



# STUDY COPERNICUS & DIGITAL EARTH

AUGUST 2024  
ISSUE NO 3





COPERNICUS MASTER  
IN DIGITAL EARTH



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<https://master-cde.eu/programme/accreditation>

## AQ quality seal 2022-2028



This Erasmus Mundus Joint Master fulfills all necessary requirements for a joint Master of Science. The Agency for Quality Assurance and Accreditation Austria (AQ Austria) awarded the programme with a quality seal applicable for a period of six years (2022-2028). This is in compliance with the European Approach for the Quality Assurance of Joint Programmes.



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Get acquainted with our faculty, current students and alumni as they share their insights and experiences. Discover their perspectives and find answers to questions that may pique your interest about the geospatial Master of Science. The Erasmus Mundus Joint Master (EMJM) is a scholarship programme proudly co-funded by the European Union.

photo credit: PLUS



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## A DEDICATION TO OUR STUDENTS



Stefan Lang, Joint Programme Coordinator, Vice Rector for International Affairs and Digitalisation at Paris-Lodron University Salzburg

*“Our Erasmus Mundus Joint Master (EMJM) is a unique role model for obtaining a geospatial Master’s degree in the EO\*GI (Earth observation and Geoinformatics) domain, with a dedicated focus on the European Union’s Copernicus EO programme.*

*The 2022-2028 quality seal from the Agency for Quality Assurance and Accreditation Austria under the European Approach, and a second Erasmus+ funding phase for this EMJM commits partner universities to provide a distinct and outstanding learning experience to our students.*

*How can we deliver this? On a state-of-the art curriculum, engaged teachers provide a research driven education fostering leadership to address key societal challenges, from climate change to digital transformation.*

*Career prospects are, next to academia, future occupational profiles in public administration including spatial planning, regional and environmental management, mobility and transport, as well as in related businesses across a broad spectrum of the EO\*GI industries.*

*This newsletter edition is dedicated to our outstanding student body, from the intakes 1 to 4, who have excelled and performed during the years 2019 to 2024. We wish all of them a great future career and say thanks for their outstanding contributions and achievements. Keep in touch and network with us and the wider community!”*





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## STUDENTS' & ALUMNI SUCCESS

Since the inception of the Erasmus Mundus Joint Master of Science, students and alumni have consistently demonstrated excellence in their research and industry endeavors within the EO & GI domains through various research publications, workshops, internships or geospatial hackathons.

CDE students have completed over 66 internships internationally with industry partners, research institutions or governmental offices. Our alumni have also received numerous awards and recognitions in the geospatial field. Our achievement as a programme also includes a student and alumni founded start-up named Termatics, funded by Austria in Space and ESA BIC Austria. Right from the start they have been actively involved in EO projects in Austria and Europe.

#Copernicus #DigitalEarth #EO #GI #GeodataScience  
Artificial Intelligence for Earth Observation #AI4EO  
#Geovisualisation #Geocommunication

