02.1a: EO conceptual approaches to improve biodiversity monitoring

Time: Tuesday, 11/Feb/2025: 12:00pm - 1:30pm · Location: Big Hall

Session Chair: Javier Pacheco Labrador, Spanish National Research Council

Session Chair: Lucie Viciano, Canadian Space Agency

12:00pm - 12:10pm

A Federated System of Systems approach for increased availability of EO-based biodiversity products

Gary Geller

NASA Jet Propulsion Laboratory, California Institute of Technology

12:10pm - 12:20pm

Biodiversity in changing terrestrial, aquatic, and marine Ecosystems: Calling for a unifying earth observation perspective

Victor Martinez Vicente¹, Andrew Skidmore², Petra Philipson³, Shubha Sathyendranath¹, Elnaz Neinavaz², Susana Baena⁹, Laurent Barille¹⁴, Stefanie Broszeit¹, Roshanak Darvishzadeh Varchehi², Miguel Pires¹⁰, Marieke Eleveld¹⁰, John Gittings¹¹, Pierre Gernez¹⁴, Daniela Guaras⁹, Chuanmin Hu⁴, Margarita Huesca², Peter Miller¹, Sander Mucher⁸, Frank Muller-Karger⁴, Daniel Odermatt¹², Emmanuele Organelli⁵, Marc Paganini¹⁵, Dionysios Raitos¹¹, Gabriel Reygondeau⁷, Marie-Helene Rio¹⁵, Sara Si-Moussi⁶, Wilfred Thuiller⁶, Ruben Van De Kerchove¹³

¹Plymouth Marine Laboratory, United Kingdom; ²U. Twente, The Netherlands; ³Brockman Geomatics, Sweden; ⁴U. South Florida, USA; ⁵CNR, Italy; ⁶U. Grenoble, France; ⁷U. Miami, USA; ⁸U. Wageningen, The Netherlands; ⁹UNEP-WCMC, UK; ¹⁰Deltares, The Netherlands; ¹¹U. of Athens, Greece; ¹²EAWAG, Switzerland; ¹³VITO, Belgium; ¹⁴U. Nantes, France; ¹⁵ESA-ESRIN, Italy

12:20pm - 12:30pm

An EO-based framework for monitoring tropical forests ecosystems in Costa Rica: extent, condition and composition

Jean-Baptiste Féret, Florian de Boissieu, Rémi Cresson, Mona Bonnier, Mairi Souza Oliveira, Samuel Alleaume, Sandra Luque

TETIS, AgroParisTech, Cirad, CNRS, INRAE, Université de Montpellier, Montpellier, France

12:30pm - 12:40pm

From Ground to Canopy: Integrating Ground-based Sensors with Remote Sensing to Improve Urban Tree Management

Andres Camilo Zuñiga-Gonzalez¹, Josh Millar², Sarab Sethi², Hamed Haddadi², Michael Dales¹, Anil Madhavapeddy¹, Ronita Bardhan¹

¹University of Cambridge; ²Imperial College London

12:40pm - 12:50pm

Development of an OECD farmland habitat biodiversity indicator with remote sensing – A pilot study for Germany

Marcel Schwieder¹, Christian Levers², Felix Lobert¹, Gideon Tetteh¹, Petra Dieker¹, Stefan Erasm¹

¹Thünen Institute of Farm Economics, Bundesalle 63, 38116 Braunschweig, Germany; ²Thünen Institute of Biodiversity, Bundesalle 65, 38116 Braunschweig, Germany

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12:50pm - 1:00pm

How do Earth Observation Foundation Models Help to Predict Multi-Trophic Soil Biodiversity

Selene Cerna, Sara Si-Moussi, Vincent Miele, Wilfried Thuiller

University of Grenoble Alpes, University Savoie Mont Blanc, CNRS, LECA, 38000, Grenoble, France

1:00pm - 1:10pm

Scaling-up island biodiversity monitoring with remote sensing: Insights from the BioMonI project

Samantha Suter¹, Nathaly Guerrero-Ramirez³, Holger Kreft³, Rüdiger Otto Dittmann², Lea de Nascimento Reyes², José María Fernández-Palacios², Martin Ehbrecht³, Vladimir Wingate¹, Clara Zemp¹

¹Université de Neuchâtel, Switzerland; ²Universidad de La Laguna, Tenerife, Spain; ³University of Göttingen, Germany

1:10pm - 1:20pm

5th International Polar Year - an opportunity for biodiversity assessment across scales

Gabriela Schaepman-Strub

University of Zurich, Switzerland

1:20pm - 1:30pm

Looking at the dark side of the Earth: why we need high resolution night images ?

Julien Radoux, Pierre Defourny

Université catholique de Louvain, Belgium

Space for Nature: How EO can empower NGOs and Civil Society in conservation

Time: Wednesday, 12/Feb/2025: 8:45am - 9:45am

Location: Big Hall

Session Opening and Introduction (2 minutes)

Moderators: Isabella Pratesi (WWF Italy), Federica Marando (ESA)

- Welcome and introduction of the session.
- Presentation of the speakers and panellists.

Keynote Presentations: Setting the Stage (15 minutes)

- Grace Nangendo (WCS Uganda)
- Aaron Iemma (WWF Italy)

Panel Discussion: Insights and Reflections (40 minutes)

Moderators: Isabella Pratesi (WWF Italy), Federica Marando (ESA)

- Interactive discussion with panellists addressing key questions related to the session theme.
- Panellists:
 - Grace Nangendo (WCS Uganda)
 - Joshua Weiss (African Parks)
 - Michael Munk (DHI)
 - Randall Jimenez (IUCN)

Closing thoughts on the panel discussions and key topics addressed (3 mins)

3.02.1a: Ecosystem Conservation

Time: Wednesday, 12/Feb/2025: 10:00am - 11:30am · Location: Big Hall

Session Chair: David Coomes, University of Cambridge

Session Chair: Kyla Marie Dahlin, Michigan State University

10:00am - 10:10am

Habitat Mapping and Quality Monitoring: Insights from the Biodiversa+ Habitat Pilot

Mona Naeslund, Sara Wiman

Swedish Environmental Protection Agency, Sweden

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10:10am - 10:20am

Satellite remote sensing as a key technology for effective nature conservation: The perspective of a national nature conservation authority

Roland Krämer, Christian Schneider, René Höfer, Merlin Schäfer

Federal Agency for Nature Conservation, Germany

10:20am - 10:30am

PEOPLE-ECCO: Enhancing Ecosystems Conservation through Earth Observation Solutions, Capacity Development and Co-design

Louise Willemen¹, Wietske Bijker¹, Andy Dean², Michael Munk³, Matthes Rieke⁴, Mads Christensen³, Silvia Huber³, Marcos Kavlin², Markus Konkol⁴, Martin Pontius⁴, Jan Speckamp⁴, Chiel Stroeve¹, Victor Tang², Olivier Tsui², Jasper Van doninck¹

¹University of Twente - Faculty of Geo-Information Science and Earth Observation (ITC), Netherlands; ²Hatfield Consultants, Canada; ³DHI, Denmark; ⁴52°North Spatial Information Research GmbH, Germany

10:30am - 10:40am

Innovative collaborative tools for habitat monitoring and conflict prevention through SRS technologies. Insights from the Nature FIRST Project

Boris Hinojo¹, Yago Alonso¹, Federico Cheda¹, Marco Rubinos¹, Alexandra Sallay-Mosoi², Nándor Erős², Cristian Remus², Taras Yamelynets³, Roman Cherepanyn³, Yuriy Andreichuk³, Vladimir Todorov⁴, Ilya Acosta⁴, Nikola Doykin⁴, Nikola Ganchev⁴, Anna Davison⁵, Koen de Koning⁵, Albin Ahmeti⁶, Robert David⁶, Artem Revenko⁶, Linda van Duivenbode⁷, Melanie Arp⁸, Jan-Kees Shakel⁸

¹3edata ingenieria ambiental, Spain; ²WWF Romania; ³WWF Ukraine; ⁴Institute of Biodiversity and Ecosystem Research, Bulgarian Academy of Sciences; ⁵Earth Systems and Global Change Group, Wageningen University; ⁶Semantic Web Company; ⁷dotSpace Foundation; ⁸Sensing Clues Foundation

10:40am - 10:50am

Functional Habitat and Connectivity: Computational Advances for Assessing Cumulative Impacts and Spatial Planning for Biodiversity

Bram Van Moorter¹, Manuela Panzacchi¹, Ilkka Kivimäki², Marco Saerens³

¹Norwegian Institute for Nature Research, Norway; ²Finnish Institute of Occupational Health; ³Université catholique de Louvain

10:50am - 11:00am

Development of an EO4ANK portal including an EO toolbox for the implementation and monitoring of natural climate protection measures in Germany

Thorsten Laufhütte¹, Lena Schultz-Lieckfeld¹, Gregor Weyer², Michael Förster²

¹DLR, DE; ²LUP GmbH, DE

11:00am - 11:10am **Warning: The presentations finish prior to the end of the session!**

Expanding a Decision Support System to Inform Conservation Actions with Local Communities and Governments in Tanzania and Uganda Using OPERA Land Surface Disturbance Alerts and Planet Data

