europlanet 2024
Research Infrastructure

EUROPLANET 2024 RESEARCH INFRASTRUCTURE

GLOBAL COLLABORATION & INTEGRATION DEVELOPMENT NA1-T4

WorkshopSeries

The Europlanet

Workshop
Series

eur⊙PLANET2024
Research Infrastructure

EPN-2024-RI's global collaboration and integration NA Task 4 aims to inspire and encourage planetary science and space technology development across borders in developed and developing countries and across the spectrum of academia, industry and civil society. In making the distributed planetary RI available to more scientists and industries worldwide, EPN-2024-RI will facilitate a more integrated and interconnected global planetary science community and stimulate the creation of opportunities that have the potential for immense impact on the environment, culture, socio-economic development and prosperity.

One of the actions in the global collaboration and integration NA Task 4 will be the organisation of training activities in African countries to create local experts with the skills and technical capability to work independently on planetary science projects, therefore producing a long-term goals creating conditions for new scientific partnerships between EU and non-EU countries.

"It is clear that space science and technology is an important tool for ensuring the sustainable use of natural resources and the creation of high-technology industrial sectors. Furthermore, it makes a considerable contribution to the creation of enabling environments for addressing a wide range of pressing challenges, including the need to create jobs, reduce poverty, manage resources sustainably, and develop rural areas. A formal space sector will assist Africa to realise the vision of a peaceful, united, and prosperous continent."

AFRICAN SPACE POLICY

The Europlanet

Workshop
Series

NA1 T4-Global collaboration and development WorkshopSeries

Global collaboration and development WorkshopsSeries will be a great way to develop skills as well as an opportunity to meet scientists, politicians and stakeholders to share ideas and experiences, create opportunity and build a network on Planetary Sciences.

2021:
Botswana (Local contact: Dr. F. Franchi, BIUST, Palapye)

2022:
*Ethiopia (Local contact: Dr. S. Kumurzhi, Istituto Italiano di Cultura, Addis Abeba, Ethiopia)*
Morocco (Local contact: Prof. H. Chennaoui, Hassan II Universisty, Casablanca, Morocco)

2023:
Argentina (Local contact: Dr. F. Gomez, CONICET, Cordoba, Argentina)

Applications of Earth Observation Satellite Data
EPN 2024 RI WorkshopSeries
12.12.2022 - 16.12.2022
Addis Ababa, Ethiopia
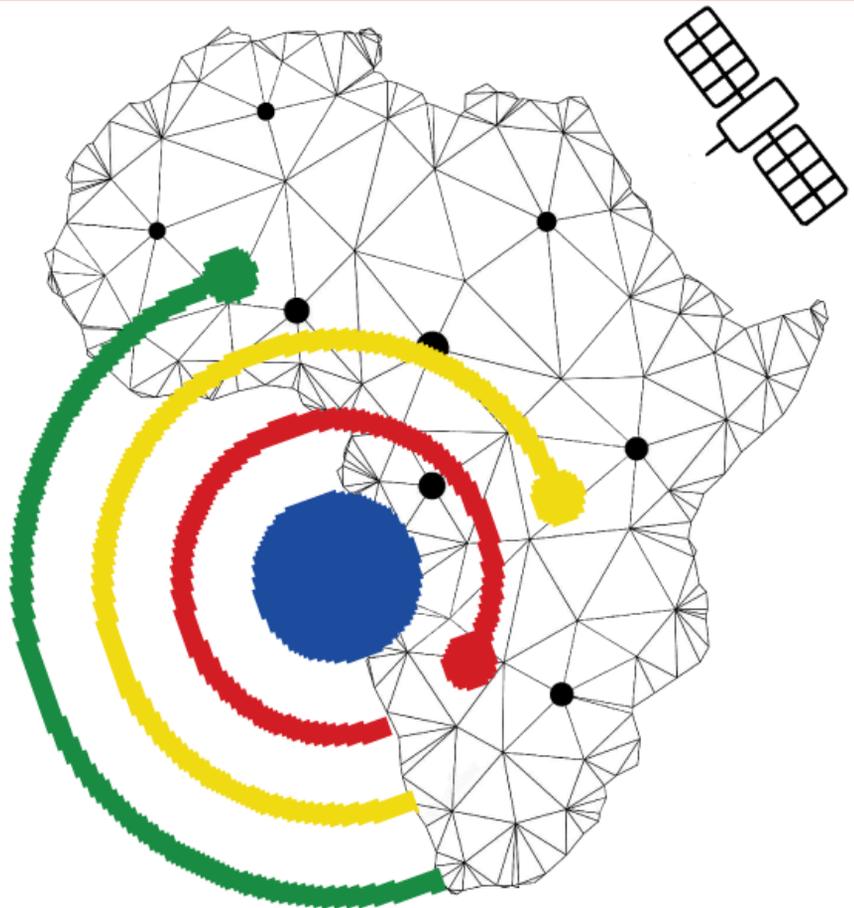
Europlanet
Workshops
S E R I E S

