



ACCELERATE



AdvanCing UAVs teChnology to Enable monitoRing for A susTainable enviromEnt

WELCOME TO vol.1 of the ACCELERATE project Newsletter series



CONTENTS

- Kick-off meeting
- Publications
- Project flyers
- Secondment testimonials
- Conferences
- Other News
- Social Media
- Consortium

ABOUT

ACCELARATE is a 48-month research project dedicated to advancing the role of Unmanned Aerial Vehicles (UAVs) in fostering environmental sustainability. In an era where climate change poses escalating threats to ecosystems, societies, and cultural heritage, ACCELARATE seeks to unlock the full potential of UAV-based monitoring systems as precise, flexible, and scalable tools for environmental observation.

CONTACT
US



Funded by
the European Union

THIS PROJECT HAS RECEIVED FUNDING FROM THE EUROPEAN UNION'S HORIZON EUROPE RESEARCH AND INNOVATION PROGRAMME UNDER GRANT AGREEMENT NO 101182930





KICK-OFF MEETING



ACCELERATE

Advancing UAVs technology to Enable monitoring for A sustainable environment

January 24th 2025

Harokopio University of Athens, Greece



The kick-off meeting of the EU-funded project “ACCELERATE” project took place on January 24th, at the premises of Harokopio University of Athens, Greece and it was completed with great success.

ACCELERATE is funded by Horizon 2023 (HORIZON-MSCA-2023-SE-01-01) and has a total budget of 1,568 600.00 euro. ACCELERATE proposes the development of a fertile inter-discipline and inter-sectoral ecosystem that aims to radically contribute towards enhancing UAV technology to enable sustainable environmental management. The project brings together enthusiastic staff from academia and industry via a series of carefully designed secondments, establishing a unique fertile collaborative research and innovation environment to promote pioneering research in environmental and socioeconomic studies implementation within urban, natural and agricultural environments.

A strong inter-sectoral experienced research team of 16 partners from 9 countries of 8 academic and 8 industrial partners coming from Greece (2), Romania (3), Italy (2), Cyprus (1), United Kingdom (4), North Macedonia (1), France (1), Germany (1) and Portugal (1) constitute the project's Consortium.

The project Coordinator is Harokopio University of Athens and Dr George P. Petropoulos, Assistant Professor Department of Geography is the project's PI and coordinates the effort.

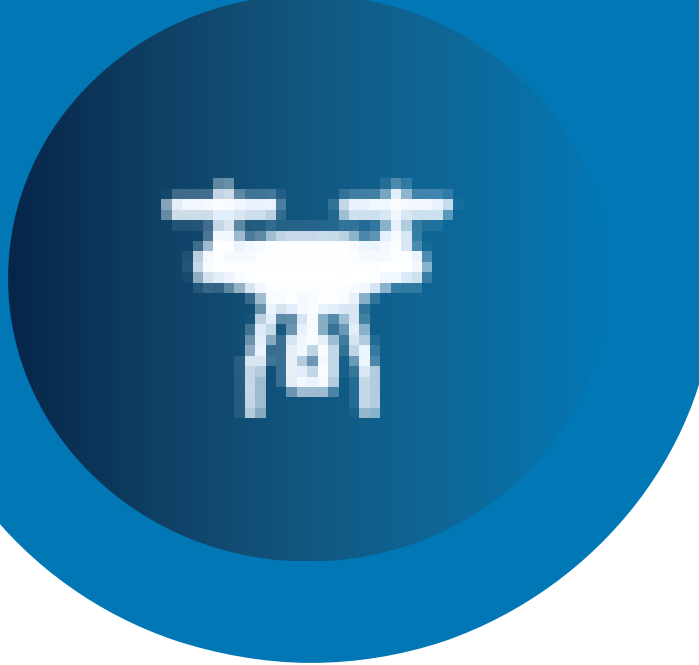


Funded by
the European Union

THIS PROJECT HAS RECEIVED FUNDING FROM THE EUROPEAN UNION'S HORIZON EUROPE RESEARCH AND INNOVATION PROGRAMME UNDER GRANT AGREEMENT NO. 101182930

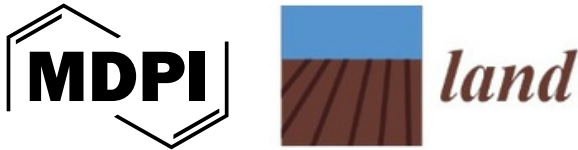
ACCELERATE

Advancing UAVs technology to Enable monitoring for A sustainable environment



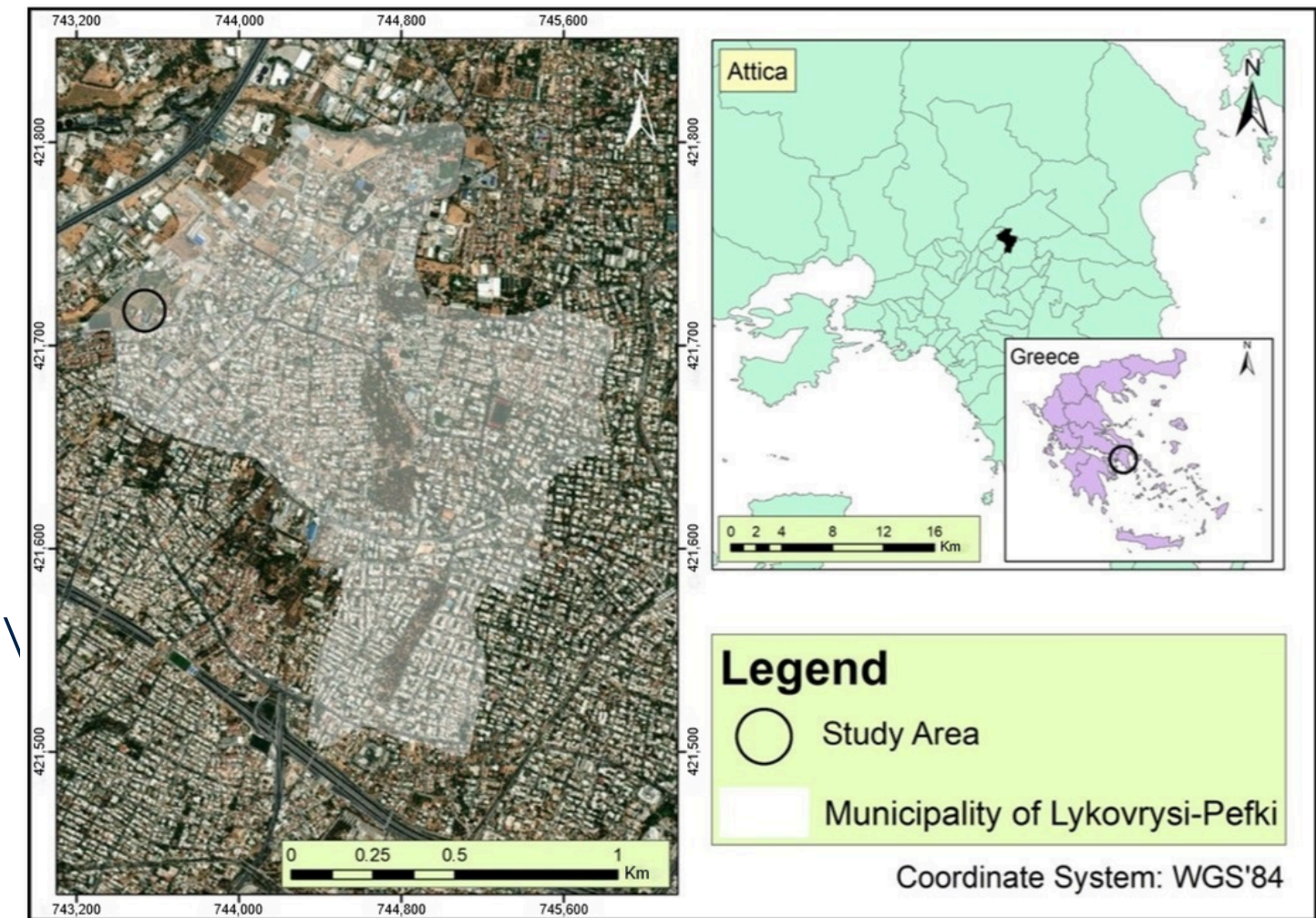
Obtaining a Land Use/Cover Cartography in a Typical Mediterranean Agricultural Field Combining Unmanned Aerial Vehicle Data with Supervised Classifiers

