TERRA-MED PhD PROGRAM -Marie Skłodowska-Curie Actions

Context on the program

TERRA-MED is an interregional doctoral program funded under the Marie Skłodowska-Curie COFUND Actions that will recruit and train a new generation of researchers to address the sustainability and resource stress (Water–Land–Energy nexus) in Mediterranean territories.



The Euroregion Pyrenees–Mediterranean, coordinator of the program, brings together the Regions of Occitanie (France), Catalonia and the Balearic Islands (Spain) forming a cross-border research ecosystem. Through this collaboration, TERRA-MED connects world-class universities, research centres and socio-economic actors committed to advancing resilience in the face of climate change. With more than 22,000 scientists across 10 universities and 2 research centers, encompassing 1000 research units, TERRA-MED provides a rich, interdisciplinary environment where doctoral candidates can excel and launch their research careers.

33 PhD positions will be offered to early-stage researchers with a unique interregional, interdisciplinary and intersectoral environment.

Fellows will benefit from having two supervisors (a principal supervisor and a co-supervisor) from two different regions and having a non-academic mentor. The fellows will undertake mandatory cross-border or international stays to the co-institution, as well as a secondment in a non-academic entity.

Moreover, doctoral candidates will receive a specifically designed training program related to their research topics, alongside modules on innovation, entrepreneurship, project management, ethics, open science, etc.

Benefits of TERRA-MED PhD program

- Top-tier PhD education and research training
- Access to world-class laboratories
- Interregional double supervision
- Double PhD degree (France / Spain) where applicable
- Interdisciplinary and cross-sector research experience
- Unique TERRA-MED's excellence training program on resources stress and climate change. See here
- Attractive salary in the frame of MSCA standards
- Extensive network of academic and non-academic partners
- 2 secondments: 1 in the co-supervisor's institution (9 to 12 months); 1 in a non-academic organization to gain extra academic experience and skills (3 to 6 months)

Reference of the thesis project: **UdG1**	**Title of the thesis project** **Unlocking Energy Flexibility through the Modelling and Optimisation of Integrated Urban Water Systems**

Host institution:	**Co-host institution:**
University of Girona / Control Engineering and Intelligent Systems research group (eXiT)	University of Balearic Islands / Electronic Engineering research group
Country	**Country**
Spain	Spain
Host Research Unit:	**Co-host Research Unit:**
The University of Girona (UdG) acts as Host Institution through the eXiT group (Control Engineering and Intelligent Systems, https://exit.udg.edu) of the Institute of Computer Science and Applications, IIiA). eXiT expertise is on data driven methods and artificial intelligence principles (data mining and knowledge discovery and optimisation) for monitoring and decision support in the context of Smart Cities, including (energy communities, energy/water distribution systems, energy islands and buildings)	The Electronics Engineering Group at the UIB conducts research on advanced electronic systems, with a strong focus on intelligent cyber-physical systems and Internet of Things (IoT) technologies. The group develops efficient, reliable, and energy-aware hardware and embedded solutions for connected applications across diverse domains.
Name of the first co-supervisor	**Name of the second co-supervisor**
Joan Colomer Llinas **;** joan.colomer@udg.edu	Bartomeu Alorda Ladaria ; tomeu.alorda@uib.cat
Doctoral School:	**Doctoral School:**
Doctoral Programme in Technology	Doctoral Program in Electronic Engineering

Research field(s)

Water–Energy Nexus, Integrated Urban Water Systems, Energy Flexibility;

Keywords.

Urban water systems; drinking-water distribution networks; desalination; wastewater treatment; demand response; model predictive control; renewable energy integration; optimisation under uncertainty**.**

Description of the research project

Context and Rationale :

Scientific Context

Mediterranean island territories, such as Formentera in the Balearic Islands, represent the frontlines of the Water-Energy-Food-Ecosystem (WEFE) nexus vulnerability. These environments face a compounding set of critical challenges: structural isolation from mainland infrastructure, extreme water scarcity, massive seasonal tourism-driven demand peaks, and the urgent need for rapid renewable energy penetration within delicate, isolated electricity distribution networks.