Lilian Pintea¹, Devin Jacobs¹, Abigail Pendry², Paul Mjema³, Jurua Michael⁴, Seamus Lombardo⁵, Amy Rosenthal⁵

¹the Jane Goodall Institute, United States of America; ²Blue Raster LLC, United States of America; ³the Jane Goodall Institute, Tanzania; ⁴the Jane Goodall Institute, Uganda; ⁵Planet, United States of America

3.03.1a: Freshwater and Inland Wetland Ecosystems

Time: Wednesday, 12/Feb/2025: 12:00pm - 1:30pm · **Location:** Big Hall

Session Chair: Paolo Villa, National Research Council (CNR)

Session Chair: Heidi van Deventer, Council for Scientific and Industrial Research (CSIR)

12:00pm - 12:10pm

Prototyping a Policy-Driven Earth Observation Service for Monitoring Critical Wetland Habitats in Natura 2000 Sites

Christelle Vancutsem¹, Meriam Iahsaini^{1,2}, Bruno Combal³, Pavel Milenov⁴, Frank Vassen³

¹JRC, Italy; ²Arcadia/JRC; ³DG. ENV.D.3; ⁴EEA

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12:10pm - 12:20pm

Harnessing open-access Earth observation data and artificial intelligence for large-scale wetland habitat mapping

Jennifer Hird¹, Michael Merchant¹, John Simms¹, Thi Minh Thuy Doan¹, Cynthia McClain¹, Lyle Boychuk², Rebecca Edwards², Joshua Evans², Lindsay McBlane², Amanda Cooper³, Danielle Cobbaert³, Nicole Skakun³, Craig Mahoney³

¹Alberta Biodiversity Monitoring Institute, Canada; ²Ducks Unlimited Canada; ³Government of Alberta, Environment And Protected Areas

12:20pm - 12:30pm

Overview of the use of the ESA Sentinel-1 radar and -2 optical images for mapping and monitoring wetland biodiversity in South Africa

Heidi van Deventer^{1,2}, Laven Naidoo^{2,3}, Christel Hansen²

¹Council for Scientific and Industrial Research (CSIR), South Africa; ²University of Pretoria; Department of Geography, Geoinformatics and Meteorology, South Africa; ³Gauteng City Region Observatory (GCRO), South Africa

12:30pm - 12:40pm

Eco-patterns: towards a standardised methodology to assess peatland condition remotely

Eleanor Thomson, Olga Tutubalina, Marcus P. Spiegel, Thomas Fenal

Gentian Ltd, United Kingdom

12:40pm - 12:50pm

BIOMONDO - Towards Earth Observation supported monitoring of freshwater biodiversity

Petra Philipson¹, Carsten Brockmann², Miguel Dionisio Pires³, Marieke Eleveld³, Niklas Hahn¹, Tamara Keijzer⁴, Jelle Lever⁵, Daniel Odermatt⁵, Aafke Schipper⁴, Jorrit Scholze², Kerstin Stelzer², Susanne Thulin¹, Tineke Troost³

¹Brockmann Geomatics Sweden AB; ²Brockmann Consult GmbH; ³Deltares; ⁴PBL Netherlands Environmental Assessment Agency; ⁵Eawag, Swiss Federal Institute of Aquatic Science and Technology

12:50pm - 1:00pm

Seasons of Lakes: Deriving Phytoplankton Phenology using Earth Observation Data

Clara Backens¹, Jorrit Scholze¹, Kerstin Stelzer¹, Petra Philipson²

¹Brockmann Consult, Germany; ²Brockmann Geomatics, Sweden

1:00pm - 1:10pm

Assessment of eutrophication dynamics of lakes at a large scale by coupling Sentinel-2 remote sensing, machine learning and field observations

Mathilde Joffre^{1,2,3}, Roxelane Cakir³, Vanessa Dos Santos³, Matheus Tavares², Jean-Michel Martinez², Sabine Sauvage¹

¹Centre de Recherche sur la Biodiversité et l'Environnement (CRBE), Université de Toulouse, CNRS, IRD, Toulouse INP, Université Toulouse 3 – Paul Sabatier (UT3), Toulouse, France; ²Institut de Recherche pour le Développement, Laboratoire GET (IRD, CNRS, UPS, CNES), Toulouse, France; ³HETWA, Toulouse, France

1:10pm - 1:20pm Warning: The presentations finish prior to the end of the session!

Remote-sensing based detection of resilience loss in the terrestrial water cycle

Romi Amilia Lotcheris¹, Nielja Sofia Knecht¹, Lan Wang-Erlandsson^{1,2,3}, Juan Carlos Rocha Gordo^{1,3}

¹Stockholm Resilience Centre, Stockholm University, SE-106 91 Stockholm, Sweden; ²Potsdam Institute for Climate Impact Research, Member of the Leibniz Associations, 14473 Potsdam, Germany; ³Anthropocene Laboratory, Royal Swedish Academy of Sciences, SE-104 05 Stockholm, Sweden

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From Space to Sustainability: EO's Role in a nature-positive economy

Time: Thursday, 13/Feb/2025: 8:45am - 9:45am

Location: Big Hall

Session Opening and Introduction (2 minutes)

Moderators: Joseph Bull (University of Oxford) - Christoph Aubrecht (ESA)

- Welcome and introduction of the session.
- Presentation of the speakers and panellists.

Keynote Presentations: Setting the Stage (20 minutes)

- Short video messages from Romie Goedicke (UNEP FI) and Nagaraja Rao Harshadeep (World Bank)
- Nicola Ranger (University of Oxford)
- Marco Lambertini (NPI)

Panel Discussion: Insights and Reflections (35 minutes)

Moderators: Joseph Bull (University of Oxford) - Christoph Aubrecht (ESA)

- Interactive discussion with panellists addressing key questions related to the session theme.
- Panellists:
 - Mark Connelly (TNFD)
 - Andy Shaw (Assimila)
 - Nicola Ranger (University of Oxford)
 - Marco Lambertini (NPI)
 - Alessandra La Notte (Natural Capital Accounting Consultant)

Closing thoughts on the panel discussions and key topics addressed (3 mins)

4.02.1a: Habitats Suitability , Connectivity and Species Distribution

Time: Thursday, 13/Feb/2025: 10:00am - 11:30am · Location: Big Hall

Session Chair: Pedro J Leitão, University of Leipzig

Session Chair: Maria J. Santos, University of Zurich

10:00am - 10:10am

Advancing 1km² species distribution EBVs for biodiversity monitoring and planning: progress and challenges

Walter Jetz^{1,2}, Beth Gerstner^{1,2}, Kevin Winner^{1,2}, John Wilshire^{1,2}, Eva Lyu^{1,2}

¹Yale Center for Biodiversity and Global Change, United States of America; ²Yale University, United States of America

10:10am - 10:20am

From presence-only to abundance species distribution models using transfer learning

Benjamin Bourel¹, Alexis Joly¹, Maximilien Servajean^{2,3}, Simon Bettinger⁴, José Antonio Sanabria Fernández⁵, David Mouillot⁴

¹Inria, University of Montpellier, LIRMM, CNRS, Montpellier, France; ²LIRMM, University of Montpellier, CNRS, Montpellier, France; ³AMIS, Paule Valéry University, Montpellier, France; ⁴MARBEC, University of Montpellier, CNRS, IFREMER, IRD, Montpellier, France; ⁵CRETUS, Department of Zoology, Genetics and Physical Anthropology, University of Santiago de Compostela, Santiago de Compostela, Spain

10:20am - 10:30am

Predicting species distributions in the open ocean using satellite-derived environmental data and convolutional neural networks

Gaétan Morand¹, Alexis Joly², Tristan Rouyer¹, Titouan Lorieul², Julien Barde¹

¹UMR Marbec, IRD, Univ. Montpellier, CNRS, Ifremer - Montpellier, France; ²INRIA, Montpellier, France

10:30am - 10:40am

Mapping more of biodiversity: integrating spatial and phylogenetic information to improve data-deficient species distributions

Shubhi Sharma^{1,2}, Jeremy Cohen^{1,2}, Walter Jetz^{1,2}

¹Ecology and Evolutionary Biology Department, Yale University, United States of America; ²Biodiversity and Global Change Center, Yale University

10:40am - 10:50am

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An interactive tool to monitor species genetic diversity from Earth observations

Oliver Selmoni¹, Simon Pahl¹, Isabelle S. Helfenstein¹, Jean-Michel Lord², Jory Griffith², Victor J. Rincon-Parra³, Sean Hoban⁴, Alicia Mastretta-Yanes⁵, Cristiano Vernesi⁶, Katie L. Millette², Wolke Tobon-Niedfeldt⁷, Clement Albergel⁸, Deborah M. Leigh⁹, Sophie Hebden⁸, Micheal Schaepman¹, Linda Laikre¹⁰, Ghassem R. Asrar¹¹, Claudia Roeoesli¹, Meredith C. Schuman¹

¹University of Zurich, Switzerland; ²GEO BON, McGill University, Canada; ³Université de Sherbrooke, Canada; ⁴Morton Arboretum, USA; ⁵National Autonomous University of Mexico (UNAM), Mexico; ⁶Fondazione Edmund Mach, Italy; ⁷Comisión Nacional para el Conocimiento y Uso de la Biodiversidad (CONABIO), Mexico; ⁸European Space Agency (ESA); ⁹Research Institute for Forest, Snow, and Landscape (WSL), Switzerland; ¹⁰Stockholm University, Sweden; ¹¹Universities Space Research Association, Washington, DC, USA