Nikolakopoulos IA, Petropoulos GP.
Land. 2025; 14(3):643. <https://doi.org/10.3390/land14030643>

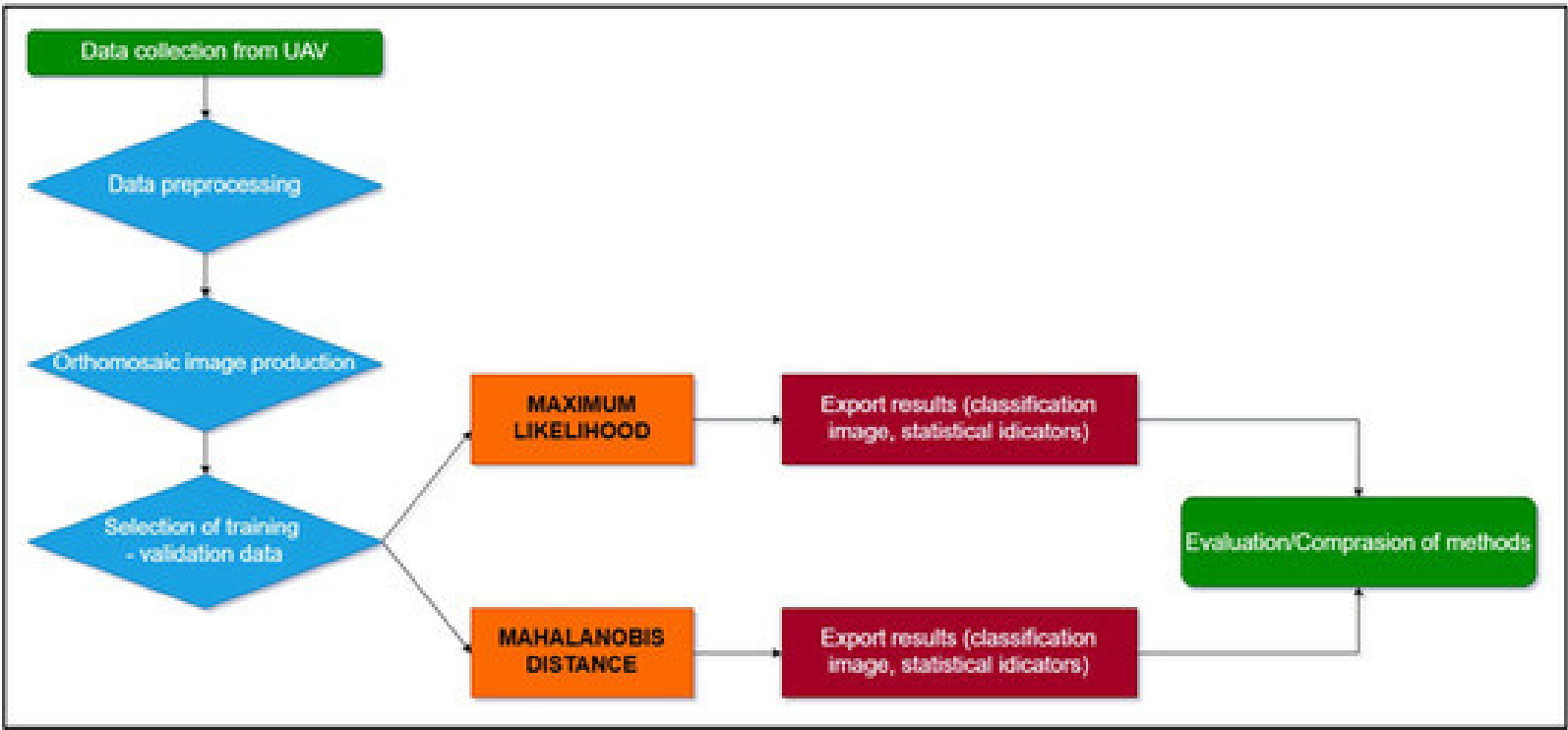


Abstract

The mapping of land use/cover (LULC) types is a crucial tool for natural resource management and monitoring changes in both human and physical environments. Unmanned aerial vehicles (UAVs) provide high-resolution data, enhancing the capability for accurate LULC representation at potentially very high spatial resolutions. In the present study, two widely used supervised classification methods, namely the Maximum Likelihood Classification (MLC) and Mahalanobis Distance Classification (MDC), were applied to analyze image data collected by UAVs from a typical Mediterranean site located in Greece