At the core of this research is a paradigm shift in how we conceive urban water systems — encompassing Drinking Water Distribution Systems, seawater desalination plants, and Wastewater Treatment Plants. Historically treated as passive, highly energy-intensive consumers, these interconnected infrastructures possess intrinsic operational flexibility through pumping shiftability, decentralized hydraulic storage, and modular treatment cycles. The central objective of this research is to explore how these integrated water systems can be dynamically modelled and operated to actively serve as flexibility providers, functioning as critical balancing assets within future, renewable-dominated power systems.

This challenge primarily addresses the Energy pillar of the WEFE nexus and secondarily the Water pillar, while directly contributing to Climate Resilience and Governance Innovation. By coupling hydraulic dynamics, strict water treatment constraints, and electricity market signals, the project aims to quantify and operationalize the flexibility potential embedded across the entire urban water cycle. The research will analyze the complex trade-offs between water security, energy efficiency, ecosystem protection, and grid reliability under acute climate stress.

To ground this theoretical framework, the research is contextualized within the island of Formentera, which serves as an ideal, self-contained living lab. The proposal directly incorporates the factor of insularity—characterized by a highly fragile grid, total reliance on desalination, and extreme seasonal socio-ecological pressures—while leveraging the island's comprehensive, island-wide LoRaWAN network. This communication infrastructure enables the integration of widespread Internet of Things (IoT) sensors (monitoring pressure, flow, tank levels, and water quality parameters in real-time), bridging the gap between theoretical hydraulic models and real-time, data-driven optimization frameworks.

Crucially, while rooted in Formentera, this methodological framework is designed to be highly adaptable and scalable to other territories sharing insular territorial models or isolated management frameworks—such as remote rural networks, localized energy communities, and isolated microgrids worldwide—offering a universal blueprint for climate-resilient water and energy management.

Research Gap

Despite the proliferation of research in smart grid architectures and demand-side management, a significant scientific gap persists regarding the operational integration of urban water infrastructures into electricity markets. Traditionally, drinking water distribution systems, desalination facilities, and wastewater treatment plants operate under conservative, reliability-driven paradigms where interaction with the electrical grid is restricted to passive energy-price mitigation. The scientific community has yet to establish robust methodologies to quantify, aggregate, and operationalize the inherent degrees of freedom of these highly intensive infrastructures—such as pumping shiftability, modular treatment cycles, and decentralized hydraulic storage—to act as active flexibility providers in renewable-dominated power systems without compromising strict hydraulic safety, chemical water quality, or environmental regulatory compliance. This limitation is significantly magnified in isolated management frameworks and insular territorial models, such as that of Formentera, where multi-scale optimization frameworks must simultaneously contend with extreme, coupled stochastic variables, including high local renewable volatility and severe, tourism-driven seasonal water demand peaks under drought stress.

Existing deterministic scheduling models fail to bridge the gap between high-level macro-planning and real-time transient physics.

Specifically, there is a lack of advanced optimization architectures—such as day-ahead scheduling coupled with intraday Model Predictive Control—capable of dynamically ingesting real-time data streams from long-range, low-power Internet of Things (IoT) sensor networks, such as LoRaWAN. Consequently, translating high-granularity physical metrics—such as real-time pressure, flow, and tank levels—into dependable, activable flexibility products under acute environmental and operational constraints remains an unresolved challenge. Ultimately, the literature lacks scalable, transferable frameworks tailored to isolated microgrids and hyper-localized Water-Energy-Food-Ecosystem (WEFE) nexuses, where the absence of continental interconnected infrastructure requires autonomous, resilient, and multi-domain optimization strategies.