## Student Activities

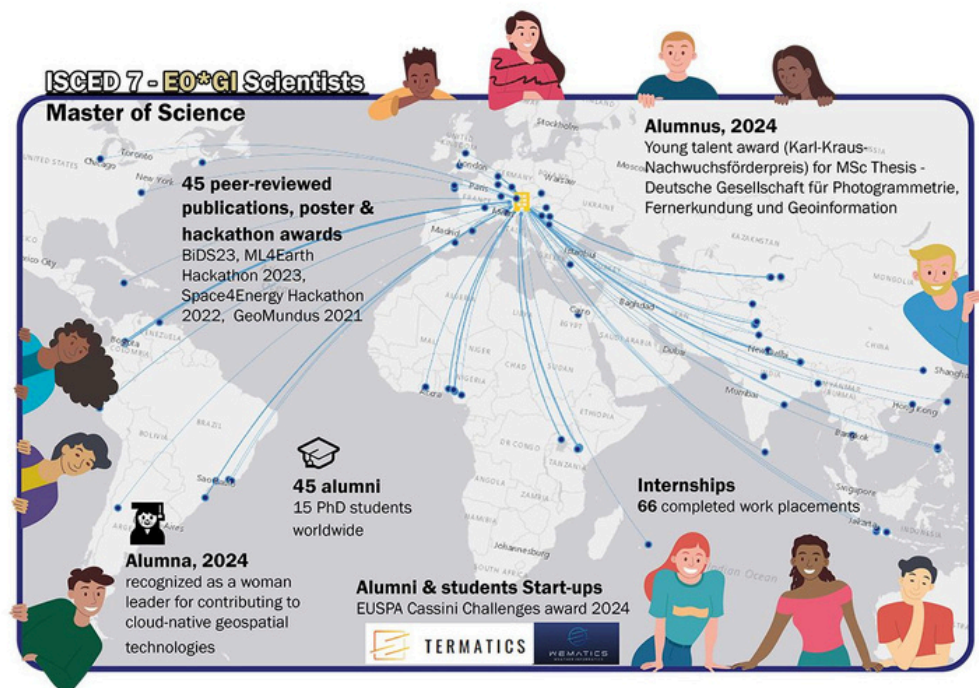


image credit from a joint student faculty publication for EGU 2024

Brunner-Maresch, B., Dabiri, Z., Lang, S., Maritim, L. C., Turki, M. D., Mulder, M., Henry, J., and Barbosa Ferreira, V.: Erasmus Mundus Joint Master "Copernicus Master in Digital Earth-CDE"; Integrated work experience in geospatial curriculum to enhance graduate employability., EGU General Assembly 2024, Vienna, Austria, 14–19 Apr 2024, EGU24-20471, <https://doi.org/10.5194/egusphere-egu24-20471>, 2024.





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## INTAKE 4 GRADUATION

On July 4th, 2024, the programme celebrated its fourth graduation ceremony, marking the conclusion of the first phase of the CDE project, internally known as CDE 1.0. All faculty extend heartfelt congratulations to all students of this last intake of the first Erasmus Mundus programme funding phase. We wish all great success in their future career endeavors. Enjoy more pictures from the 2024 graduation [here](#), and the [2023](#), [2022/21](#) graduations.



***A very big congratulations to 17 successful  
CDE 2024 graduates !!!***



Heartfelt congrats go to María and Ruchira,  
the CDE Best Student Awardees.



Heartfelt congrats go to Madeline  
for receiving the  
Special Achievement in  
Digital Earth Award.

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## CDE AWARDS & STUDENT VOICES

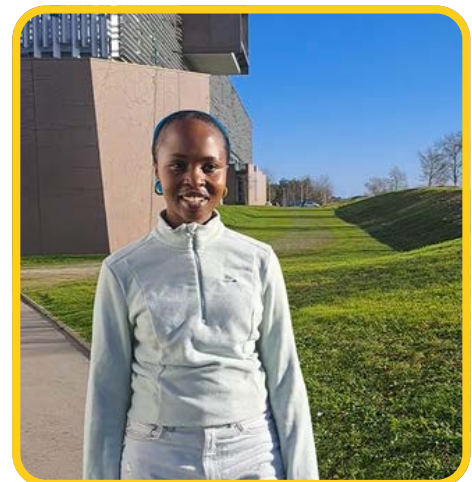
The Programme Board has jointly developed and designed two distinctive awards which shall recognize graduated MSc students of the Erasmus Mundus Copernicus Master in Digital Earth programme. Learn more on these awards on our [website](#) and meet previous awardees.



**Two graduates - student testimonials - share their experience.**



*"My CDE journey has been packed with new knowledge, new experiences and new friendships. Now I look forward to the future and applying all that I have learned to help make a better world." - **Jevaughn** Geovisualisation & Geocommunication specialization track.*



*"I enjoyed the hands on experience and the skill set gained from the programme, and I look forward to putting them to use in a fulfilling career." - **Leila** GeoDataScience & AI4EO specialization track.*

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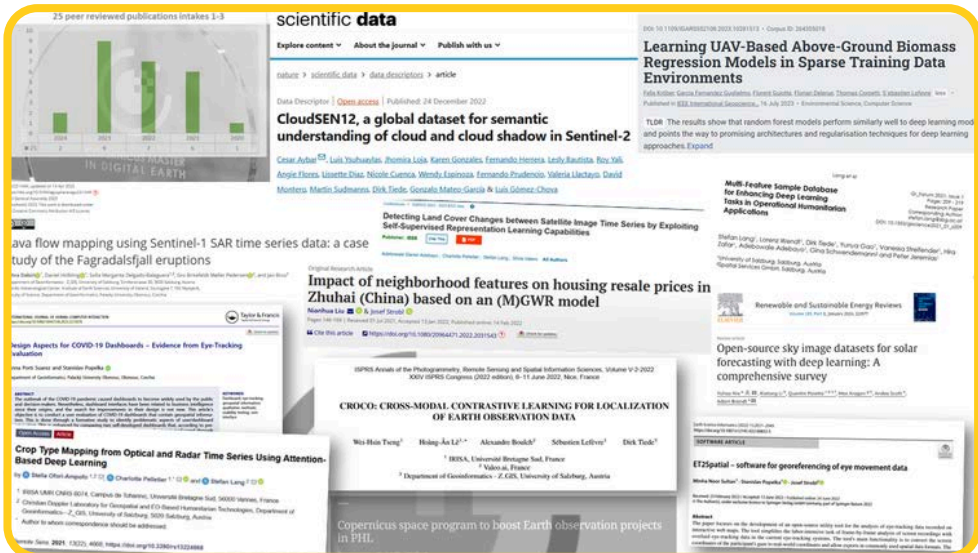