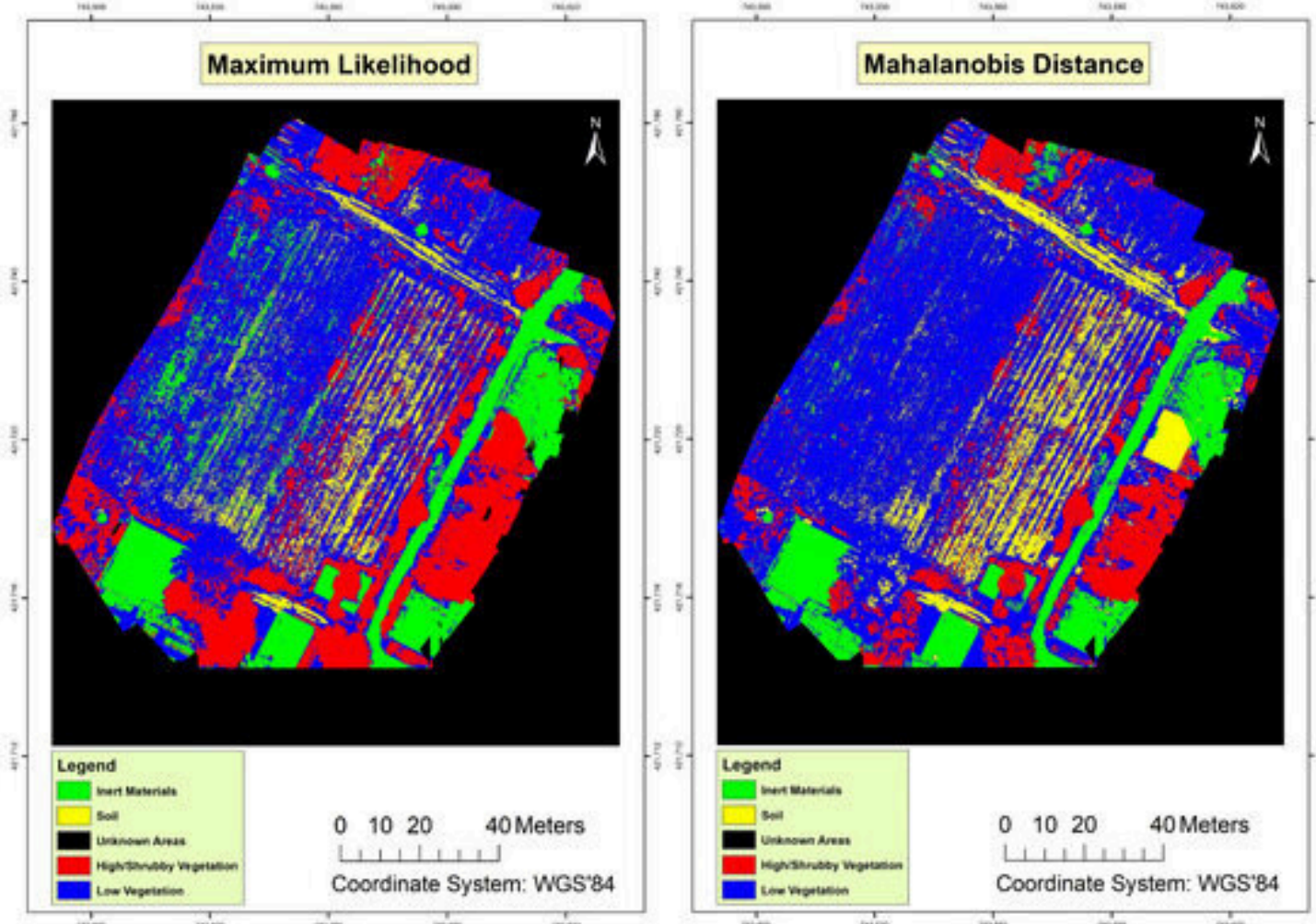


The study area and the Municipality of Lykovrysi-Pefki in relation to Attica/Greece.



Flowchart summarizing the methodological steps applied to achieve the study objectives.

This study highlights the advantages of using UAVs to produce robust information on the geospatial variability of land use/cover in a given area at very high spatial resolution in a cost-efficient, timely, and on-demand manner. Such information can help in decision- and policy-making for ensuring a more sustainable physical environment. This study's limitations, including the small and relatively homogeneous study area, are acknowledged. Future research could potentially focus on exploring the use of advanced classification techniques, such as deep learning and more diverse Mediterranean landscapes, which would assist in enhancing the present's approach applicability.



LULC classification results using MLC (left) and MDC (right). Highlighted areas indicate misclassified regions, particularly in urban zones and 'Unknown Areas', where spectral overlap posed significant challenges for both classifiers.



Funded by
the European Union

THIS PROJECT HAS RECEIVED FUNDING FROM THE EUROPEAN UNION'S HORIZON EUROPE RESEARCH AND INNOVATION PROGRAMME UNDER GRANT AGREEMENT NO. 101182930

ACCELERATE

Advancing UAVs technology to Enable monitoring for a sustainable environment



PROJECT FLYERS



THE PROJECT FLYER HAS ALREADY BEEN PREPARED AND IS DISPLAYED BELOW

THIS PROJECT HAS RECEIVED FUNDING FROM THE EUROPEAN UNION'S HORIZON EUROPE RESEARCH AND INNOVATION PROGRAMME UNDER GRANT AGREEMENT NO. 101182930