10:50am - 11:00am

Monitoring biodiversity with ecological niche models and time series of remote sensing products

Neftali Sillero¹, João Alirio², Nuno Garcia¹, Inês Freitas¹, João Campos¹, A. Márcia Barbosa¹, Salvador Arenas Castro³, Isabel Pôças⁴, Lia Duarte^{2,5}, Ana Cláudia Teodoro^{2,5}

¹CICGE - Centro de Investigação em Ciências GeoEspaciais, Faculdade de Ciências da Universidade do Porto; ²Earth Sciences Institute (ICT), Pole of the FCUP, University of Porto, 4169-007 Porto, Portugal; ³Area of Ecology – Department of Botany, Ecology and Plant Physiology, Faculty of Sciences (University of Cordoba). Campus de Rabanales. 14014 Córdoba, Spain; ⁴CoLAB ForestWISE - Collaborative Laboratory for Integrated Forest & Fire Management, Quinta de Prados, Campus da UTAD, 5001-801 Vila Real, Portugal; ⁵Department of Geosciences, Environment and Land Planning, Faculty of Sciences, University of Porto, Rua Campo Alegre, 687, 4169-007 Porto, Portugal

11:00am - 11:10am

Walrus from Space: walrus counts from simultaneously captured remotely piloted aircraft system imagery vs very high-resolution satellite imagery

Peter T. Fretwell¹, Hannah C. Cubaynes¹, Jaume Forcada¹, Kit M. Kovacs², Christian Lydersen², Rod Downie³

¹British Antarctic Survey, United Kingdom; ²Norwegian Polar Institute, Norway; ³WWF-UK, United Kingdom

11:10am - 11:20am

Albatrosses From Space: A citizen science approach to monitor remote colonies using satellite imagery

Marie R. G. Attard¹, Richard A. Phillips¹, Sally Poncet², Steffen Oppel³, Ellen Bowler¹, Peter Fretwell¹

¹British Antarctic Survey, Natural Environment Research Council, High Cross, Madingley Road, Cambridge CB3 0ET, UK; ²South Georgia Surveys, FIQQ 1ZZ, Stanley, Falkland Islands; ³RSPB Centre for Conservation Science, Royal Society for the Protection of Birds, The Lodge, Sandy, UK

11:20am - 11:30am

MagGeo – A data fusion tool to link Earth's magnetic data from Swarm Mission to Wildlife GPS trajectories

Fernando Benitez-Paez

The University of St Andrews, United Kingdom

4.03.1a: Ecosystem Vulnerability, Integrity and Resilience

Time: Thursday, 13/Feb/2025: 12:00pm - 1:30pm · **Location:** Big Hall

Session Chair: Gabriela Schaepman-Strub, University of Zurich

Session Chair: Fabian D. Schneider, Aarhus University

12:00pm - 12:10pm

Quantifying the relationship between forest structural diversity and forest resilience.

Mark Pickering¹, Agata Elia², Marco Girardello³, Giovanni Forzieri⁴, Gonzalo Oton³, Matteo Piccardo², Guido Ceccherini³, Mirco Migliavacca³, Alessandro Cescatti³

¹Joint Research Centre Consultant, Ispra, Italy; ²European Space Research Institute, ESA-ESRIN, Frascati, Italy; ³Joint Research Centre, European Commission, Ispra, Italy; ⁴Department of Civil and Environmental Engineering, University of Florence, Florence, Italy

12:10pm - 12:20pm

Monitoring Biodiversity Change to Guide Conservation Action Using AI and Satellite Time-Series

Antonio Ferraz¹, Steven Lu¹, Sam Berndt¹, Steffen Maurceri¹, Fabian Schneider²

¹NASA Jet Propulsion Laboratory, Los Angeles, USA; ²Aarhus University, Aarhus, Denmark

BIOSPACE25

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12:20pm - 12:30pm

Evaluating the impacts of disturbance on forest carbon and structure across the wet tropics using near-coincident GEDI shots

David Coomes¹, Amelia Holcomb², Srinivasan Keshav²

¹Conservation Research Institute and Dept of Plant Sciences, University of Cambridge, United Kingdom; ²Conservation Research Institute and Dept of Computer Science and Technology, University of Cambridge, United Kingdom

12:30pm - 12:40pm

Functional Trait Responses to Drought in a temperate forest: Insights from Earth Observation

Micol Rossini¹, Beatrice Savinelli¹, Cinzia Panigada¹, Giulia Tagliabue¹, Luigi Vignali¹, Rodolfo Gentili¹, Fabian Ewald Fassnacht², Emilio Padoa-Schioppa¹

¹Department of Earth and Environmental Sciences, University of Milano-Bicocca, Italy; ²Institute of Geographical Sciences, Remote Sensing and Geoinformatics, Freie Universität Berlin, Germany

12:40pm - 12:50pm

Towards mapping ecosystem resilience from space: canopy defensive properties in European temperate forest revealed with spaceborne imaging spectroscopy

Rui Xie, Roshanak Darvishzadeh, Alejandra Torres-Rodriguez, Andrew Skidmore, Freek van der Meer

Faculty of Geo-Information Science and Earth Observation, University of Twente

12:50pm - 1:00pm

Bayesian hierarchical models for improved biodiversity monitoring

Jakob Nyström¹, Lisa Mandle², Tobias Andermann¹, Jeffrey Smith³

¹Uppsala University, Sweden; ²Natural Capital Project, Stanford University, USA; ³Princeton University, USA

1:00pm - 1:10pm

A framework for insect-based biodiversity intactness monitoring and reporting in Africa.

Tobias Landmann, Faith Ashiono, Vincent Magomere, Komi Mensah Agboka

International Centre of Insect Physiology and Ecology (ICIPE), Kenya

1:10pm - 1:20pm Warning: The presentations finish prior to the end of the session!

Using synthetic controls to attribute biodiversity shifts to remotely sensed landscape modifications

Joaquim Estopinán¹, Sara Si-Moussi¹, Lori Giagnacovo², Wilfried Thuiller¹

¹LECA, CNRS, France; ²VITO NV, Belgium



2.04.1: WS: EBVs for the GBF

Time: Tuesday, 11/Feb/2025: 3:00pm - 4:30pm · Location: Big Hall

Earth Observation, EBVs and indicators to facilitate reporting and progress on international biodiversity targets

Claire Brown¹, Susana Baena¹, Petteri Vihervaara², Maria H. Hällfors², Maria J. Santos³, Elnaz Neinavaz⁴, Margarita Huesca Martinez⁴, Bruno Smets⁵, Eline Vanuytrecht⁵, Claudia Roeoesli⁶, Isabelle Helfenstein⁶, Oliver Selmoni⁶, Meredith C. Schuman⁷, Katie L. Millette⁸

¹UNEP-WCMC, United Kingdom; ²Nature Solutions, Finnish Environment Institute; ³Remote Sensing Laboratories, Department of Geography, University of Zurich; ⁴Department of Natural Resources, Faculty of Geo-Information Science and Earth Observation (ITC), University of Twente; ⁵Environmental Intelligence Unit, Remote sensing | Natural Capital Accounting & Biodiversity, Flemish Institute for Technological Research (VITO); ⁶Dept. of Geography, University of Zurich, Switzerland; ⁷Dept. of Geography, University of Zurich, Switzerland & Dept. of Chemistry, University of Zurich, Switzerland; ⁸GEO BON, Department of Biology, McGill University, Canada

4.04.3: WS: Biodiversity monitoring operationalisation

Time: Wednesday, 12/Feb/2025: 3:00pm - 4:30pm · Location: Big Hall

Operationalizing Biodiversity Monitoring

Jan-Erik Petersen¹, Usue Donezar¹, Jose Miguel Rubio¹, Andrus Meiner¹, Pavel Milenov¹, Sander Mucher²

¹European Environment Agency (EEA); ²Wageningen Environmental Research (WENR)

4.04.2: WS: Integration in-situ and SRS Integration

Time: Thursday, 13/Feb/2025: 3:00pm - 4:30pm · Location: Big Hall

From Uncertainty to Action: Integrating In-Situ and Remote Sensing Campaigns for Open Biodiversity Data Products

Anabelle Cardoso^{1,8}, Kyla Dahlin², Mike Harfoot³, Erin Hestir⁴, Carsten Meyer⁵, Javier Pacheco-Labrador⁶, Christian Rossi⁷, Maria J. Santos⁷, Adam M. Wilson¹

¹University at Buffalo, United States of America; ²Michigan State University, United States of America; ³Vizzuality, United Kingdom; ⁴University of California Merced, United States of America; ⁵iDiv; ⁶Spanish National Research Council (CSIC), Spain; ⁷University of Zurich, Switzerland; ⁸University of Capetown, South Africa

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Presentations - MAGELLAN MEETING ROOM

2.02.2b: Ecosystem Traits and their use in biodiversity applications

Time: Tuesday, 11/Feb/2025: 10:00am - 11:30am · **Location:** Magellan meeting room