# AWARDS & PUBLICATIONS

Students have received international recognition either as individuals or as a team of students and faculty working together on publications, posters or projects. Please see a shortcut of this impressive record below and visit our [website](#) for the full list.

2024	Parinda Panoun	Listed under top 10 Global Semi-Finalists from over 11,000 registrants	EY Open Science Data Challenge Program 2024
2024	Felix Kröber	1st place	Young talent award (Karl-Kraus-Nachwuchsförderpreis 2024) DGPF - Deutsche Gesellschaft für Photogrammetrie, Fernerkundung und Geoinformation. For 'Master's Thesis: Agricultural parcel delineation based on multitemporal Sentinel-2 data - a comparison of machine learning and deep learning approaches for instance segmentation. Masterarbeit.
2024	Stephanie Tumamos (alumna)	Nomination '10 women shaping the earth sciences'	Radiant Earth: Cloud-Native Geo Pioneers in Earth Science: Honoring the 2024 Leading Women
2024	M. Aragon, C.M. Arellano, J. Gomez Gomez	Track Submission of an Idea "Thermopolis"	EUSPA Cassini Challenges CASSINI is the European Commission's initiative to support entrepreneurs, start-ups and SMEs in the space industry, including New Space, during 2021-2027
2023	M. Sudmanns, L. Ligono, H. Augustin, L. Meer & D. Tiede	Poster award: 'An advanced framework for semantic querying of the dynamic world dataset'	BIDS23, Big Data from Space 2023, 6-9 November 2023, Vienna Austria

We encourage students getting their research work published. The current number of 25 peer-reviewed publications, from intake 1 to intake 3 cohorts, are mostly a joint effort of students and supervisors.



Sample collection of peer reviewed publications, the full list is available on our [website](#).

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## EXCURSIONS & SOCIALIZING

The CDE programme exposes students to internships and work placements and includes excursions to governmental and private sector companies involved in space related activities. In addition, we aim to integrate 'social' visits to allow students exploring the local environment.



Oberndorf 2020



Prag & Observatory 2022



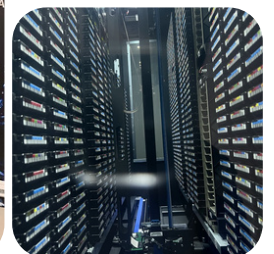
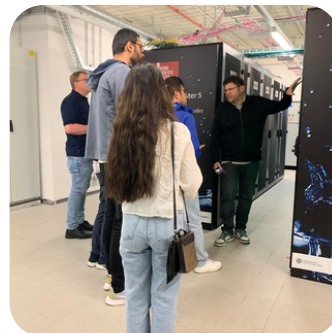
Vannes 2021



Olomouc 2021



Salzburg 2023



Vienna 2024

2024, intake 5 students were hosted by the Federal Office of Metrology and Surveying (BEV) and the Earth Observation Data Centre for Water Resources Monitoring GmbH (EODC) both in Vienna, Austria. The visit presented a great opportunity to discuss the use of Copernicus data for Earth Observation solutions in institutions in Austria based on the anchor theme of "Earth Observation & Geoinformation as a cornerstone of the modern state and society!"

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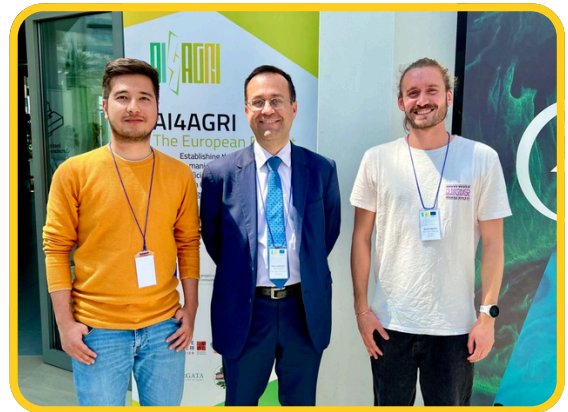
## SUMMER SCHOOL & BIP

This year, our intake 5 students have been very busy with summer schools and blended intensive programmes (BIP). Below you will find a few highlights, provided by our student Rohit.