Funded by
the European Union

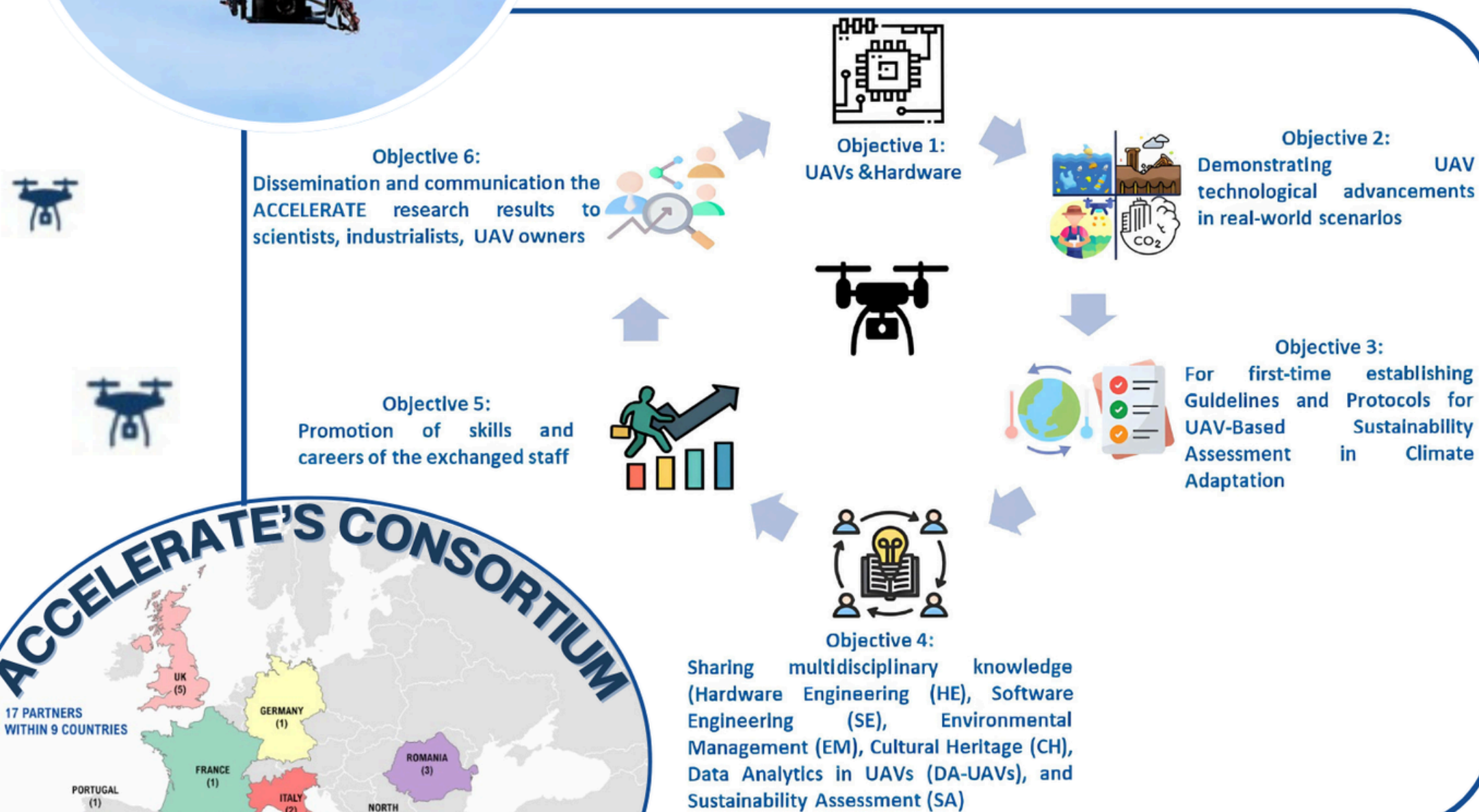
CONTACT US



ACCELERATE

AdvanCing UAVs teChnology to
Enable monitoRing
for A susTainable enviromEnt

MAIN OBJECTIVES



PROJECT'S USE CASES



ACCELERATE is a 48-month research project

ACCELERATE brings together enthusiastic staff from academia and industry via a series of carefully designed secondments, establishing a unique fertile collaborative research and innovation environment to promote pioneering research in environmental and socioeconomic studies implementation within urban, natural and agricultural environments.



Funded by
the European Union

THIS PROJECT HAS RECEIVED FUNDING FROM THE EUROPEAN UNION'S HORIZON EUROPE RESEARCH AND INNOVATION PROGRAMME UNDER GRANT AGREEMENT NO. 101182930

ACCELERATE

AdvanCing UAVs teChnology to Enable monitoRing for A susTainable enviromEnt

PROJECT FLYERS



ANOTHER PROJECT FLYER VERSION TO BE USED BY THE CONSORTIUM

ACCELERATE

THIS PROJECT HAS RECEIVED FUNDING FROM THE EUROPEAN UNION'S HORIZON EUROPE RESEARCH AND INNOVATION PROGRAMME UNDER GRANT AGREEMENT NO. 101182930



Funded by the European Union

AdvanCing UAVs teChnology to Enable monitoRing for A susTainable enviromEnt

48-month research project

PROJECT OVERVIEW



Development of a Collaborative Network



Standardization and Protocol Development



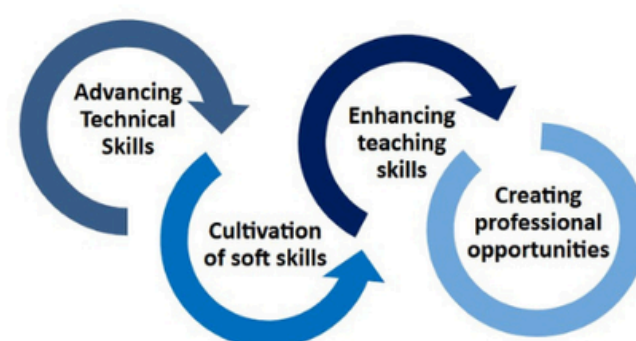
Promotion of Methodological Advances



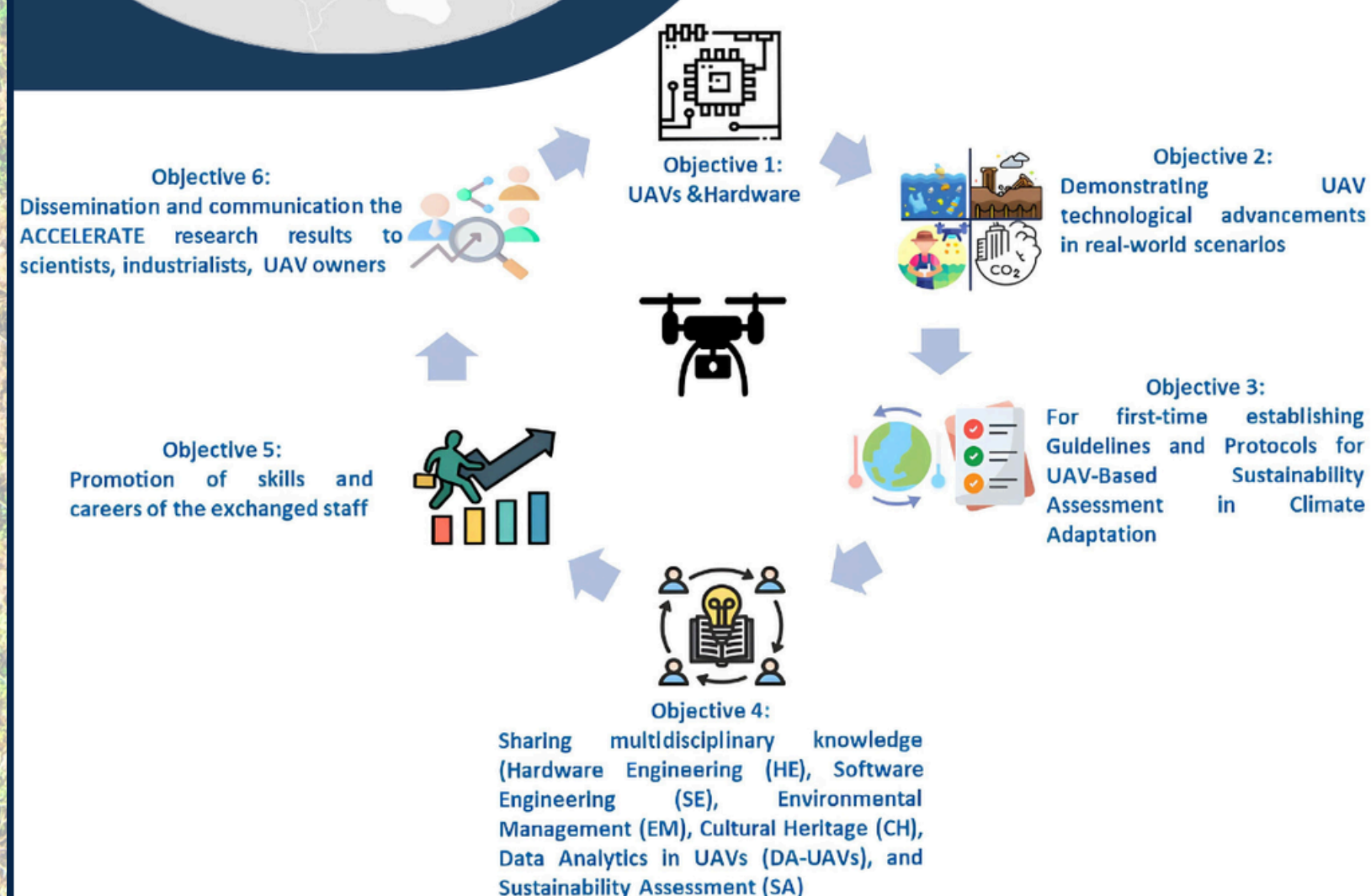
Establishing a Dynamic UAV Dataset Ecosystem