Relevance to resource stress and climate change (Water-Land-Energy Nexus)

The Mediterranean basin constitutes a critical climate change hotspot, experiencing rates of warming and anthropocenically induced drought that significantly outpace global averages. Within this region, isolated island territories such as Formentera represent hyper-vulnerable nodes where the interdependencies of the Water-Energy-Land-Ecosystem (WELE) nexus are strictly constrained by geographic and environmental boundaries. Under accelerating climate stress, characterized by prolonged heatwaves and diminished precipitation, the island's traditional reliance on highly limited groundwater bodies has collapsed, shifting the entire civil water supply burden onto seawater desalination. This structural transition creates a direct, irreversible feedback loop: mitigating water stress inherently amplifies energy intensity, thereby tightening the dependency of critical water security on the local electrical infrastructure.

This nexus pressure escalates severely during the summer season due to tourism-driven demographic peaks. The concurrent surge in freshwater requirements and electricity demand for cooling occurs precisely during periods of maximum ecosystem vulnerability and acute grid stress. Furthermore, the land dimension introduces strict spatial and environmental boundaries; localized renewable generation (primarily solar photovoltaic) requires careful land-use planning to avoid conflict with protected natural areas and agricultural landscapes. In an isolated grid, the rapid

injection of intermittent solar energy threatens grid stability, often leading to renewable curtailment precisely when the energy is most abundant.

By restructuring urban water infrastructure—specifically desalination facilities, distribution pumping networks, and wastewater treatment loops—from passive consumers into dynamic flexibility providers, this research directly addresses these coupled resource constraints. Operationalizing the storage and shiftability potential inherent in the water cycle allows the system to absorb peak renewable generation, mitigate distribution grid stress, and minimize reliance on carbon-intensive backup generation. Consequently, this multi-domain optimization framework reduces the carbon footprint of the water cycle, enhances the hosting capacity for clean energy within tight land-use constraints, and safeguards terrestrial and coastal ecosystems from the cascading impacts of infrastructure failures under extreme climate events.

Objectives:

General Objective

The overarching objective of this thesis is to develop, validate, and evaluate a comprehensive, multi-scale optimization framework to transition integrated urban water systems from passive energy consumers into active flexibility providers within isolated, renewable-dominated power systems, utilizing real-time IoT networks.

Specific Objectives (SO)

SO1: Characterization of Multi-Domain Data Streams and IoT Integration. To design and deploy a data-ingestion architecture leveraging Formentera's island-wide LoRaWAN network to integrate high-granularity IoT sensor streams (pressure, flow, tank levels, and water quality parameters) into hydraulic and operational water cycle models, establishing the digital baseline for real-time monitoring.

SO2: Quantification and Mathematical Modeling of Operational Flexibility. To develop advanced mathematical models that quantify the dynamic, "available and usable" power flexibility of interconnected water infrastructures, explicitly incorporating transient hydraulic physics, physical storage boundaries, strict water quality thresholds, and regulatory discharge constraints.

SO3: Multi-Scale Robust Optimization Framework Design. To formulate a robust, multi-scale optimization architecture coupling the hydraulic and electrical domains. This includes a day-ahead scheduling layer to interface with energy markets/programs, coupled with an intraday Model Predictive Control (MPC) layer capable of handling stochastic water demands and renewable generation volatility.

SO4: Validation, Stress-Testing, and WELE Nexus Impact Analysis. To validate the integrated framework using the self-contained living lab of Formentera, stress-testing the model against extreme climate change scenarios (severe droughts, seasonal tourism demand peaks, and intensive heatwaves) to quantify impacts on overall climate resilience, grid stability, and ecosystem protection.

Expected Results:

The execution of this doctoral research aims to transform urban water infrastructures in isolated environments from passive energy consumers into active, grid-balancing assets. By leveraging Formentera's island-wide LoRaWAN network and advanced control strategies, the project bridges the gap between high-granularity physical data and multi-scale energy optimization. Validated within this self-contained Mediterranean living lab, the research will deliver scalable methodologies to enhance grid stability and resource resilience under acute climate and demographic stress.