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WELCOME

The *Europlanet 2024 RI together with the University of Bologna and the Italian Institute of Culture, is organizing the second of the Global Collaboration and Integration Development Workshop Series in Addis Ababa, Ethiopia, which* aims to bring together people interested on the *Earth Observation Satellite Data*, and create the opportunity to build and consolidate a African network in Space Science.

The Organizing Committee:
Prof. Barbara Cavalazzi
Dr. Semen Kumurzhi
Mrs Anita Heward
Prof. Nigel Mason
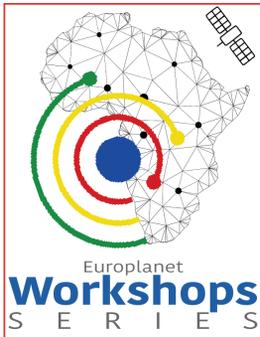
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AIM

Space has become an attractive frontier for African countries that have launched satellites based on scientific, technological or political ambitions. Satellites are used for Earth observation, communication, navigation atmospheric studies, astronomical observations and more applications. This second EPN2024 RI Workshop on Applications of Earth Observation Satellite Data will brings together space tech specialists, scientists and students to discuss current topics in this rapidly developing space field. This workshop format is focusing on content and collaboration, and target to create a African network in planetary science.

The course provides both theoretical knowledge and practical skills in Earth Observation techniques and their adoption inside Geographical Information Systems (GIS). Students will acquire the fundamentals on the use of satellite remote sensing imagery to derive qualitative and quantitative information about the territory (at urban, basin and regional scale). Students will also develop practical skills through examples of EO data processing and thematic map generation. The main learning objective are: understanding of the main characteristics of multispectral satellite images; main EO satellite missions, with emphasis on Copernicus program; skills on basic pre-processing of images (radiometric and geometric); knowledge of the potential and limitations of image classification techniques; applications of EO.

Training School PROGRAM

13-16.11.2021

13 Dec. 2022

12.00-12.45: Registration-Earth Observation Techniques and data Analysis Europlanet WorkshopSeries.

12.45-14.00: Welcome Meeting-Earth Observation Techniques and data Analysis Workshop.

14.00-15.30 (90 min, lecture 1): Course Introduction. Geomatics and Remote Sensing. Digital images and their visualization.

15.30-17.00 (90 min, lecture 2): Basics of the theory of e.m energy and multispectral imagery.

14 Nov. 2022

09.00-10.30 (90 min, lecture 3): The 4 concepts of resolution in Earth Observation (Part I).

Coffee Break (20 min)

10.50-12.20 (90 min, lecture 4): Short history of Remote Sensing, characteristics of satellite EO missions. Main missions and programs of Earth Observation (Part I).

Lunch Break(60 min)

13.20-13.40 (20 min): Europlanet RI.

13.40-14.40 (60 min, lecture 5): Main missions and programs of Earth Observation (Part II). The Copernicus program.

14.40 - 15.40 (60 min, lecture 6): Interaction of e.m energy with atmosphere and materials.

15.40 - 16.30 (50 min, lecture 7): Vegetation and other indexes derived from multispectral optical images. Pan Sharpening.

16.30 - 17.30 (60 min, lecture 8): Radiometric and geometric correction. Pan Sharpening. SNAP (I): program interface.

Training School PROGRAM

13-16.11.2021

15 Dec. 2022

09.00-10.30 (90 min, lecture 9): Classification of multispectral imagery. Methods and validation procedures.
Coffee Break (20 min)
10.50-13.00 (130 min, lecture 10): SNAP (II): image manipulation and enhancement, image filtering, calculation of indexes.
Lunch Break(50min)
13.50-14.00 (20 min): Network of Researchers on the Chemical Evolution of Life-NorCEL.
14.00 - 15.00 (60 min, lecture 11): Change Detection studies. Review of EO applications.
15.00 - 16.00 (60 min, lecture 12): SNAP (III): pre-processing operations, multispectral image classification (Part I).
16.00 - 17.00 (60 min, lecture 13): SNAP (IV): multispectral image classification (Part II), validation of the results.