ACCELERATE'S CONSORTIUM

17 PARTNERS WITHIN 9 COUNTRIES



MAIN OBJECTIVES



CONTACT US



PROJECT'S USE CASES



UC1: Hardware development



UC2: Software development



UC3: Coastline pollution assesment



UC4: Agriculture properties monitoring



UC5: Urban air quality characterisation



UC6: Archaeological features extraction



UC7: Socio-economic impacts assessment



Funded by the European Union

THIS PROJECT HAS RECEIVED FUNDING FROM THE EUROPEAN UNION'S HORIZON EUROPE RESEARCH AND INNOVATION PROGRAMME UNDER GRANT AGREEMENT NO. 101182930

ACCELERATE

AdvanCing UAVs teChnology to Enable monitoRing for A susTainable enviromEnt



SECONDMENT TESTIMONIALS

Secondment to University of Exeter, England



Within the ACCELERATE MSCA PROJECT project, João Fonte, a researcher with ERA Arqueologia SA, undertook a secondment at the University of Exeter, UK, from March 3rd to March 15th, 2025.

Working with Ioana Oltean, João Fonte focused on in-depth case-study discussions and the development of preliminary research outputs, fostering international collaboration within the project.



Funded by
the European Union

THIS PROJECT HAS RECEIVED FUNDING FROM THE EUROPEAN UNION'S HORIZON EUROPE RESEARCH AND INNOVATION PROGRAMME UNDER GRANT AGREEMENT NO. 101182930

ACCELERATE
Advancing UAVs technology to Enable monitoring for a sustainable environment



SECONDMENT TESTIMONIALS

Secondment to Harokopio University, Athens-Greece



ΧΑΡΟΚΟΠΕΙΟ ΠΑΝΕΠΙΣΤΗΜΙΟ
HAROKOPIO UNIVERSITY



Petros Masouridis, project manager and head of business development Europe for WaltR, started his secondment in HUA in Greece in the framework of ACCELERATE project.

Petro's secondment started on April 2nd, and it will last until June 2nd 2025. Hosted by Prof. George P. Petropoulos and the HUA team, petros will work together with HUA and other partners to advance the projects objectives and share expertise and knowledge.

Within the context of ACCELERATE MSCA project, this secondment represents an exciting opportunity to utilise international collaboration towards innovation, as well as to assess the impact of UAVs solutions in our 4 distinct use cases.



Funded by
the European Union

THIS PROJECT HAS RECEIVED FUNDING FROM THE EUROPEAN UNION'S HORIZON EUROPE RESEARCH AND INNOVATION PROGRAMME UNDER GRANT AGREEMENT NO. 101182930

ACCELERATE
Advancing UAVs technology to enable monitoring for a sustainable environment



SECONDMENT TESTIMONIALS

IMPERIAL

Secondment to
Imperial College London, England



Dr. Dimitris Zbainos, Associate Professor at Harokopio University of Athens, was seconded to Imperial College London as part of his research secondment under the MSCA ACCELERATE project (Grant Agreement No. 101182930). During his stay, Dr. Zbainos collaborated with fellow ACCELERATE researchers to integrate emerging educational technologies into STEM curricula. His work focuses on sustainability, digital transformation, and inclusive approaches to educational assessment. This secondment promotes mutual knowledge exchange and strengthens interdisciplinary research collaborations between the two institutions.



Funded by
the European Union

THIS PROJECT HAS RECEIVED FUNDING FROM THE EUROPEAN UNION'S HORIZON EUROPE RESEARCH AND INNOVATION PROGRAMME UNDER GRANT AGREEMENT NO. 101182930

ACCELERATE
Advancing UAVs technology to Enable monitoring for a sustainable environment

CONFERENCES

ACCELERATE

Advancing UAVs technology to Enable monitoring for A sustainable environment



26-29th May 2025
4th EARSeL Symposium in Prague

ACCELERATE project was presented at the 44th EARSeL Symposium, showcasing our vision for next-generation UAV-based environmental monitoring! With funding from the EU Horizon Europe MSCA Staff Exchange (GA No. 101182930), ACCELERATE is exploring the full potential of Unmanned Aerial Vehicles (UAVs) in supporting research and decision-making across urban, agricultural, coastal, and cultural landscapes.