Session Chair: Micol Rossini, University of Milano Bicocca

Session Chair: Gregory Duveiller, Max Planck Institute for Biogeochemistry

10:00am - 10:10am

Biodiversity from Space: Understanding Large-Scale Patterns of Ecosystem Structure and Diversity with Remote Sensing

Fabian D. Schneider^{1,2}, Ryan Pavlick^{3,2}, Ting Zheng⁴, Antonio Ferraz², Natalie Queally⁴, Ethan Shafron^{2,5}, Morgan Dean⁶, Laura Berman⁴, Zhiwei Ye⁴, Giulia Tagliabue⁷, Philip A. Townsend⁴

¹Aarhus University, Denmark; ²Jet Propulsion Laboratory / California Institute of Technology, USA; ³NASA Headquarters, USA; ⁴University of Wisconsin-Madison, USA; ⁵University of Montana, USA; ⁶University of California Los Angeles, USA; ⁷University of Milano-Bicocca, USA

10:10am - 10:20am

Vegetation structure and plant functional traits predict pollination networks across the tropics

Kendall M. Jefferys¹, Luísa G. Carvalheiro², Adrian Gonzalez-Chaves², Jacobus Petersen¹, Xiongjie Deng¹, Waira S. Machida², Katherine Baldock³, Danilo Boscolo^{4,5}, Daniel Carstensen⁶, Alice Classen⁷, Patricia Alves Ferreira^{5,8}, Breno M. Freitas⁹, Alipio Pacheco Filho⁹, Travis J. Guy¹⁰, Ruben Heleno¹¹, Christopher Kaiser-Bunbury¹², Luciano Elsinor Lopes^{5,8}, Gabriel Guariglia Perez⁸, Raimunda Gomes Silva Soares⁴, Anna Traveset¹³, Chloe Strevens¹, Jesús Aguirre-Gutierrez¹

¹University of Oxford, Environmental Change Institute, School of Geography and the Environment Oxford, UK; ²Universidade Federal de Goiás, Department of Ecology, Instituto de Ciências Biológicas, Goiânia, Brazil; ³Northumbria University, Department of Geography and Environmental Sciences, Newcastle upon Tyne, United Kingdom; ⁴Universidade de São Paulo (USP), Departamento de Biologia, Faculdade de Filosofia, Ciências e Letras de Ribeirão Preto (FFCLRP), São Paulo, Brazil; ⁵National Institute of Science and Technology in Interdisciplinary and Transdisciplinary Studies in Ecology and Evolution (INTREE), Brazil; ⁶University of Copenhagen, Center for Macroecology, Evolution and Climate, GLOBE Institute, Copenhagen, Denmark; ⁷University of Würzburg, Department of Animal Ecology and Tropical Biology, Würzburg, Germany; ⁸Federal University of São Carlos, Department of Environmental Sciences, São Carlos, Brazil; ⁹Universidade Federal do Ceará, Bee Unit, Department of Animal Sciences, Fortaleza - CE, Brazil; ¹⁰University of Florida, Department of Biology, Gainesville, FL USA; ¹¹University of Coimbra, Centre for Functional Ecology, Associate Laboratory TERRA, Department of Life Sciences, Coimbra, Portugal; ¹²University of Exeter, Centre for Ecology and Conservation, Penryn Campus, UK; ¹³Mediterranean Institute for Advanced Studies (CSIC-UIB), Global Change Research Group, C/Miquel Marques 21Esportles, Mallorca, Balearic Islands, Spain

10:20am - 10:30am

A Bayesian Framework for Sensor-Agnostic Plant Trait Prediction Using Imaging Spectroscopy

Dhruva Kathuria^{1,2}, Yoseline Angel^{1,3}, Evan Lang^{1,4}, Dana Chadwick⁵, Shawn Serbin¹, Philip G Brodrick⁵, Philip A Townsend⁶, Ting Zheng⁶, Alexey N Shiklomanov¹

¹NASA Goddard Space Flight Center; ²GESTAR II, Morgan State University; ³ESSIC, University of Maryland; ⁴Science Systems and Applications, Inc.; ⁵Jet Propulsion Laboratory; ⁶University of Wisconsin

10:30am - 10:40am

Towards estimating vegetation structure from orbit: a case study for tropical forest and TanDEM-X

Andreas Huth¹, Leonard Schulz¹, Kostas Papathanassiou²

¹Helmholtz Centre for Environmental Research UFZ, Leipzig Germany; ²German Aerospace Center (DLR), Oberpfaffenhofen Germany

10:40am - 10:50am

Exploring the role of vegetation height heterogeneity through LiDAR information for biodiversity estimation

Michele Torresani¹, Vítězslav Moudrý², Duccio Rocchini³, Michela Perrone⁴, Roberto Tognetti⁵

¹Free University of Bolzano-Bozen, Italy; ²Czech University of Life Sciences Prague; ³University of Bologna; ⁴Czech University of Life Sciences Prague; ⁵Free University of Bolzano-Bozen, Italy

10:50am - 11:00am Warning: The presentations finish prior to the end of the session!

Soil carbon predictions across the landscape using remotely- sensed canopy structure measurements in southern Amazonia

Jessica P. Thomas¹, Andrew M. Cunliffe¹, Hugh A. Graham^{1,2}, Tom Powell¹, Plinio B. Camargo³, Ted R. Feldpausch¹

¹University of Exeter, United Kingdom; ²Permian Global, United Kingdom.; ³University of São Paulo, Center for Nuclear Energy in Agriculture, Brazil



2.03.2b: Ecosystem Function and Functional Diversity

Time: Tuesday, 11/Feb/2025: 12:00pm - 1:30pm · **Location:** Magellan meeting room

Session Chair: Jean-Baptiste Feret, INRAE

Session Chair: Roshanak Darvishzadeh, University of Twente, Faculty ITC

12:00pm - 12:10pm

A comparative analysis of field-based ecology and remote sensing approaches to plant functional diversity

José Miguel Cerda-Paredes^{1,2}, **Laura C. Pérez-Giraldo**¹, **Javier Pacheco-Labrador**³, **Anna K. Schweiger**⁴, **Miguel D. Mahecha**⁵, **Javier Lopatin**^{1,2,6}, **Dylan Craven**^{1,7}

¹Data Observatory Foundation, Santiago, Chile; ²Faculty of Engineering and Sciences, Adolfo Ibáñez University, Santiago, Chile;

³Environmental Remote Sensing and Spectroscopy Laboratory (SpecLab), Spanish National Research Council, Madrid, Spain;

⁴Department of Land Resources and Environmental Sciences, Montana State University, Bozeman, MT, USA; ⁵Institute for Earth System Science and Remote Sensing, Leipzig University, Germany; ⁶Center for Climate Resilience Research (CR)2, University of Chile, Santiago, Chile; ⁷GEMA Center for Genomics, Ecology & the Environment, Universidad Mayor, Santiago, Chile

12:10pm - 12:20pm

The death of the Spectral Variation Hypothesis and the rise of its useful ‘Zombies’

Christian Rossi^{1,2}, **Michele Torresani**³, **Michela Perrone**⁴, **Leon Hauser**¹

¹University of Zurich; ²Swiss National Park; ³Free University of Bozen-Bolzano; ⁴Czech University of Life Sciences Prague

12:20pm - 12:30pm

BOSSE, a Biodiversity Observing System Simulation Experiment for assessing Biodiversity-Ecosystem Function relationships

Javier Pacheco-Labrador^{1,2}, **Ulisse Gomasasca**², **Daniel E. Pabon-Moreno**², **Wantong Li**², **Martin Jung**², **Mirco Migliavacca**³, **Gregory Duveiller**²

¹Spanish National Research Council, Spain; ²Max Planck Institute for Biogeochemistry, Jena, Germany; ³European Commission, Joint Research Centre, Ispra, Italy

12:30pm - 12:40pm

Satellite-derived biodiversity effects on the functioning and multifunctionality of ecosystems at global eddy covariance sites

Ulisse Gomasasca^{1,2}, **Gregory Duveiller**¹, **Javier Pacheco-Labrador**³, **Alessandro Cescatti**⁴, **Christian Wirth**^{1,2,5}, **Markus Reichstein**^{1,5}, **Mirco Migliavacca**⁴

¹Max Planck Institute for Biogeochemistry, Hans-Knöll-Str. 10, 07745 Jena, Germany; ²Institute of Biology, Leipzig University, Leipzig, Germany; ³Environmental Remote Sensing and Spectroscopy Laboratory (SpecLab), Spanish National Research Council, Albasanz 26-28, 28037, Madrid, Spain; ⁴European Commission, Joint Research Centre, Ispra 21027 VA, Italy; ⁵German Centre for Integrative Biodiversity Research (iDiv) Halle-Jena Leipzig, Leipzig, Germany

12:40pm - 12:50pm

3D biodiversity and ecosystem function: Using lidar and hyperspectral remote sensing to understand ecosystem patterns and processes in a temperate forest

Kyla M Dahlin¹, **Meicheng Shen**¹, **Aaron G Kamoske**², **Adriana Uscanga**³, **Scott C Stark**¹, **Shawn P Serbin**⁴, **Chris M Gough**⁵, **Ben Bond-Lamberty**⁶, **Jason M Tallant**⁷, **Jeffrey W Atkins**²