The three primary expected results of this thesis are:

1. A Real-Time Co-Optimization Control Engine: The development of a robust mathematical framework that couples day-ahead flexibility scheduling with intraday Model Predictive Control, capable of dynamically ingesting IoT data streams to safely operationalize the flexible capacity of water infrastructures under strict hydraulic and quality constraints.
2. Enhanced Renewable Integration and Grid Stress Mitigation: A measurable increase in the local grid's renewable hosting capacity and a significant reduction in solar energy curtailment, achieved by strategically shifting energy-intensive desalination and pumping cycles to absorb generation peaks and alleviate network stress during summer demographic peaks.
3. A Scalable WELE Nexus Blueprint for Isolated Systems: The formulation of a transferable aggregation methodology to cluster decentralized water assets into a unified Virtual Power Plant, paired with regulatory and governance recommendations to optimize resource efficiency, lower carbon emissions, and safeguard vulnerable ecosystems in isolated management models.

Work plan:

The research roadmap is structured across a four-year timeline, sequentially transitioning from data integration and mathematical baseline modeling to advanced multi-scale optimization, virtual aggregation, and final climate-stress validation.

Task 1.1: Design of the LoRaWAN Data-Ingestion Architecture.

Activities: Mapping and inventorying the existing IoT sensor nodes across Formentera's water infrastructure (flow rates, hydraulic pressures, tank levels, and salinity parameters). Configuring communication protocols to streamline high-granularity data packets from the LoRaWAN network into a centralized real-time research repository.

Task 1.2: Mathematical and Hydraulic Modeling of Water Infrastructures.

Activities: Developing transient and steady-state hydraulic simulation models for the drinking water distribution system, the reverse osmosis desalination plant, and the operational cycles of the wastewater treatment plant.

Task 1.3: Formulation of Operational Flexibility Constraints.

Activities: Defining the mathematical equations that bound operational degrees of freedom, explicitly incorporating pressure thresholds to prevent pipe bursting, critical storage capacities in water reservoirs, pump ramp-up/ramp-down constraints, and chemical water quality indicators.

Task 2.1: Design of the Multi-Scale Optimization Framework.

Activities: Developing a day-ahead scheduling algorithm to interface with electricity market signals or local flexibility programs. Designing an intraday Model Predictive Control layer to dynamically compensate for real-time deviations utilizing live IoT sensor streams.

Task 2.2: Stochastic Uncertainty Modeling.

Activities: Integrating probabilistic forecasting models to simultaneously address the joint uncertainty of local intermittent renewable generation (solar PV) and highly variable water demands driven by seasonal tourism.

Task 3.1: Living Lab Validation and Simulation.

Activities: Executing closed-loop simulations and digital twin testing using historical datasets and real-time LoRaWAN data streams from Formentera to validate optimization algorithm accuracy under standard operating conditions.

Task 3.2: Climate Stress-Testing and WELE Nexus Impact Assessment.

Activities: Simulating extreme climate change scenarios, including severe droughts with depleted groundwater, intense heatwaves with peak tourist demands, and high renewable volatility. Quantifying impacts on net energy intensity, carbon emissions, and ecosystem pressures (e.g., brine discharge controls).

Task 3.3: Governance Framework, Co-Supervision Coordination, and Transferability.

Activities: Analyzing current regulatory barriers in Spain and France regarding water-sector participation in flexibility markets, developed through joint coordination meetings between the supervising universities. Authoring policy recommendations to export this isolated management model to other Mediterranean territories.

Task 3.4: Thesis Dissemination and Writing.

Activities: Compiling the doctoral dissertation, preparing manuscripts for high-impact peer-reviewed journals (JCR), and presenting findings at international conferences.