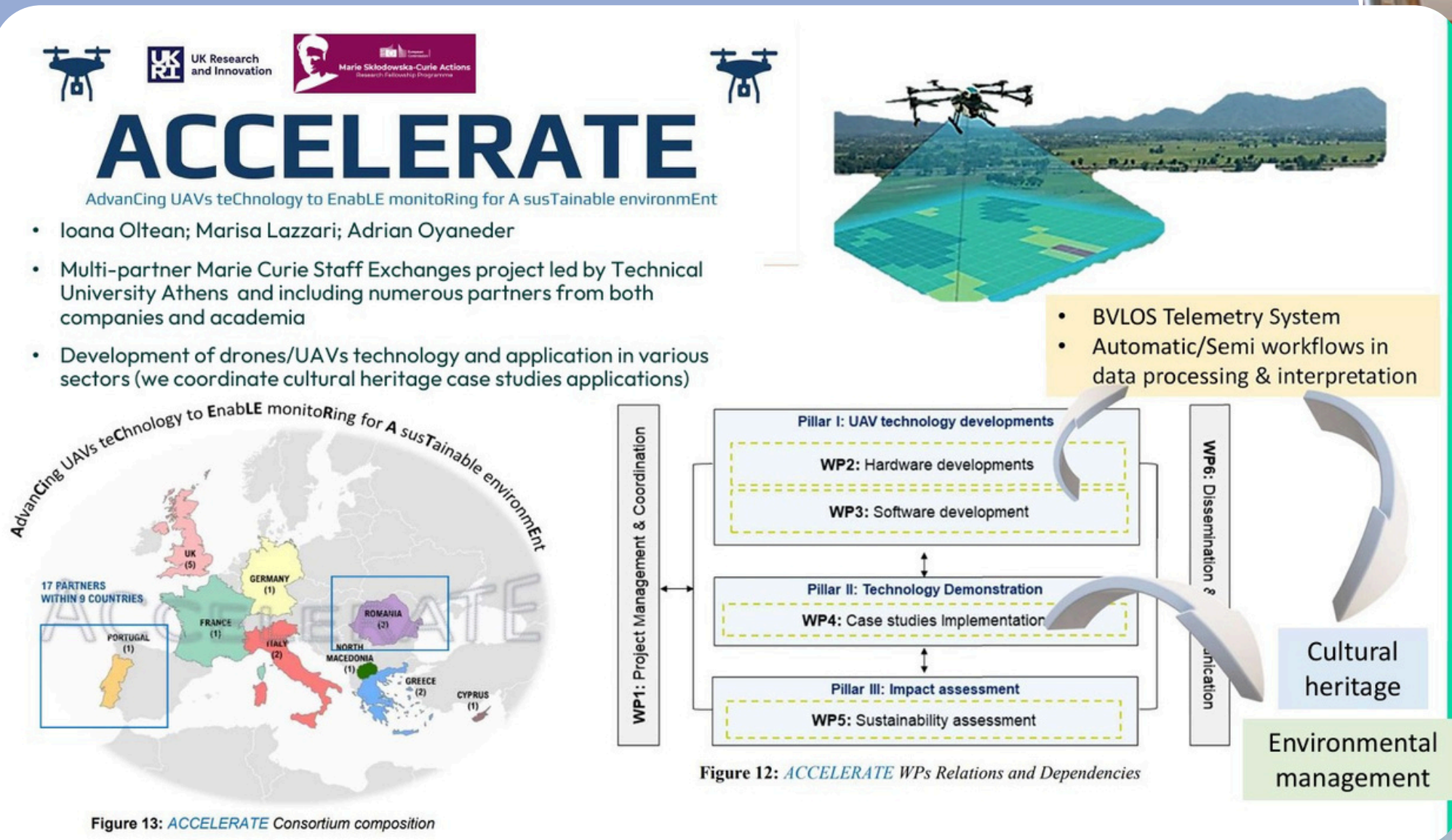
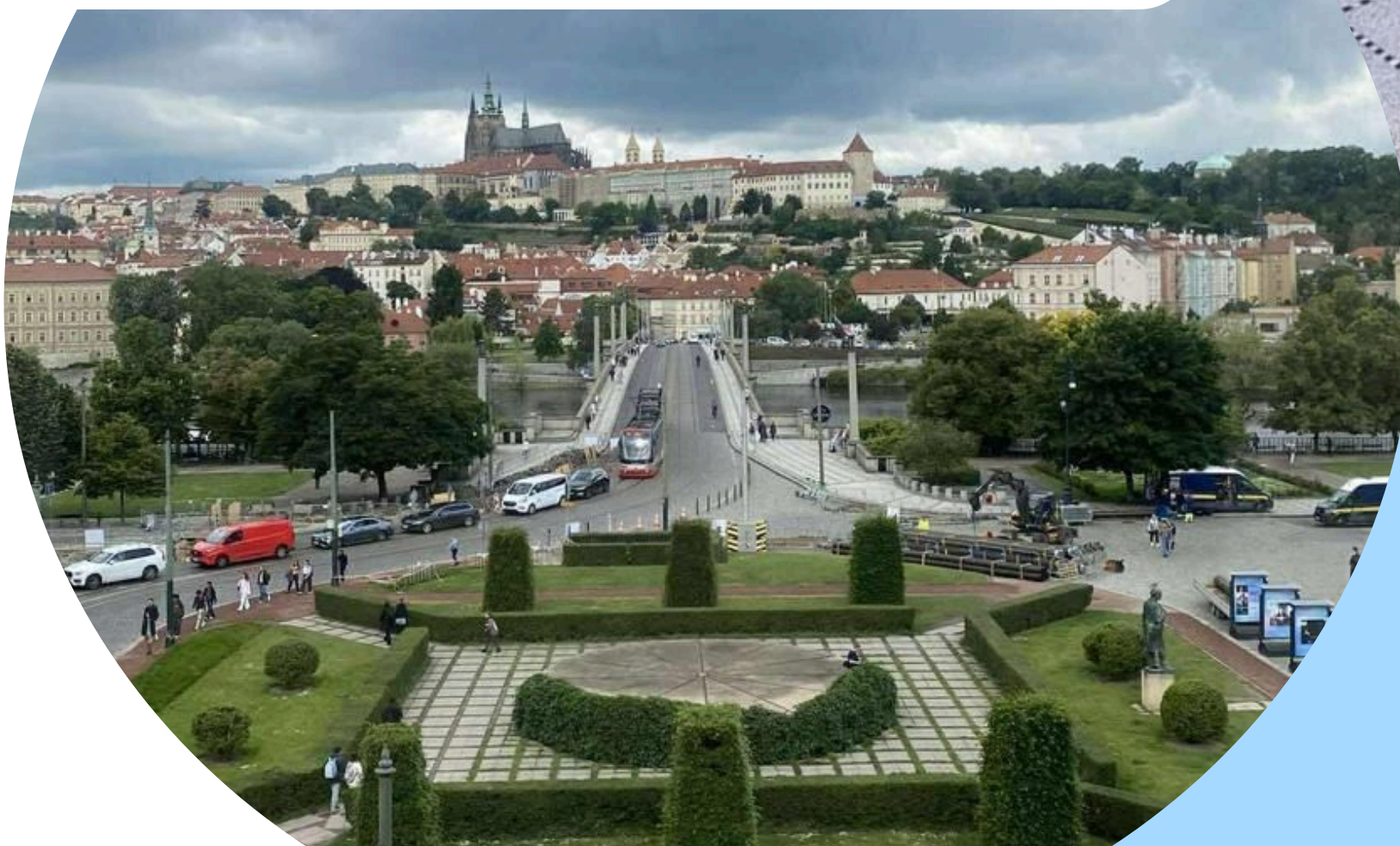


Figure 13: ACCELERATE Consortium composition



CONFERENCES

ACCELERATE

Advancing UAVs technology to Enable monitoring for a Sustainable environment



23rd and 24th May 2025 in Matera, Italy
4th European Assembly of the Archaeology of the Americas



The 4th European Assembly of the Archaeology of the Americas, organised by the Community for the Archaeology of the Americas, part of the European Association of Archaeologists.

The topic of the meeting was "Technology in the Americas: from ancestral knowledge to AI," gathering representatives from academic and non-higher education institutions in the fields of archaeology, anthropology, heritage, architecture, history, literature and imaging and engineering.

Our paper was entitled
"Andean landscape technologies: assessing and understanding ancient connectivity and productivity practices."

Authors: Marisa Lazzari, Ioana Oltean, Adrián Oyaneder Rodríguez, María Cristina Scattolin, Lucas Pereyra Domingorena.

The presentation discussed the synergies between our ongoing work on remote sensing applications in the Andes and Europe, and introduced our new plans of work under the ACCELERATE project umbrella.



Conclusions & future steps

- Highlight the rich heritage of the area- not a desert, and not marginal!
- Model settlement growth sequence in relation to irrigation methods, to investigate long-term human-environmental synergies and aridification.
- Micro-area-specific analysis and macro, inter-area regional comparison
- Potential to understand climate change while informing cultural heritage protection and modern productivity policies
- Continued interconnected cultural technological analysis, to rethink the role of so-called 'marginal' areas in regional histories, particularly of those that were deeply understood and revered over millennia.
- Develop knowledge partnerships with local communities: collaborative Socioeconomic, Cultural and Environmental Impact assessments= moving beyond the 'implementation of new technologies' model in Cultural Heritage