16 Dec. 2022

09.00-10.00 (60 min, lecture 14): Radar imagery: basics of SAR applications.
Coffee Break (20 min)
10.20-10.50 (30 min, seminar 1): Urban heat islands and heat waves in tropical cities in the Greater Horn Africa.
10.50-11.40 (50 min, seminar 2): ASI programmatic activities and Earth Observation satellite applications.
11.40-12.20 (30 min, seminar 3): Relationship Between Precipitation Extremes and Convective Organization Inferred From Satellite Observations.

INSTRUCTORS

Prof. G. BITELLI, University of Bologna, ITALY

The main research interests are related to satellite Earth Observation applications (environmental monitoring and change detection, disaster management, urban mapping, and other), advanced methods for Cultural Heritage surveying and representation, Digital Twins, integration of digital photogrammetry/LiDAR/GNSS data and sensors, deformation control for structures and territory, 3D terrain modeling, digital approaches for historical cartography, applications of Geographic Information Systems.
E-mail: gabriele.bitelli@unibo.it

Dr. G. FANTA GARUMA, Space Science and Geospatial Institute, ETHIOPIA

Dr. Fanta Garuma is currently an Assistant Professor at the Atmospheric and Climate Sciences (AtClim) Unit in the Department of Space and Planetary Sciences at the Space Science and Geospatial Institute (SSGI). He received his Ph.D. in Environmental Sciences (Atmospheric Sciences unit) in Canada. He conducted research on renewable energy opportunities for sustainable development in Ethiopia. He served as a lecturer in Ambo University and as a research assistant at AAU where he obtained research grants and successfully accomplished research works on climate-related energies. He has international research experience and received the Natural Science and Engineering Research Center (NSERC) scholarship grant in Montreal, Canada.
E-mail: gemechuf@essti.gov.et

INSTRUCTORS

Prof. A. GEZAHEGN, Addis Ababa University, ETHIOPIA

Dr. Addisu Gezahegn Semie obtained his Ph.D in Environmental and Industrial Fluid Mechanics from University of Trieste and worked as a Postdoc researcher at CNRS, Laboratoire de Meteorologie Dynamique (LMD), Paris, France. Currently, he is Assistant Professor at the Computational Data Science program, Addis Ababa University. His research interests include Atmospheric Physics, Atmospheric convection, organization of convection in Tropics, extreme precipitation in Tropics and Tropical climate variability. He has extensive experience of using weather research forecasting (WRF) model and satellite data for his research. He supervised postgraduate Computational Data Science students and has many peer-reviewed publications.
E-mail: addisugezahegn@gmail.com

Dr. P. SACCO, Italian Space Agency, ITALY

Patrizia Sacco graduated in Physics from the University of Bari, Italy. She then proceeded with a University Master in "Technologies for Space Remote Sensing", also from the University of Bari, and a PhD in "Environmental Engineering" from the University of Basilicata.
Her work experience started in the private sector, with a Small Medium Enterprise specializing as a service and technology provider for the Earth Observation field. In 2013, she joined the Italian Space Agency being involved in the management of both SAR and Optical remote sensing missions. Currently, she plays the role of PRISMA Mission Manager and she is member of the Italian delegation to various ESA Earth Observation bodies (DOSTAG, PB-EO).
E-Mail: patrizia.sacco@asi.it

INSTRUCTORS

Dr. F. TREVISIOL, University of Bologna, ITALY

Researcher at the Department of Civil, Chemical, Environmental and Materials Engineering - DICAM of University of Bologna since 2019, her research activity is mainly related to the use of satellite remote sensing to monitor environmental changes over time. The focus of the PhD research is the use of remotely sensed data time series from multispectral optical satellite imagery and SAR data to extract valuable information supporting flood risk management, with a specific interest towards flood recovery and prevention phase. Other research interests are related to high resolution urban mapping, spectral indexes for vegetation monitoring, Geographic Information Systems, thermal mapping for damage detection on historical buildings.
E-mail: francesca.trevisiol2@unibo.it

When & Where?
13-15 December 2022 at the Italian Cultural Institute, Belay Zelleke Street, Addis Abeba, Ethiopia. The workshop will be held in the presence mode.

Who is for?
Post-graduated students, researchers and professionals who want to learn how we leverage satellite imagery to create modern applications.

No fee
The workshop is free of charge but places are limited! The registration is compulsory and should be accompanied by a letter of interest. You will receive via email confirmation of your acceptance.

Registration
[Registration](#) *open on 18.08.2022 and closed on 04.11.2022. The workshop is free of charge but it requires a pre-registration (for practical organisation) which also includes all coffee and lunch breaks.*

Language
English

Deliverables
- Attendees will be issued with a certificate of attendance.
- Earth Observation Techniques and Data Analysis materials will be available.