References of both supervisors:

Dr. Joan Colomer: He has a B.S. degree in Physics, from the Universitat Autònoma de Barcelona (1991) and a PhD from the Universitat de Girona (1998). In 1999 he won a permanent position at the Department of Electrical, Electronic and Automation Engineering where he has developed his career until now. His research activity focuses on data-driven methods for process supervision, including fault detection, diagnosis and decision support with emphasis in applications in the areas of Smart

cities, Smart Grids and water treatment and distribution. He has led and participated in several research projects at national and international levels in the area of distribution systems. He's been the roject coordinator of the past H2020 E-LAND project (Grant Agreement 824388)) and has participated in EU projects such as RESCHOOL (Grant Agreement 101096490), FEVER (Gran Agreement 864537) and RESOLVD (Grant Agreement 773715) and HIT2GAP (Grant Agreement 680708). He is the author of more than 100 papers in international conferences and journals. He has been the director of the Research Institute of Computer Science and Applications (IIiA) at the University of Girona (14/03/2016 - 10/12/2019) and the director of the Department of Electrical, Electronic and Automation Engineering since 2019 to 2025. He is co-director of the research group "Control Engineering and Intelligent Systems" in the Universitat de Girona since 2001

Publications:

Iglesias, F., Massana, J., Burgas, L., Planellas, N., & Colomer, J. (2025). Methodological Advances in Temperature Dynamics Modeling for Energy-Efficient Indoor Air Management Systems. Applied Sciences, 15(8), 4291. | DOI: 10.3390/app15084291

Massana, J., Burgas, L., Cañigueral, M., Sumper, A., Melendez, J., & Colomer, J. (2025). Enabling charging point operators for participation in congestion markets. International Journal of Electrical Power & Energy Systems, 167, 110604. DOI: https://doi.org/10.1016/j.ijepes.2025.110604

Assessment of electric vehicle charging hub based on stochastic models of user profiles Marc Cañigueral, Llorenç Burgas, Joaquim Massana, Joaquim Meléndez, Joan Colomer. Expert Systems and Applications, Elseviewer Volume 227,1/10/2023 https://doi.org/10.1016/j.eswa.2023.120318

Joaquim Massana; Llorenç Burgas; Joan Colomer; Andreas Sumper; Sergio Herraiz Optimal scheduler for energy consumption reduction in multi-vector energy management systems: A case study at the Port of Borg, Heliyon 10.1016/j.heliyon.2024.e31419

Main projects:

RESCHOOL: Strategies and tOOls for Incentivization and management of flexibility in Energy Communities with distributed Resources - HORIZON-CL5-2022-D3-01 – Grant agreement No 101096490. 2023/26

GERIO: Management of distributed energy resources: Flexibility Modelling and Optimisation for energy communities. PID2022-142221OB-I00. 2024/26.

CLIMA: Social and technological challenges for the CreatIon, Leverage and MAnagement of energy communities 2023 CLIMA 00090. 2024 /2026.

OPTIREC: Modelling and scheduling of communities for Grid Interaction. Ministerio de ciencia e Innovación, proyectos de transición ecológica y transición digital (TED2021-131365B-C42). 2023/25.

FEVER: Flexible Energy Production, Demand and Storage-based Virtual Power Plants for Electricity Markets and Resilient DSO Operation- H2020-LC-SC3-2019-ES-SCC – Grant agreement No 864537, 2020/23

E-LAND: Energy Islands, H2020-LC-SC3-ES-3-2018, Grant Agreement 824388, 2018/22

Dr. Bartomeu Alorda Ladaria: He holds a degree in Telecommunication Engineering from the Universitat Politècnica de Catalunya (2000) and a PhD in Physics from the Universitat de les Illes Balears (2005). He is an Associate Professor (*Professor Titular d'Universitat*) in the Area of Electronic Technology within the Department of Industrial Engineering and Construction at the Universitat de les Illes Balears (UIB), where he currently serves as Director of Espai cotib center. His research activity

focuses on microelectronic circuit reliability, low-power digital design, edge computing, open-architecture electronics (such as RISC-V), and wireless sensor networks (IoT), with emphasis on cyber-physical system applications in Smart Cities, Smart Destinations, environmental monitoring, and eHealth. He has led and participated in numerous competitive research projects and knowledge transfer contracts at regional, national, and European levels. He is the author of more than 20 papers in indexed JCR journals and over 35 contributions to international conferences and scientific meetings. He is the Principal Investigator of the research group "Multidisciplinary eHealth and Telemedicine through Cyber-Physical Intelligent Systems" at the Health Research Institute of the Balearic Islands (IdISBa), and a core member of the Electronic Systems Group (GEE) and the Agro-Environmental and Water Economics Institute (INAGEA).