OTHER NEWS

45th EARSeL Symposium to be hosted

29 September to 2 October 2026

Department of Geography, Harokopio University of Athens



HAROKOPIO UNIVERSITY
DEPARTMENT OF GEOGRAPHY



45th EARSeL Symposium

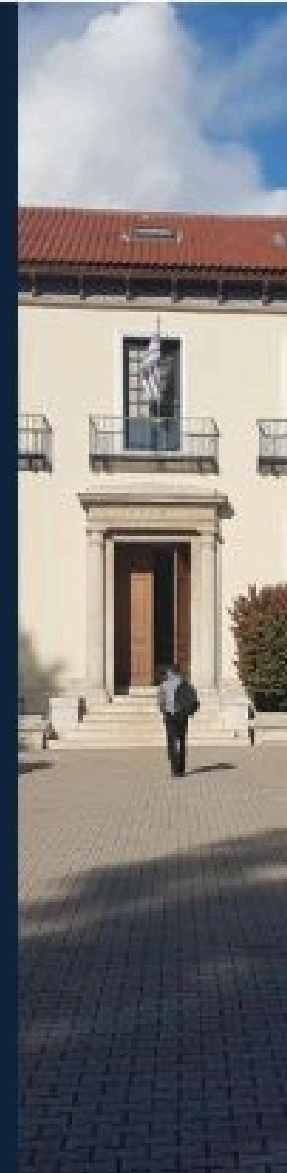
29 September – 02 October 2026
Athens, Greece

Local Organizer:

George P. Petropoulos

Assistant Professor,

Department of Geography, Harokopio University of Athens, Greece



This prestigious event will bring together the international Earth Observation and remote sensing community to share cutting-edge research, discuss emerging technologies, and explore the future of geospatial science.

Hosted in the historic and vibrant city of Athens, and under the auspices of one of Greece's leading academic institutions in the geosciences, the 45th EARSeL Symposium promises to be an inspiring platform for knowledge exchange, networking, and collaboration.



Funded by
the European Union

THIS PROJECT HAS RECEIVED FUNDING FROM THE EUROPEAN UNION'S HORIZON EUROPE RESEARCH AND INNOVATION PROGRAMME UNDER GRANT AGREEMENT NO. 101182930

ACCELERATE

Advancing UAV's technology to enable monitoring for a sustainable environment



OTHER NEWS



Key Project Deliverables Successfully Submitted

The project is progressing smoothly, with several major deliverables already completed and submitted:

- Project Website (M5)
- Data Management Plan (M6)
- Dissemination & Communication Plan (M6)



ACCELERATE

Advancing UAVs technology to Enable monitoring for a sustainable environment

Deliverable:

“D6.2 Project Website”

Contributing Work Package	WP6: Dissemination & Communication
Task	Task 6.2: Development and use of dissemination materials and tools
Deliverable Lead	HUA
Authors	George P. Petropoulos (HUA); Petros Masouridis (WaltR); Spyridon E. Detsikas (HUA);
Deliverable type	DEC —Websites, patent filings, videos, etc
Dissemination level	Public (PU)
Version number	1.0



Funded by the European Union

This project has received funding from the European Union’s Horizon Europe research and innovation programme under Grant Agreement No 101182930



ACCELERATE

Advancing UAVs technology to Enable monitoring for a sustainable environment

Deliverable:

“D1.1 Data Management Plan”

Contributing Work Package	Project Management and Coordination
Task	Knowledge and Information Management
Deliverable Lead	HUA
Authors	George P. Petropoulos (HUA); Petros Masouridis (HUA); Spyridon E. Detsikas
Deliverable type	Deliverable type (Report)
Dissemination level	Public (PU)
Version number	1.0



Funded by the European Union

This project has received funding from the European Union’s Horizon Europe research and innovation programme under Grant Agreement No 101182930



ACCELERATE

Advancing UAVs technology to Enable monitoring for a sustainable environment

Deliverable:

“D.6.1 Dissemination Plan 1”

Contributing Work Package	Work Package 6: “Dissemination, Communications, Technology transfer and Exploitation activities”
Task	Task 6.1: “Development and use of dissemination materials and tools”
Deliverable Lead	HUA
Authors	George P. Petropoulos (HUA); Petros Masouridis (WaltR); Spyridon E. Detsikas (HUA)
Deliverable type	Report
Dissemination level	Public
Version number	1.0



Funded by European Union

This project has received funding from the European Union’s Horizon Europe research and innovation programme under Grant Agreement No 101182930



ACCELERATE SOCIAL MEDIA



Website





Subscribe Now!

[Home](#) [About](#) [Consortium](#) [Use Cases](#) [Deliverables](#) [News](#) [Gallery](#) [Contact](#)



ABOUT ACCELERATE

Explore how our project advances UAV applications for sustainable environmental practices. Join us in discovering the transformative impact of our research and collaboration.

Learn More

<https://www.accelerate-msca.eu>



LinkedIn



ACCELERATE: AdvanCing UAVs teChnology to EnabLE monitoRing for A susTainable environmEnt



Accelerate MSCA project · 1η

ACCELERATE proposes the development of a fertile inter-discipline and inter-sectoral ecosystem that aims to radically contribute towards enhancing UAV technology to enable the sustainable environmental management.

<https://www.linkedin.com/company/accelerate-msca-project/posts/?feedView=all>



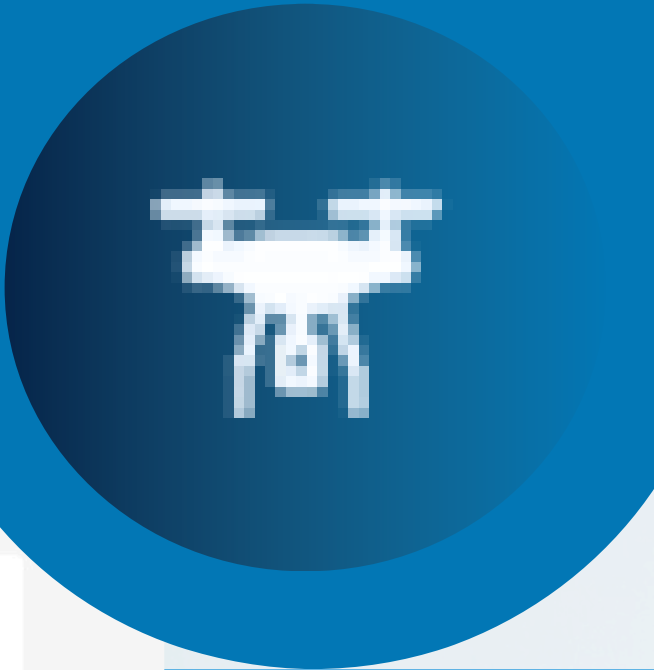
Facebook

<https://www.facebook.com/people/Accelerate-MSCA/61572219954007/>



Email

accelerate@hua.gr



OBJECTIVES



1

Advance UAV-based environmental monitoring by integrating AI and remote sensing technologies across diverse ecosystems.



2

Overcome technological and operational bottlenecks in UAV deployments through targeted research on sensor optimization, BVLOS operation, and data processing scalability.



3

Foster the development of open-source, interoperable tools and platforms for AI-driven UAV data analysis, visualization, and decision support.



4

Promote community-driven innovation and multi-stakeholder engagement in environmental governance through demonstrators and real-world use cases.



5

Support EU policy goals for sustainability, digital transformation, and resilience by informing climate-neutral strategies with UAV-derived insights.