¹Michigan State University, USA; ²US Forest Service, USA; ³University of Minnesota, USA; ⁴NASA, USA; ⁵Virginia Commonwealth University, USA; ⁶Pacific Northwest National Lab, USA; ⁷University of Michigan, USA

12:50pm - 1:00pm

Quantifying the functional trait variation across tropical forests with satellite data

Jesus Aguirre Gutierrez

University of Oxford, United Kingdom

1:00pm - 1:10pm

Exploring tree functional diversity with remote sensing over the Congo Basin within the CoForFunc project

Gregory Duveiller¹, **Pierre Ploton**², **Nicolas Barbier**², **Ulisse Gomasasca**¹, **Felix Cremer**¹, **Maria Piles**³, **Javier Pacheco-Labrador**⁴, **Jordi Martinez-Vilalta**^{5,6}, **Jean-François Bastin**⁷, **Raphaël Pélissier**²

¹Max Planck Institute for Biogeochemistry, Germany; ²AMAP, Univ Montpellier, IRD, CNRS, INRAE, CIRAD, Montpellier, France; ³Image Processing Laboratory, Universitat de València, Valencia, Spain; ⁴Environmental Remote Sensing and Spectroscopy Laboratory (SpecLab), Spanish National Research Council, Madrid, Spain; ⁵CREAF, E08193 Bellaterra (Cerdanyola del Vallès), Catalonia, Spain;

⁶Universitat Autònoma de Barcelona, E08193 Bellaterra (Cerdanyola del Vallès), Catalonia, Spain; ⁷Terra teaching and research centre, Gembloux Agro Bio-Tech, Université de Liège, Belgium

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1:10pm - 1:20pm Warning: The presentations finish prior to the end of the session!

Upscaling boreal forest functional diversity from leaf to canopy level and across the seasons at Caribou Creek, AK, USA - product prototypes for NASA's SBG and ESA's FLEX and CHIME missions

Petya Campbell¹, Shawn Serbin², K. Fred Huemrich¹, Christiaan van der Tol³

¹UMBC GESTAR II and NASA GSFC, United States of America; ²NASA GSFC, United States of America; ³University of Twente, Netherlands

3.02.2b: Marine Ecosystems

Time: Wednesday, 12/Feb/2025: 10:00am - 11:30am · Location: Magellan meeting room

Session Chair: Emanuele Organelli, CNR ISMAR

Session Chair: Marie-Helene Rio, European Space Agency

10:00am - 10:10am

Scaling image-based marine plankton biodiversity using dynamic satellite seascapes: a contribution of the Southeast U.S. Marine Biodiversity Observation Network (SE US MBON)

Enrique Montes^{1,2}, Maria T. Kavanaugh³, Tyler Christian^{1,2}, Frank E. Muller-Karger⁴, Nicole C. Millete⁵, Luke R. Thompson^{6,2}, Christopher R. Kelble⁷

¹Cooperative Institute for Marine & Atmospheric Studies, Rosenstiel School of Marine, Atmospheric, and Earth Science of the University of Miami, Miami, Florida, USA; ²Ocean Chemistry & Ecosystems Division, Atlantic Oceanographic and Meteorological Laboratory, National Oceanic and Atmospheric Administration, Miami, Florida, USA; ³College of Earth, Ocean, and Atmospheric Sciences, Oregon State University, Corvallis, Oregon, USA; ⁴College of Marine Science, University of South Florida, St Petersburg, Florida, USA; ⁵Virginia Institute of Marine Science, William & Mary, Gloucester Pt., Virginia, USA; ⁶Northern Gulf Institute, Mississippi State University, Starkville, Mississippi, USA; ⁷Office of Science and Technology, National Marine Fisheries Service, National Oceanic and Atmospheric Administration, Silver Spring, Maryland, USA

10:10am - 10:20am

Mediterranean 4D seascape based on phytoplankton phenology detected from satellite observations: patterns and drivers

Riccardo Nanni^{1,2}, Emanuele Organelli¹, Christian Marchese¹, Michela Sammartino², Simone Colella¹, Bruno Buongiorno Nardelli²

¹Istituto di Scienze Marine (ISMAR), Consiglio Nazionale delle Ricerche (CNR), Roma; ²Istituto di Scienze Marine (ISMAR), Consiglio Nazionale delle Ricerche (CNR), Napoli

10:20am - 10:30am

Absorption diversity of bloom-forming phytoplankton species, toward hyperspectral remote sensing identification of red tide events?

Maria Laura ZOFFOLI¹, Pierre GERNEZ¹, Victor POCHIC¹, Amalia Maria DETONI³, Pauline ROUX⁴, Martin HIERONYMI⁵, Henning BURMESTER⁵, Tristan HARMEL⁶, Thomas LACOUR⁷, Rüdiger ROETTIGERS⁵

¹Nantes University, France; ²Consiglio Nazionale delle Ricerche (CNR), Italy; ³Consejo Superior de Investigaciones Científicas (CSIC), Spain; ⁴Institute of Environmental Engineering (ETH Zurich), Switzerland; ⁵Helmholtz-Center Hereon, Germany; ⁶Magellium, France; ⁷Ifremer, France

10:30am - 10:40am

Phytoplankton assemblage structure off southwestern Iberia: combining complementary approaches to assess variability and underlying drivers

Maria João Lima, Ana Barbosa

Centre for Marine and Environmental Research (CIMA), Aquatic Research Network (ARNET), University of Algarve, Portugal

10:40am - 10:50am

Linking satellites to genes to observe the phytoplankton community structure from space

Roy El Hourany¹, Juan Pierella Karlusich^{2,3}, Pedro Junger³, Lucie Zinger³, Hubert Loisel¹, Chris Bowler², Marina Levy⁴

¹Laboratoire d'Océanologie et de Géosciences; ²FAS Harvard University; ³Institut de Biologie de l'École Normale Supérieure; ⁴Laboratoire d'Océanographie et du Climat: Expérimentations et Approches Numériques

10:50am - 11:00am

A satellite-genomics approach to explore phytoplankton iron ecophysiology in the global ocean

Pedro C. Junger¹, Roy El Hourany², Vitushanie Yoganjan¹, Juan Pierella Karlusich³, Chris Bowler¹

¹Institut de Biologie de l'École Normale Supérieure (IBENS), École Normale Supérieure, CNRS, INSERM, PSL Université Paris, 75005 Paris, France.; ²Laboratoire d'Océanologie et de Géosciences (LOG), Univ. Littoral Côte d'Opale, Univ. Lille, CNRS, IRD, 62930 Wimereux, France.; ³Department of Biology, Massachusetts Institute of Technology, 02139 Cambridge, MA, USA.

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11:00am - 11:10am

Relationships between shelf-sea fronts and biodiversity studied using Earth observation data

Peter I Miller¹, Emma Sullivan¹, Beth Scott², James Waggitt³, Will Schneider³, Deon Roos², Andrey Kurekin¹, Georgina Hunt², Graham Quartly¹, Juliane Wihsgott¹, Morgane Declerck², Elin Meek¹

¹Plymouth Marine Laboratory, United Kingdom; ²University of Aberdeen, United Kingdom; ³University of Bangor, United Kingdom

11:10am - 11:20am **Warning: The presentations finish prior to the end of the session!**

Large-scale automated detection of Humpback and Gray whales in satellite imagery using deep-learning for conservation monitoring off California

Ludwig HOUEGNIGAN, Eduardo CUESTA, Darcy BRADLEY

Polytechnic University of Catalonia, Spain

3.03.2b: Coastal Ecosystems

Time: Wednesday, 12/Feb/2025: 12:00pm - 1:30pm · **Location:** Magellan meeting room

Session Chair: Victor Martinez Vicente, Plymouth Marine Laboratory

Session Chair: Marie-Helene Rio, European Space Agency

12:00pm - 12:10pm

A Full Map of European Intertidal Seagrass.

Bede Ffinian Rowe Davies¹, Simon Oiry¹, Mar Roca², Phillipe Rosa¹, Maria Laura Zoffoli³, Dimitris Poursanidis⁴, Pierre Gernez¹, Laurent Barillé¹

¹University of Nantes, France; ²University of Cadiz, Spain; ³Consiglio Nazionale delle Ricerche; ⁴Institute of Applied and Computational Mathematics/FORTH

12:10pm - 12:20pm

Developing EO-based framework for estimating biodiversity variables of coral reef and seagrass ecosystems at Large Scale

Touria Bajjouk¹, Antoine Lavrard-Meyer¹, Audrey Minghelli², Lucas Drumetz³, Pascal Mouquet⁴, Antoine Huguet⁵, Malik Chami⁶, Mauro Dalla Mura⁷, Sophie Loyer⁸, Jean-Baptiste Féret⁹, Magali Duval¹⁰, Sylvain Bonhommeau¹⁰, Lionel Bigot¹¹

¹IFREMER, Centre de Bretagne, DYNECO Laboratoire d'Ecologie Benthique Côtière (LEBCO), Plouzané, France; ²Laboratoire d'Informatique et Systèmes (LIS) laboratory, Seatech, University of Toulon, CNRS-UMR 7020, Toulon, France; ³IMT Atlantique, Lab-STICC, UMR CNRS, Brest, France; ⁴UMR Espace-Dev/IRD, France; ⁵IFREMER, Centre Atlantique, COAST-LERMPL, Nantes, France; ⁶Université Côte d'Azur, Observatoire de la Côte d'Azur, CNRS, Sorbonne Université (UFR 918), France; ⁷Univ. Grenoble Alpes, CNRS, Grenoble INP*, GIPSA-lab, Institut Universitaire de France (IUF), Grenoble, France; ⁸Shom, Direction de la recherche, de l'innovation et des programmes, Brest, France; ⁹TETIS, INRAE, AgroParisTech, CIRAD, CNRS, Université Montpellier, Montpellier, France; ¹⁰IFREMER, Délégation océan Indien (DOI), Département Ressources Biologiques et Environnement (RBE), La Réunion, France; ¹¹Université de La Réunion-IRD-CNRS-Ifremer-Université de la Nouvelle Calédonie, UMR, La Réunion, France

12:20pm - 12:30pm

A innovative approach for remote sensing methods and sensors benchmarking prior to BCE monitoring at large scale.