Publications:

Maria Frontera-Bergas, Micaela Vinaixa-Fernández, Bartomeu Oliver-Riera, Jaume Ramis-Bibiloni, Eugeni Isern, **Bartomeu Alorda-Ladaria**, A Multi-Sensor IoT Platform for monitoring medicine storage beyond the hospital,Internet of Things, Volume 33, 2025,101711,ISSN 2542-6605,https://doi.org/10.1016/j.iot.2025.101711.

Alorda-Ladaria, B., Pons, M., & Isern, E. (2025). A Self-Configurable BUS Network Topology Based on LoRa Nodes for the Transmission of Data and Alarm Messages in Power Line-Monitoring Systems. *Sensors*, 25(5), 1484. DOI: 10.3390/s25051484

Sanchez-Flores, A., Fornt, J., Alvarez, L., & **Alorda-Ladaria, B.** (2024). Energy and Precision Evaluation of a Systolic Array Accelerator Using a Quantization Approach for Edge Computing. *Electronics*, 13(14), 2822. DOI: 10.3390/electronics13142822

Molina-Rotger, M., Morán, A., Miranda, M. A., & **Alorda-Ladaria, B.** (2023). Remote fruit fly detection using computer vision and machine learning-based electronic trap. *Frontiers in Plant Science*, 14, 1241576. DOI: 10.3389/fpls.2023.1241576

Salas, P., Ramos, V., Ruiz-Pérez, M., & **Alorda-Ladaria, B.** (2023). Methodological Proposal for the Analysis of Urban Mobility Using Wi-Fi Data and Artificial Intelligence Techniques: The Case of Palma. *Electronics*, 12(3), 504. DOI: 10.3390/electronics12030504

Carmona, C.; Muñoz, J.; **Alorda-Ladaria, B**. Ambient Hot Box: An Instrument for Thermal Characterization of Building Elements and Constructive Materials. *Sensor* **2023**, *23*, 1576. https://doi.org/10.3390/s23031576.

Main projects:

HYDROALGAL: Prevention and mitigation system for algal blooms in coastal waters based on advanced hydrodynamic modeling – Retos-Colaboración, Ministerio de Economía y Competitividad (MINECO) – RTC-2016-4812-5. Principal Investigator. 2016/20.

BIO016A.2: Application of Artificial Intelligence strategies to the monitoring and tracking of insect diversity using automatic electronic systems – Govern de les Illes Balears. Co-Principal Investigator. 2023/25.

IoT-IB: Public Internet of Things network deployment and technological support based on LoRaWAN technology for the Balearic Islands – Knowledge Transfer Contract with IBETEC / Govern de les Illes Balears. Principal Investigator. 2019/22.

WifiCOVID & SEQR: Pilot alert system for crowd detection, social distance monitoring, and safe sanitary corridors in the Mediterranean Pyrenees Euroregion – Euroregion COVID-19 Support Fund. Principal Investigator. 2020/21.

Required Skills and Competences:

The ideal candidate must hold an official bachelor's degree and an official master's degree in relevant fields such as Water Resources Engineering, Electrical or Power Systems Engineering, or Data Science and Computer Engineering. Due to the interdisciplinary nature of the thesis, a solid background in numerical optimization, data science, and mathematical modeling is highly valued. Candidates possessing an integrated master's degree in engineering are strongly encouraged to apply. Fluency in English is required for scientific dissemination, and knowledge of Spanish is an asset for navigating local regulatory frameworks.