Impressions from the CIVIS Blended Intensive Programme on Healthy Urban Systems at the University of Lausanne - UNIL.

Group picture of the AI4AGRI Summer School 2024 in Brasov, Romania on Artificial Intelligence for Earth Observation Data Analysis.



The annual Summer School on High Performance and Disruptive Computing in Remote Sensing (HDCRS) 2024 was once again attended by many CDE students and alumni, maintaining the tradition of strong participation.



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## HACKATHONS & MAPATHONS

#DYK Hackathons are focused on application development, while “A Mapathon is a collaborative event where volunteers come together to map areas using satellite imagery, contributing to OpenStreetMap (OSM). This data helps local and international decision-makers respond more effectively to crises.” Nianhua Liu, a CDE alumnus, [Geoawesomeness](#).

Our students have participated in a total of nine events during the years 2022-2024. Results are impressive with having four winners and two second and third places each, as well as one listed under top 10 Global Semi-Finalists from over 11,000 registrants.



**Congratulations to all  
awardees & special  
congrats to  
Parinda and Lisah,  
as you will notice below!**



**1**

**Parinda Panoon**

Mapathon @ TU Munich 2024

**Lisah Ligono, Yanika Dontong, Parinda Panoon**

ML4Earth Hackathon 2023, Tech Optimum Hacks 2023

**Max Aragon, Carla Mae Arellano, Oscar Narvaez,**

**Jose Enrique Gomez Gomez**

Space4Energy Hackathon 2022

**2**

**Lisah Ligono, Yanika Dontong, Parinda Panoon**

STEMist Hacks 2.0 Think. Hack. Build. Repeat. 2023

Foresight DRM: Disaster Mapping Hackathon 2023

**Max Aragon, Carla Mae Arellano, Oscar Narvaez,**

**Jose Enrique Gomez Gomez**

Space4Energy Hackathon 2022

**3**

**Parinda Panoon**

Innovation Solving PM2.5 Problem Hackathon 2023

**Lisah Ligono, Yanika Dontong, Parinda Panoon**

ML4Earth Hackathon 2022

## Student Activities

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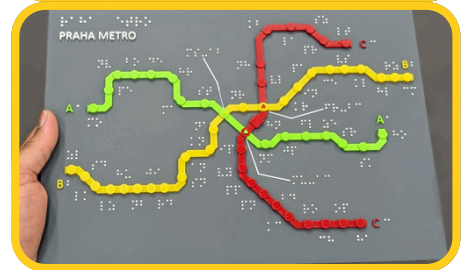
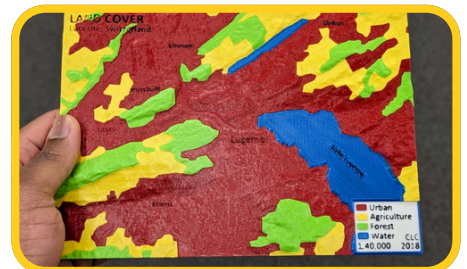
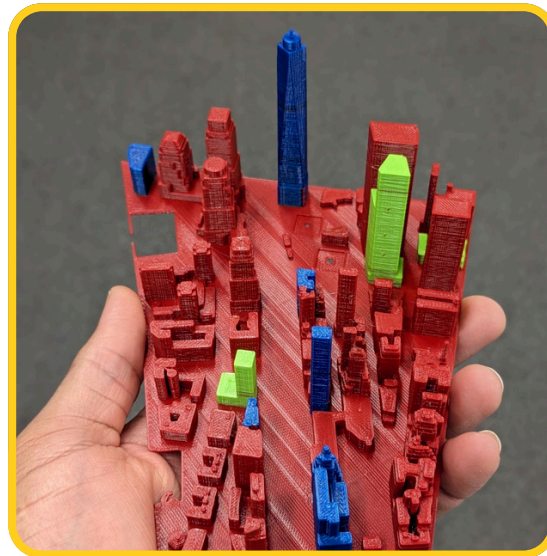


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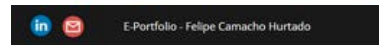


## THESES & E-PORTFOLIOS

We invite you to explore our students' academic activities during the course of the programme in their [ePortfolios](#) or visit our [Master's Theses](#) repository online, below are a few highlights.