Benoit Bequet, Rémi Budin, Cécile Curti, Nicolas Debonnaire, Clemence Rozo, Julie Mollies, Amélie Sechaud, Manon Tranchand-Besset, Virginie Lafon, Aurélie Dehouck

i-Sea, France

12:30pm - 12:40pm

Improving the assessment of Blue Carbon stock of mangroves using remote sensing along the Amazon coast

Elodie Blanchard¹, Thibault Catry¹, Quentin Marsal¹, Benoit Béquet², Jean-François Faure¹, Gwenaël Abril³, Johanna Jupin⁴, Christophe Proisy^{5,6}

¹UMR ESPACE-DEV, IRD, Univ. Montpellier, Univ. Guyane, Univ. La Réunion, Univ. Antilles, Montpellier, France; ²i-Sea, Bordeaux, France; ³UMR 8067 BOREA, MNHM, CNRS, IRD, SU, UCN, UAG, Paris, France; ⁴UMR LOCEAN, IRD, Bondy, France; ⁵UMR AMAP, IRD, Cayenne, French Guiana; ⁶AMAP, IRD, CIRAD, CNRS, INRAE, Univ. Montpellier, Montpellier, France

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12:40pm - 12:50pm

Space-based monitoring of mangroves for anticipatory Nature-Based Solutions: a three-point research agenda

Christophe PROISY^{1,2}, Thibault CATRY³, Elodie BLANCHARD³, Paul-Emile AUGUSSEAU^{1,2,4}, Médie COLLET⁵, Adrien STAQUET^{1,2,4}, Quentin MARSAL^{2,3}, Gwenaél ABRIL⁶, Edward ANTHONY⁷, Elodie BORIAU^{1,2}, Léa ACKERER⁸, Benoit BEGUET⁹, Fabian BLANCHARD⁴, Jean-Bernard DUCHEMIN⁵, François FROMARD¹⁰, Antoine GARDEL⁴, Ludovic GRANJON⁴, Martine HOSSAERT¹¹, Dominique JOLY¹¹, Johanna JUPIN¹², Tanguy MAURY⁴, Christophe PEYREFITTE⁵, Philip ROCHE¹³, Pierre SCEMAMA¹⁴, Olivier THEBAUD¹⁴, Romain WALCKER¹⁰

¹AMAP, IRD, French Guiana, France; ²AMAP, IRD, CIRAD, CNRS, INRAE, Univ. Montpellier, France; ³ESPACE-DEV, IRD, Univ. Montpellier, Univ. Guyane, Univ. La Réunion, Univ. Antilles, Montpellier, France; ⁴LEEISA, CNRS, IFREMER, Univ. Guyane, French Guiana, France; ⁵Institut Pasteur de la Guyane, French Guiana, France; ⁶BOREA, MNHN, CNRS, IRD, SU, UCN, UAG, Paris, France; ⁷Aix-Marseille University, CNRS, IRD, INRAE, Collège de France, CEREGE, Aix-en-Provence, France; ⁸SEPANGUY, Cayenne, French Guiana, France; ⁹i-Sea, France; ¹⁰CRBE, CNRS, Univ. Toulouse III Paul Sabatier, Toulouse INP, IRD; ¹¹CNRS, Paris, France; ¹²LOCEAN, IRD, CNRS, MNHN, Sorbonne Univ., Bondy, France; ¹³RECOVER, INRAE, Aix-Marseille Univ., Aix-en-Provence, France; ¹⁴AMURE, IFREMER, CNRS, IRD, Univ. Bretagne Occidentale, Plouzané, France

12:50pm - 1:00pm

Multi-scale mapping of charismatic megafauna: leveraging long-term site and regional level spatial data to inform satellite-based remote sensing of kelp forests in British Columbia, Canada

Luba Y. Reshitnyk¹, Ashland Aguilar², Tom W. Bell², Margot Hessing-Lewis¹, Henry Houskeeper², Lauren Man³, Ondine Pontier¹

¹Hakai Institute, Canada; ²Wood's Hole Oceanographic Institute; ³University of Victoria

1:00pm - 1:10pm

Spatiotemporal Evaluation and Hyperspectral Modelling of Microphytobenthos Gross Primary Productivity in France Estuarine Environments

Hajar Saad El Imanni¹, Augustin Debly¹, Régis Gallon², Julien Deloffre³, Adrien Jacotot⁴, Simon Oiry¹, Philippe Rosa¹, Patrick Launeau⁵, Vona Meleder¹

¹Nantes Université, Institut des Substances et Organismes de la Mer, ISOMer, UR 2160, F-44000 Nantes, France; ²Conservatoire National des Arts et Métiers-INTECHMER, Laboratoire Universitaire des Sciences Appliquées de Cherbourg LUSAC, Unicaen, 51000 Cherbourg, France; ³Université de Rouen, M2C, UMR 6143, CNRS, Morphodynamique Continentale et Côtière, F-76821 Mont Saint Aignan Cedex, France; ⁴UMR7327 Institut des sciences de la Terre d'Orléans (ISTO), Orléans, France; ⁵Université de Nantes, Laboratoire de Planétologie et Géodynamique (UMR 6112, CNRS), Faculté des Sciences et des Techniques, BP 92208, 44322 Nantes CEDEX 3, France

1:10pm - 1:20pm Warning: The presentations finish prior to the end of the session!

Effect of Marine and Atmospheric Heatwaves on Reflectance and Pigment Composition of Intertidal *Nanozostera noltei*

Simon Oiry¹, Bede Ffinian Rowe Davies¹, Philippe Rosa¹, Augustin Debly¹, Maria Laura Zoffoli², Anne-Laure Barillé³, Nicolas Harin³, Pierre Gernez¹, Laurent Barillé¹

¹Institut des Substances et Organismes de la Mer, ISOMer, Nantes Université, UR 2160, F-44000 Nantes, France; ²Consiglio Nazionale delle Ricerche, Istituto di Scienze Marine (CNR-ISMAR), 00133 Rome, Italy; ³Bio-littoral, Immeuble Le Nevada, 2 Rue du Château de l'Eraudière, 44300 Nantes, France

4.02.2b: Ecosystem Condition and Restoration

Time: Thursday, 13/Feb/2025: 10:00am - 11:30am · **Location:** Magellan meeting room

Session Chair: Duccio Rocchini, Alma Mater Studiorum University of Bologna

Session Chair: Jana Mullerova, Jan Evangelista Purkyně University in Ústí n.L.

10:00am - 10:10am

Monitoring forest ecosystem restoration with FERM and SEPAL geospatial tools

Yelena Finegold, Carmen Morales Martin, Pooja Pandey, Hasan Awad

FAO, Italy

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10:10am - 10:20am

Mapping individual tree mortality using sub-meter Earth observation data: Advances toward a large-scale global database

Samuli Juntila¹, Anis Ur Rahman¹, Einari Heinaro¹, Antti Polvivaara¹, Mete Ahishali¹, Minna Blomqvist¹, Tuomas Yrttimaa¹, Natalia Rehush², Markus Holopainen³, Eija Honkavaara⁴, Juha Hyyppä⁴, Ville Laukkanen⁵, Mikko Vastaranta¹, Heli Peltola¹, Clemens Mosig^{7,8}, Teja Kattenborn⁹, Kristjan Ait⁶, Miroslav Svoboda¹⁰, Yan Cheng¹¹, Stephanie Horion¹¹

¹School of Forest Sciences, Faculty of Science, Forestry and Technology, University of Eastern Finland; ²Swiss Federal Institute for Forest, Snow and Landscape Research WSL, Switzerland; ³Department of Forest Sciences, Faculty of Agriculture and Forestry, University of Helsinki, Finland; ⁴Department of Remote Sensing and Photogrammetry, Finnish Geospatial Institute (FGI) of National Land Survey of Finland; ⁵KOKO Forest Ltd., Helsinki, Finland; ⁶Institute of Forestry and Engineering, Estonian University of Life Sciences, Estonia; ⁷Institute for Earth System Science and Remote Sensing, Leipzig University, Germany; ⁸Center for Scalable Data Analytics and Artificial Intelligence (ScaDS.AI), Germany; ⁹Sensor-based Geoinformatics (geosense), University of Freiburg, Germany; ¹⁰Czech University of Life Sciences, Faculty of Forestry and Wood Sciences, Czech Republic; ¹¹Department of Geosciences and Natural Resource Management, University of Copenhagen, Denmark

10:20am - 10:30am

Reclaiming the Forest: Indigenous-Led Reforestation and Carbon Monitoring in the Ecuadorian Amazon

Mario Vargas Shakaim^{1,2}, Diana Mastracci^{1,2}

¹Geo Indigenous Alliance; ²Space4Innovation

10:30am - 10:40am

RestorEO – Towards an EO-based monitoring system for biodiversity and ecosystem restoration in Austria

Janik Deutscher¹, Manuela Hirschmugl^{1,2}, Petra Miletich¹, Florian Lipp², Martin Puhm¹

¹Joanneum Research, Austria; ²University Graz, Austria

10:40am - 10:50am

Linkages Between Condition Indicators and the Flood Control Ecosystem Service in the Urban Ecosystem

Mayra Alejandra Zurbaran Nucci¹, Sara Vallecillo²

¹European Commission, DG JRC, Italy; ²Unisystems Luxembourg Sarl, Luxembourg

10:50am - 11:00am

A multisource adaptive strategy for the characterization and monitoring of ecological corridors by remote sensing.