Master's degree(s) required or equivalent(s):

Candidates possessing an integrated master's degree in engineering are strongly encouraged to apply.

Co-supervision partnership framework

Co-supervision (2 supervisors) : yes

Indicative mobility arrangements:

Hosting institution: 36mths

Co-hosting institution secondment: 12mths

Non-Academic secondment: 3 to 6 months

Work conditions

Duration: 48 months

Indicative start date : September/ October 2027

Indicative gross salary:

~ €2,450/month + Statutory end-of-contract compensation in accordance with Spanish legislation estimated at ~ €80/months accrued during the contract and paid at the end of the contract. Estimated total annual gross salary: 30.600€

Eligible fellows with one or more dependent children may receive an additional family allowance of €50 per month.

Trainings:

Mobility required : yes

Non-academic secondment : yes

Dual degree / Cotutelle possible : no

Doctoral tuition fees: fully covered by TERRA-MED program

Social security: Full employer contributions covered by the recruiting entity.

Host institution	Co-host institution

The University of Girona (UdG) is one of the main economic and cultural drivers of the province of Girona, located in the North East of Catalonia (Spain). With 15.800 students in last academic term, UdG has 3 university campuses, 13 research institutes and 1 doctorate school with 14 doctorate programmes (one focused on water resources). The **eXiT group, Control Engineering and Intelligent Systems** (code GRCT 41)**,** is an interdisciplinary research group of the Institute of Computer Science and Applications (IIiA) of the University of Girona (UdG). The group has a solid background in digital transformation in health care (chronic diseases such as diabetes or epilepsy) and smart cities (buildings and communities, power and water distribution systems, energy islands) domains, thanks to its participation in several national and international research and transfer projects (2021 SGR 01125). The group's main activity is focused on the development and innovation of solutions based on the **application of the principles of artificial intelligence**, machine learning, data mining, Large Language Models (LLM) and distributed ledger technology (Blockchain) to support decision–making processes.	**The University of the Balearic Islands (UIB)** offers a supportive, interdisciplinary and international research environment within a modern and well-connected campus close to Palma. Researchers benefit from close interaction with supervisors and research teams, access to specialized laboratories, advanced scientific-technical facilities and high-performance equipment, and a broad multidisciplinary research community. The UIB combines research excellence with a compact academic environment that facilitates collaboration, training and professional development. Beyond research, Mallorca provides an outstanding quality of life, with a safe and multicultural environment, Mediterranean climate, natural landscapes and a wide range of cultural and outdoor activities, offering an attractive balance between scientific career development and personal life. The Electronic Engineering research group (GEE) at the University of the Balearic Islands (UIB) focuses on designing advanced electronic hardware, measuring ionizing radiation, and developing intelligent cyber-physical systems

Eligibility conditions

***Horizon Europe MSCA Mobility Rule*:** Researchers must not have resided or carried out their main activity (work, studies, etc.) in the country of the host organization (France or Spain depending on the employing institution) for more than 12 months in the 36 months immediately before the recruitment date – unless as part of a compulsory national service or a procedure for obtaining refugee status under the Geneva Convention.

***Horizon Europe MSCA Eligibility Criteria*:** Applicants must be eligible for enrolment in a doctoral programme at the employer institution and must not already hold a doctoral degree at the date of recruitment.

Applicants who do not fulfill the Mobility Rule and the Eligibility Criteria WILL NOT be considered for the research position.

***Language requirements*:** Applicants must demonstrate sufficient proficiency (B2) in English to successfully conduct doctoral research and participate in the TERRA-MED training programme.

For more information on this call for candidates see our website here and the guide for applicants here.

APPLY HERE BY Decembre 31st 2026

Administrative Contact

TERRA-MED Programme Office (only for general administrative questions and redress demands. Any research-related question must be addressed to the supervisors by email, see second page)

Email: terramed@euroregio-epm.eu