Check out Jevaughn's Master's Thesis results in this [interactive booklet](#)

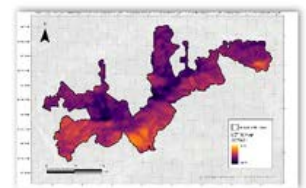


### Master Thesis Document

3D Visualization and Analysis of Patagonian Glaciers Changes Using Earth Observation Data

May 20, 2024

[DOWNLOAD](#)



### Master Thesis Poster

Time-Series analysis of Snow Cover Area (SCA) and Land Surface Temperature (LST) in Austria Skiing areas with GEE.

May 20, 2024

[DOWNLOAD](#)

Learn more about Felipe and his research in his [ePortfolio](#)

About me | CV

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PELLIZA

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ARCHITECTURAL  
GUIDES  
BLOG & PRESS  
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HELLO!  
I am Candela

I am an architect specialized in urban development, smart cities and urban data science, seeking for innovative ways of understanding, analyzing, visualizing, and planning urban environments. In 2022 I won a fully funded Erasmus+ scholarship for the joint programme **Copernicus Master in Digital Earth**. I completed my courses at Paris Lodron Universität Salzburg (PLUS) & Université Bretagne Sud (UBS), specializing in Geo Data Science, and I am currently developing my MSc thesis in "Foundation Models applied to urban analytics".

I believe in the need to incorporate new technological tools to achieve efficient and sustainable territorial development and management policies, always aiming at territorial justice, social equity and gender equality.

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## Student Activities

Visit [Candela's ePortfolio](#), she provides code, data and models in her [GitHub Repository](#).

photo credits: CDE



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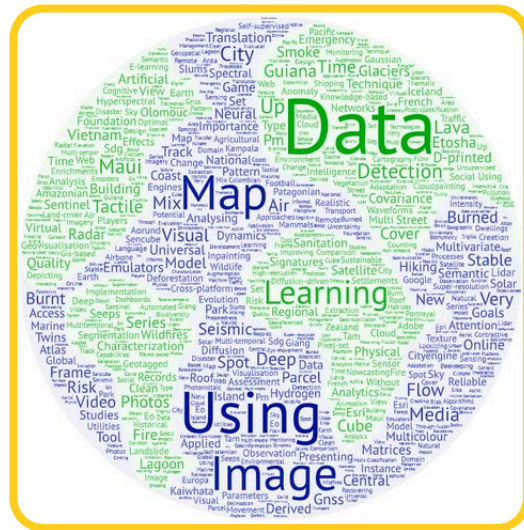


## MASTER'S THESES 2021 - 2024

From 2021 to 2024 a total of 64 students have successfully completed the Copernicus Master in Digital Earth MSc programme. 34 students have submitted their research under the GeoDataScience & AI4EO specialization track and another 30 students have submitted the work under the Geovisualisation & Geocommunication specialization track. All topics and references can be found on our [website](#).

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#Geovisualisation #Geocommunication

### Student Activities



The global word cloud showcases words used in all Master's Theses titles from 2021 to 2024.



GeoDataScience & AI4EO on the left and Geovisualisation & Geocommunication specialization track titles on the right from 2021 to 2024, "reflecting very well the different methodological foci with space & EO as the common denominator." Dirk Tiede, Programme Board, PLUS Deputy Head of Department of Geoinformatics.





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## Student Activities

### STUDENT BOARD

This Erasmus Mundus Master of Science is proud of the excellent cooperation with student representatives during the last four intakes. *"We would like to thank all members of the CDE student board for their active and cooperative commitment and their respective collaboration."* Barbara Brunner-Maresch, Project & Programme Manager.

The CDE student board is the representative body of students and represents all students enrolled and graduated. The board consists of active and alumni student representatives. *"Membership provides opportunities to enhance a student's experience by gathering individual opinions, to provide recommendations for the MSc programme's improvement and community life at partner universities, to recommend on network of internship institutions and mobility partners, and to implement and manage workshops to have a positive impact on all CDE students, aimed at fostering and developing social awareness and ethical conscience among fellow students."* Ade Bismark, intake 1 representative, meet all members on our [website](#).



The student board has provided feedback sessions and tips to new students about internship resources, study management, and summer schools. They have organized many get-togethers and trips during Christmas, birthdays, and holidays.