Virginie Lafon, Rémi Budin, Benoît Beguet, Clemence Rozo, Nicolas Débonnaire, Nicolas Durou

i-Sea, France

11:00am - 11:15am

Spatiotemporal patterns of Amazonian canopy mortality revealed by remote sensing time series

Kristian Bodolai¹, Anastasia Kozhevnikova², Stephanie Earp¹, Pablo Sánchez-Martínez², Patrick Meir², Edward Mitchard¹

¹Space Intelligence; ²School of Geosciences, University of Edinburgh

4.03.2b: Biodiversity-Related Risks and Nature Markets

Time: Thursday, 13/Feb/2025: 12:00pm - 1:30pm · **Location:** Magellan meeting room

Session Chair: Julien Radoux, Université catholique de Louvain

Session Chair: Nicholas Coops, UBC Forestry

12:00pm - 12:10pm

Rethinking the role of Earth Observation in assessing nature-related economic and financial risks

Alessandra La Notte

International Consultant on Natural Capital Accounting, Italy

12:10pm - 12:20pm

Asset location data is the key to unlock and scale EO insights for biodiversity finance

Christophe Christiaen, Stephanie Walton

University of Oxford, United Kingdom

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12:20pm - 12:30pm

A framework for Monitoring, reporting and Verification of Biodiversity and Ecosystem Services (MRV-BES)

Ruben Valbuena

Swedish University of Agricultural Sciences, Sweden

12:30pm - 12:40pm

Global exposure of species, protected areas, countries and ecoregions to oil palm plantations

Marine Robuchon⁴, **Diego Juffe-Bignoli**¹, **Zoltan Szantoi**², **Andrea Mandrici**³, **Giacomo Delli**³, **Luca Battistella**⁴, **Grégoire Dubois**⁴

¹Durrel Institute for Conservation and Ecology, UK; ²European Space Agency, Italy; ³Arcadia SIT S.r.l., Italy; ⁴Joint Research Centre of the European Commission, Italy

12:40pm - 12:50pm

A satellite-supported service to monitor the habitat suitability of agricultural land and to evaluate the impact of agricultural environmental policies on farmland birds

Nastasja Scholz¹, **Annett Frick**¹, **Ursula Ploetz**¹, **Levin Wiedenroth**², **Damaris Zurell**², **Nika Oman Kadunc**³, **Nejc Vesel**³, **Ine Rosier**⁴, **Rik Hendrix**⁴, **Ruth Sonnenschein**⁵, **Bartolomeo Ventura**⁵, **Tomas Orlickas**⁶, **Martynas Rimgaila**⁶, **Mindaugas Busila**⁷

¹LUP - Luftbild Umwelt Planung GmbH, Germany; ²University of Potsdam; ³Sinergise Solutions; ⁴VITO; ⁵Eurac Research; ⁶National Paying Agency under the Ministry of Agriculture of the Republic of Lithuania; ⁷Agro Digital Solutions

12:50pm - 1:05pm

Fast-forward private sector investment into conservation through outcome-based finance mechanisms

Benjamin Leutner, **Marlyn van der Laarse**, **Sonja Stuchtey**

The Landbanking Group, Germany

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4.04.1: WS: GBiOS

Time: Tuesday, 11/Feb/2025: 3:00pm - 4:30pm · *Location:* Magellan meeting room

Establishing a Global Biodiversity Observation System (GBiOS): What do we have, and what do we need?

Andrew Gonzalez¹, Alice Catherine Hughes²

¹GEOBON / McGill University; ²University of Hong Kong, Hong Kong S.A.R. (China)/ APBON

2.04.2: WS: Ecosystem Conservation

Time: Wednesday, 12/Feb/2025: 3:00pm - 4:30pm · *Location:* Magellan meeting room

Co-designing Earth Observation Solutions for Ecosystems Conservation

Jasper Van doninck¹, Marcos Kavlin², Andy Dean², Michael Munk³, Wietske Bijker¹, Louise Willemen¹

¹University of Twente, Faculty of Geo-Information Science and Earth Observation (ITC), Netherlands; ²Hatfield Consultants, Canada; ³DHI, Denmark

2.04.4: WS: Copernicus for biodiversity

Time: Thursday, 13/Feb/2025: 3:00pm - 4:30pm · *Location:* Magellan meeting room

From Copernicus services to biodiversity monitoring

Michel, F. Massart¹, Andreas Brink¹, Usue Donezar², Jose Miguel Rubio Iglesias², Pierre-Yves Le Traon³, Laurence Rouil⁴, Carlo Buontempo⁴

¹European Commission, Belgium; ²European Environment Agency; ³Mercator Ocean International; ⁴ECMWF



James COOK ROOM

2.02.4: DEMO - BON in a Box

Time: Tuesday, 11/Feb/2025: 10:00am - 11:30am · *Location:* James Cook meeting room

Leveraging EO data for biodiversity monitoring and reporting with BON in a Box

Jory Griffith¹, Jean-Michel Lord¹, Guillaume Larocque²

¹GEO BON and McGill University; ²Québec Centre for Biodiversity Science, Biodiversité Québec, and McGill University

2.02.3: DEMO - GEO Global Ecosystem Atlas

Time: Tuesday, 11/Feb/2025: 12:00pm - 1:30pm · *Location:* James Cook meeting room

The Global Ecosystems Atlas: An Interactive Experience

David Patterson

GEO secretariat, IGO

2.03.4: DEMO - BIOSCAPE

Time: Wednesday, 12/Feb/2025: 10:00am - 11:30am · *Location:* James Cook meeting room

Harnessing analysis tools for biodiversity applications using field, airborne, and orbital remote sensing data from NASA's BioSCAPE campaign

Michele Thornton¹, Rupesh Shrestha¹, Erin Hestir², Adam Wilson³, Jasper Slingsby⁴, Anabelle Cardoso^{3,4}

¹Oak Ridge National Laboratory Distributed Active Archive Center; ²University of California, Merced; ³University at Buffalo; ⁴University of Cape Town

3.02.3: DEMO - GBIF

Time: Wednesday, 12/Feb/2025: 12:00pm - 1:30pm · *Location:* James Cook meeting room

GBIF: Effective use of GBIF-mediated data

Andrew Rodrigues

Data Partnerships Officer, GBIF Secretariat, Copenhagen Denmark

4.02.3: DEMO - Global Terrestrial Laser Scanning Database

Time: Thursday, 13/Feb/2025: 10:00am - 11:30am · *Location:* James Cook meeting room

Understanding 3D Structural Signature of Biodiversity Traits in Dry Forests

Atticus Stovall^{1,2}, Shukhrat Shokirov^{2,3}, John Armston², Lisa Patrick Bentley⁴, Kim Calders⁵, Mathias Disney⁶, Lola Fatoyinbo¹

¹NASA Goddard Space Flight Center, United States of America; ²University of Maryland, United States; ³TIIAME National Research University, Uzbekistan; ⁴Sonoma State University, United States; ⁵Ghent University, Belgium; ⁶University College London, United Kingdom

4.03.3: DEMO: Biodiversity data cubes

Time: Thursday, 13/Feb/2025: 12:00pm - 1:30pm · *Location:* James Cook meeting room

Biodiversity data cubes

Maarten Trekels¹, Lissa Breugelmans², Rocio Beatriz Cortés Lobos³, Duccio Rocchini³

¹Meise Botanic Garden / Stellenbosch University; ²Meise Botanic Garden; ³Alma Mater Studiorum University of Bologna

2.04.3: WS: Ecosystem Accounting

Time: Tuesday, 11/Feb/2025: 3:00pm - 4:30pm · *Location:* James Cook meeting room

Monitoring Biodiversity with Ecosystem Accounting

Bruno Smets¹, Caterina Gilli², Alessio Bulckaen², Ferdinando Villa², Lars Hein³, Marcel Buchhorn¹

¹VITO, Belgium; ²Basque Center for Climate Change, Spain; ³Wageningen University, Netherlands

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3.04.4: WS: Grasslands and Savannas biodiversity

Time: Wednesday, 12/Feb/2025: 3:00pm - 4:30pm · *Location:* James Cook meeting room