Opportunities & Support

At our project, we are committed to advancing the understanding and application of UAV technology for environmental sustainability. Our mission is to bridge innovative research with practical solutions, ensuring our findings positively impact ecological initiatives.

We focus on integrating cutting-edge AI and evolving the role of UAVs across diverse environmental contexts, fostering collaboration among multidisciplinary scientific communities. Through our efforts, we strive to drive meaningful change that supports EU sustainability goals and promotes research excellence.



TECHNOLOGIES



1

Perform technological advancements in the field of UAVs in both hardware and software domains.



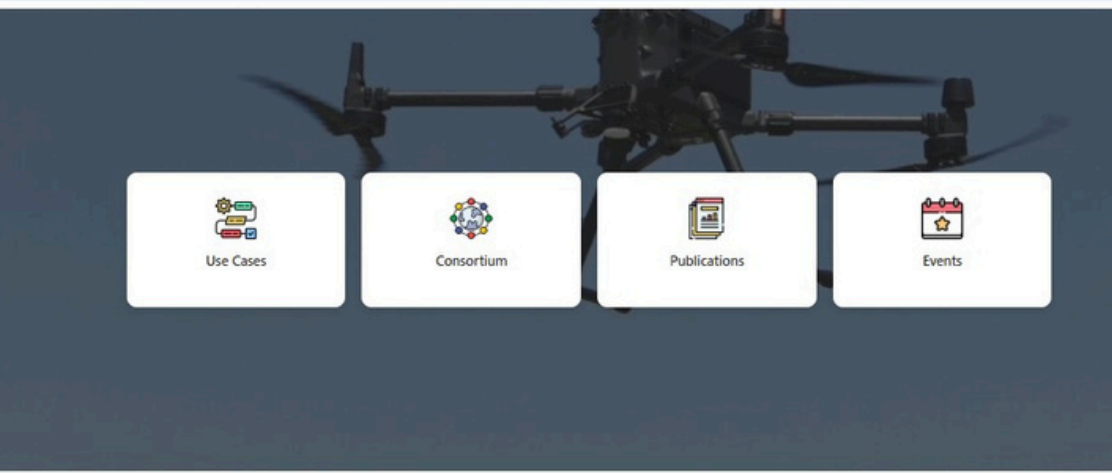
2

Develop new protocols and methodological pipelines in using UAVs in each use case, testing and demonstrating in parallel the technological advancements developed in Pillar I.



3

Develop methodological pipelines to perform multi-faceted sustainability impact assessment using UAV technology in selected disciplines and applications.





Use Cases



Consortium



Publications



Events

USE CASES



Coastline Litter Pollution

UAVs assess coastal litter with RGB/NIR/Thermal sensors and AI models (RF, SVM, CNN). Challenges include remote access and BVLOS integration.



Crop Monitoring & Health

Use UAVs for crop detection and health assessment with ML/DL, sensor calibration, and open-source visual tools for scalable agriculture analytics.



Urban Air Quality

Monitor PMs, RH, and temperature using UAVs with low-cost sensors and DL models (CNN, LSTM) to detect pollution patterns and sources.



Cultural Heritage Monitoring

UAVs create 2D/3D maps of archaeological sites and support ML/DL for feature recognition. Overcome hardware and data limitations in heritage research.

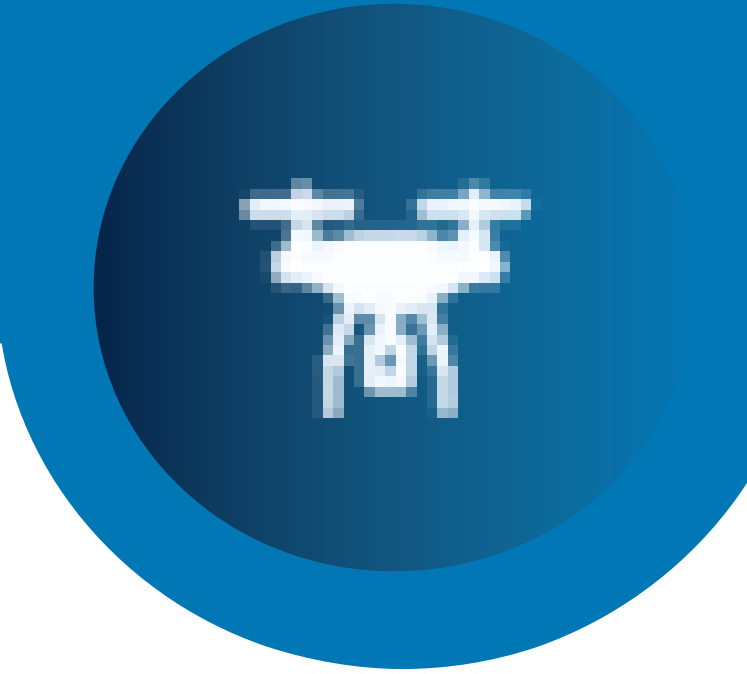
Funded by
the European Union

THIS PROJECT HAS RECEIVED FUNDING FROM THE EUROPEAN UNION'S HORIZON EUROPE RESEARCH AND INNOVATION PROGRAMME UNDER GRANT AGREEMENT NO. 101182930

ACCELERATE
AdvanCing UAVs teChnology to EnabLE monitoRing for A susTainable environmEnt

ACCELERATE CONSORTIUM

16 Partners
within 9 Countries



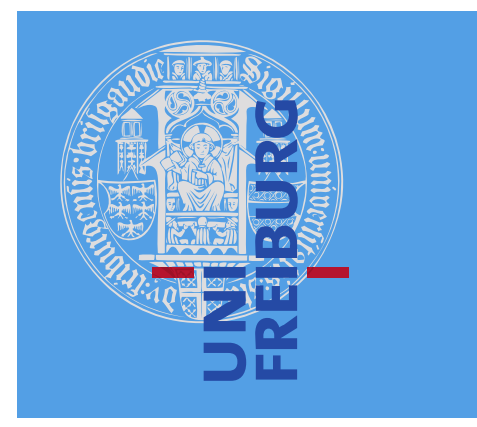
ΧΑΡΟΚΟΠΕΙΟ ΠΑΝΕΠΙΣΤΗΜΙΟ
HAROKOPIO UNIVERSITY



IMPERIAL



University of Exeter



Newcastle University

Imperial College London

University of Exeter

Open University

University of Freiburg

WaltR

National Institute of Heritage

PLANETGIS SKY

Univeristy of Bucharest

TopView

AgFutura

Geosense

ERA Arqueologia SA

Harokopio University

University of Calabria

Innov-Acts



Project Title: ACCELERATE AdvanCing UAVs teChnology to Enable monitoRing for A susTainable enviromEnt
Coordinator: Harokopio University of Athens
Principal Investigator: Dr. George P. Petropoulos
Duration: 48 Months



CONTACT US



THIS PROJECT HAS RECEIVED FUNDING FROM THE EUROPEAN UNION'S HORIZON EUROPE RESEARCH AND INNOVATION PROGRAMME UNDER GRANT AGREEMENT NO. 101182930