Travel Grants
Procedure to apply for The Europlanet WorkshopSeries fellowship (go to [Travel Grants](#)).

EUROPLANET 2024 RESEARCH INFRASTRUCTURE
GLOBAL COLLABORATION & INTEGRATION DEVELOPMENT 2020–2024

The Europlanet WorkshopSeries links travel grants to selected applicants who intend to attend the workshop.
Not just a travel grant! The Europlanet WorkshopSeries grants will provide opportunities for leveraging on established research networks to directly contribute to the applicant's current research and career.

Eligibility and Travel Grant Conditions

- *You must be a PhD student or post-doc, lecturer, professor, or a professional interested in Earth observation.*
- *You must reside in Ethiopia.*
- *Grants (subject to availability of funds and current COVID regulation) will be attributed only to selected applicants who intend to physically attend the workshop.*
- *All grant requests should be received no later than 04.11.2022, after that date the applications will not be considered.*
- *Only applications loaded on the Registration Form under Travel Grant Application will be eligible for evaluation*
- *Your grant application (Registration Form) should be accompanied by a short CV (2 pages max). PhD Stundet should also provide a reference letter from the supervisor.*
- *Grants will cover a lump sum for A/R trip, hotel accommodation and meals. More details in the acceptance letter.*

Travel grant application deadline: 04.11.2022.

Please see workshop website for registration details:
https://eventi.unibo.it/epn24-ethiopia-workshop

For more information contact:
Prof Barbara CAVALAZZI: barbara.cavalazzi@unibo.it

PRE-REGISTRATION & FELLOWSHIPS
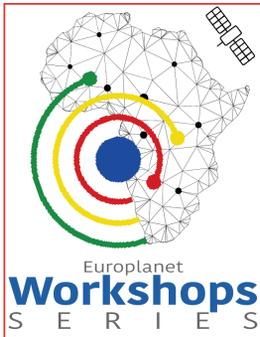
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COMMITTEE & CONTACS

Scientific committee:

Prof. Barbara Cavalazzi, Europlanet and University of Bologna
Dr. Semen Kumurzhi, Istituto Italiano di Cultura di Addis Abeba
Prof. Nigel Mason, Europlanet and University of Kent
Mrs. Anita Heward, Europlanet and University of Kent
Prof. Gareth Davies, Vrije Universiteit
Prof. Gabriele Bitelli, University of Bologna
Prof. Declan Kirrane, Africa-Europe Science Collaboration Astronomy Platform-AERAP
Dr. Raffaele Mugnuolo, Italian Space Agency-ASI

Organizing committee:

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Mrs. Anita Heward, Europlanet and University of Kent
Prof. Nigel Mason, Europlanet and University of Kent
Mrs Susmita Datta, Europlanet and University of Kent
Dr. Annunziata Coppola, University of Bologna
Dr. Loredana Smaldore, University of Bologna
Mrs Annaurora Vatalaro, University of Bologna

Contact:

Prof. Barbara CAVALAZZI: barbara,cavalazzi@unibo.it

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SUSTAINABLE GOALS

The Europlanet 2024 RI Strategy for Collaboration and Integration Development 2020–2024 has a key role to play in building a community, resilient infrastructure, fostering innovation, promoting education and gender equality, with sustainable goals such as combatting climate change, and preserving forests and oceans. The Strategy for Global Collaborations and Integration Development 2020–2024 has a vision for a better future, not simply as a shared guide but with an active intention to mobilise societal change and channel investments and strategies towards urgent global problems.

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ALMA MATER STUDIORUM
UNIVERSITA DI BOLOGNA
DIPARTIMENTO DI SCIENZE BIOLOGICHE,
GEOLOGICHE E AMBIENTALI

ASI
Agenzia
Spaziale
Italiana

ISTITUTO
italiano
DI CULTURA
ADDIS ABEBA

Ambasciata d'Italia
Addis Abeba

Italy
is simply
extraordinary: be

NoR CEL
Network of Researchers on the   Chemical Evolution of Life

Links:
Europlanet RI H2024
https://www.europlanet-society.org/europlanet-2024-ri/
Global Collaboration & Integration Development Strategic Plan 2020-2024

Europlanet Society
https://www.europlanet-society.org

University of Bologna
https://www.unibo.it/it

Istituto Italiano di Cultura Addis Ababa
https://iicaddisabeba.esteri.it/IIc_Addisabeba/en

Italian Space Agency
https://www.asi.it/en/