Challenges and opportunities for monitoring grassland and savannah conservation at global and continental scales

Geoff Smith¹, Bruno Combal², Karl Ruf³, Sergio Bolivar Santamaria⁴, Adriana Martin Ramirez⁴, Michelle Chevelev-Bonatti⁴, Stefan Sieber⁴, Leonie Meier⁵

¹Specto Natura Ltd., United Kingdom; ²DG Environment, European Commission; ³space4environment sàrl; ⁴Leibniz Centre for Agricultural Landscape Research – ZALF; ⁵World Wide Fund for Nature – WWF International

3.04.1: WS: Space Agencies support to Biodiversity Conservation (CEOS)

Time: Thursday, 13/Feb/2025: 3:00pm - 4:30pm · *Location:* James Cook meeting room

Increasing Space Agency Impact on Biodiversity Conservation

Gary Geller¹, Antonio Ferraz¹, Peter Kalmus¹, Shaun Levick², Sandra Luque³, Marc Paganini⁴, Roger Sayre⁵, Woody Turner⁶

¹NASA Jet Propulsion Laboratory, California Institute of Technology; ²CSIRO; ³INRAE/CNES; ⁴ESA; ⁵USGS; ⁶NASA



B15 room A - Demos

3.03.3: DEMO - OBIS

Time: Tuesday, 11/Feb/2025: 10:00am - 11:30am · Location: B15 room A

Exploring Marine Biodiversity with OBIS

Silas C. Principe, Pieter Provoost
OBIS - IODE/IOC/UNESCO

2.03.3: DEMO - OpenEO

Time: Tuesday, 11/Feb/2025: 12:00pm - 1:30pm · Location: B15 room A

Accelerating Geospatial Insights: openEO's Scalable and Open Solutions

Hans Vanrompay
VITO, Belgium

3.02.4: DEMO - ARIES for SEEA

Time: Wednesday, 12/Feb/2025: 10:00am - 11:30am · Location: B15 room A

ARIES for SEEA

Alessio Bulckaen, Caterina Gilli, Ferdinando Villa
Basque Center for Climate Change, Spain

3.03.4: DEMO - UN Biodiversity Lab

Time: Wednesday, 12/Feb/2025: 12:00pm - 1:30pm · Location: B15 room A

UN Biodiversity Lab: Using spatial data to place nature at the heart of sustainable development

Violeta Munoz, Vincent Blanqué
UNEP-WCMC, Cambridge, United Kingdom

4.02.5: DEMO - Open tools for conservation and restoration impact evaluation

Time: Thursday, 13/Feb/2025: 10:00am - 11:30am · Location: B15 room A

Open tools for conservation and restoration impact evaluation

Jasper Van doninck, Wietske Bijker, Louise Willemen
University of Twente - Faculty of Geo-Information Science and Earth Observation (ITC), Netherlands

4.03.5: DEMO: TerEcoData

Time: Thursday, 13/Feb/2025: 12:00pm - 1:30pm · Location: B15 room A

TerEcoData: a webservice to monitor terrestrial ecology changes from Earth Observing systems

Aline Deprez^{1,2}, Jean-Philippe Malet^{1,2,3}, David Michea², Anne Puissant^{1,4}

¹Data-Terra / THEIA data hub – UAR 2013 CNRS, Montpellier, France; ²École et Observatoire des Sciences de la Terre/EOST – UAR 830 CNRS, Université de Strasbourg, Strasbourg, France; ³Institut Terre et Environnement de Strasbourg/ITES – UMR 7063 CNRS, Université de Strasbourg, Strasbourg, France; ⁴Laboratoire Image, Ville, Environnement/LIVE – UMR 7362 CNRS, Université de Strasbourg, Strasbourg, France

3.04.3: WS: Farmland biodiversity

Time: Tuesday, 11/Feb/2025: 3:00pm - 4:30pm · Location: B15 room A

Farmland Habitat Biodiversity

Talie Musavi¹, Marijn van der Velde¹, Marcel Schwieder², Christian Levers³, Momtchil Iordanov¹, Matteo Marcantonio¹, Stefan Erasmi²

¹European Commission - Joint Research Center, Ispra, Italy; ²Thünen Institute for Farm Economics, Bundesalle 63, 38116 Braunschweig;

³Thünen Institute for Biodiversity, Bundesalle 65, 38116 Braunschweig



3.04.2: WS: Marine biodiversity

Time: Wednesday, 12/Feb/2025: 3:00pm - 4:30pm · *Location:* B15 room A

Marine biodiversity metrics from space: state of the art, gaps and priorities for advancing biodiversity science and achieving conservation objectives

Victor Martinez Vicente¹, Alice Soccodato², Emmanuele Organelli³, Frank Muller Karger⁴, Vittorio Brando⁵, Maria Laura Zoffoli³, Nicholas Pade², Joana Soares⁵, Lina Mtwana Norlund⁶, Isabel Sousa Pinto Sousa Pinto⁷, Maycira Costa⁸, Elena Gissi^{9,10}, Stefano Menegon^{9,10}, Astrid Bracher¹¹

¹Plymouth Marine Laboratory, United Kingdom; ²European Marine Biological Resource Centre (EMBRC-ERIC), France; ³National Research Council, Institute of Marine Sciences, Paris, Italy; ⁴University of South Florida, USA; ⁵Atlantic International Research Centre (AIR Centre), Azores, Portugal; ⁶Uppsala University, Sweden; ⁷University of Porto, Porto, Portugal; ⁸University of Victoria, Canada; ⁹National Research Council, Institute of Marine Sciences, Venezia, Italy; ¹⁰National Biodiversity Future Center, Palermo, Italy; ¹¹Alfred Wegener Institute, Bremenhaven, Germany

4.04.4: WS: Ecosystem restoration

Time: Thursday, 13/Feb/2025: 3:00pm - 4:30pm · *Location:* B15 room A

Assessing nature restoration targets established by European and international policies

Phillip Harwood¹, Rob Hendriks², Michelle Hermes³, Wojciech Mroz⁴, Ruta Skujina¹

¹Evenflow; ²Biodiversa+, Ministry of Agriculture, Fisheries, Food security and Nature; ³EARSC; ⁴Eurosite



B15 room C

4.02.4: DEMO - Landscape Connectivity Modelling

Time: Wednesday, 12/Feb/2025: 12:00pm - 1:30pm · Location: B15 room C

Leveraging Satellite Remote Sensing and Connecting Landscapes: An Introduction to ConScape for High-Resolution Landscape Connectivity Modeling

Bram Van Moorter

Norwegian Institute for Nature Research, Norway

4.03.4: DEMO - Forecasting Landscape Dynamics

Time: Thursday, 13/Feb/2025: 12:00pm - 1:30pm · Location: B15 room C

How to integrate individual-based long-term monitoring and satellite-based landscape dynamics for biodiversity predictions

Billur Bektaş¹, Patrícia Singh², Maria Paniw³, Mary Lofton⁴, Freya Olsson⁴

¹Institute of Integrative Biology, Department of Environmental Systems Science, ETH Zürich, Zürich, Switzerland; ²Department of Botany and Zoology, Faculty of Science, Masaryk University, Czech Republic; ³Doñana Biological Station (EBD-CSIC), Sevilla, Spain; ⁴Center for Ecosystem Forecasting, Virginia Tech, Blacksburg, USA

2.04.5: WS: Indigenous and local community

Time: Tuesday, 11/Feb/2025: 3:00pm - 4:30pm · Location: B15 room C

Data Sovereignty and Ethical Approaches to Indigenous Knowledge in Space-Based Biodiversity Monitoring

Diana Mastracci^{1,2}, Jason Duffe³, Kyla M Dahlin⁴, Adriana Uscanga⁵, Gabrielle Crowe⁶, Elsa M Ordway⁷, Erin Hestir⁸, Axayactzi Kuauhtzin⁹

¹Space4innovation; ²GEO Indigenous Alliance; ³Environment and Climate Change Canada ECCC; ⁴Michigan State University, USA;

⁵University of Minnesota, USA; ⁶Gabrielino-Shoshone Nation of Southern California; ⁷University of California Los Angeles; ⁸University of California Merced; ⁹Stanford University

3.04.5: WS: Wetland biodiversity

Time: Wednesday, 12/Feb/2025: 3:00pm - 4:30pm · Location: B15 room C

Wetland ecosystems

Christian Tøttrup¹, Christoph Schröder², Stéphanie Horion³, Gyula Mate Kovács³, Michael Munk¹, Dania Abdul Malak², María del Mar Otero², Triantafyllia Perivolioti⁴, Anis Guelmami⁵, Jonas Franke⁶

¹DHI, Denmark; ²University of Malaga, Spain; ³University of Copenhagen, Denmark; ⁴EKBY, Greece; ⁵Tour du Valat, France; ⁶Remote Sensing Solutions, Germany

4.04.5: WS: Nature Finance

Time: Thursday, 13/Feb/2025: 3:00pm - 4:30pm · Location: B15 room C

Nature finance: challenges and opportunities

Joseph William Bull¹, Nicola Ranger¹, Emma O'Donnell¹, Andrew Shaw², Michael Harfoot³

¹University of Oxford, United Kingdom; ²Assimila; ³Vizzuality