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## Student Activities

### STUDENT & ALUMNI START-UPS

Carla Arellano & Max Aragon report on two start-ups Termatics & Wematics: "The programme's start-up Termatics is an Earth Observation (EO) initiative emerging from Paris-Lodron University Salzburg (PLUS). We specialize in advanced thermal mapping of cities by leveraging AI and high-resolution thermal imagery - supporting energy sustainability and efficient urban planning. The founders met each other while they were graduate students in the Copernicus Masters in Digital Earth programme."



"Our journey began as students winning the Space4Thermal hackathon challenge organised by Austria in Space, BMK, Science Park Graz and the Green Energy lab." Meet representatives Max, Jose and Carla on the left and learn more about the team on the website & Startup Salzburg.

"Currently, we are working on our first research project, PROMETHEUS, coordinated by the EO Analytics research group, PLUS Department of Geoinformatics, in partnership with the city of Klagenfurt, funded by the Austrian Research Promotion Agency (FFG)."

"The interdisciplinary, collaborative, and innovative spirit fostered by the CDE Master's programme has been crucial to our development. We continue to draw on from the support and expertise of fellow CDE graduates, staff and professors from PLUS and the University of South Brittany (UBS), and the networks we built during our studies," highlight Carla and Max.



ESA Commercialization Days 2024  
Space Forum for Green Energy in  
Paris with Max Aragon.



photo credits: CDE



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## STUDENT & ALUMNI START-UPS



Our highlights include presentations in key networking events as well as awards and incubations:

- o [ESA Commercialization Days: Space Forum for Green Energy 2024](#)
- o [EODC Forum 2024 - Austrian Earth Observation Marketplace](#)
- o [Insight Science - Digital Findet Stadt 2023](#)
- o [Space4Economy WKO Forum 2023](#)
- o [UN/Austria Symposium 2023 Space for Climate Action 2023](#)
- o [IECT Summer School 2023](#)
- o [CASSINI Idea Track Winner 2024 with Thermopolis](#)
- o [Startup Salzburg Factory Programme 2023 incubation](#)
- o [ESA BIC Austria 2024 incubation programme](#)



The start-up [Wematics](#) has initially been funded by the European Space Agency Business Incubation Centres (ESA BIC) in Austria, and is supported by former host universities, Paris-Lodron University Salzburg and University of South Brittany, and [Austria in Space](#).

*“The Wematics led FFG funded [Cam2Sat project](#), 2023-2024, aims to produce a large reference dataset of ground-based cloud observations, aiding in calibrating and validating cloud detection algorithms for optical satellites such as the Landsat series and Sentinel-2.”* Max Aragon, CDE alumnus. The study is conducted in collaboration with the EO Analytics research group, PLUS Department of Geoinformatics.

Max Aragon is responding to the fast growing industry and founded in 2024 Wematics FlexCo. A deep tech start-up developing specialized all-sky cameras for energy meteorology. Co-founders have worked at institutions including the German Aerospace Center (DRL), the European Space Agency (ESA), the University of Cambridge, and Mines Paris PSL.

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## Student Activities



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Copernicus Master in Digital Earth  
2018 - 2024



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## CELEBRATING OUR STUDENTS

*“What a wonderful journey, from an outstanding candidate’s application to the student graduation ceremony and being a successful alumni. It was a great pleasure for us to accompany our students during the Erasmus Mundus Joint Master programme. We would like to thank all for their excellent and enriching collaboration and wish all the very best for their future careers.”* Zahra Dabiri, Joint Teaching Coordinator, on behalf of the CDE faculty and team.







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CELEBRATING OUR STUDENTS

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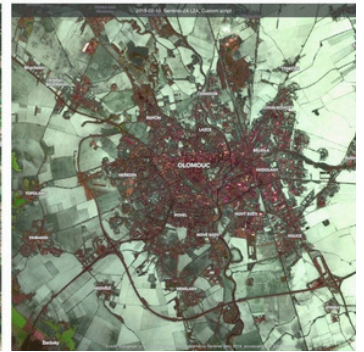


## EDITORS

Arioluwa .A. Aribisala (MSc.)  
Mag. Barbara Brunner-Maresch



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Salzburg, Vannes, Olomouc: contains modified Copernicus Sentinel data

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## Erasmus Mundus Joint Master

Copernicus Master in Digital Earth (CDE) is proudly co-funded by the European Union under the Erasmus+ programme. For a second period of funding (2023-2029), in total 83 student scholarships can be provided, in addition the programme can support 34 self-paying students with a fee-waiver. For the programme's period 2018-2024 a total of 61 scholarships have been offered to international and European students.

