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: **UOC4**	**Title of the thesis project** **The role of energy and water security in adapting to extreme heat by vulnerable households**
Host institution: Universitat Oberta de Catalunya	**Co-host institution:** Universitat de les Illes Balears
Country : Spain	**Country : Spain**
Host Research Unit: TURBA (Urban Transformation & Global Change Lab): An interdisciplinary research group developing sociospatial approaches to critically analyze transformations arising from intertwined processes of digitalization, environmental change, and political crisis. Our interdisciplinary approach explores the complex interplay between urban spaces, digital technologies, environmental change, and political processes. Among other research goals, we critically study how socio-environmental governance is reshaped through technological, social and environmental change. We explore and contribute to socio-ecological transformations that involve different actors with attention to issues of social and environmental justice. In particular, (1) We look closely at the changing political ecology of urban water, (2) at the digital turn in environmental governance, (3) at the social economy of rural change. *(https://turbalab.research.uoc.edu/)* TURBA is hosted at the Interdisciplinary Research Centre on Social and Cultural Transformations (UOC-TRÀNSIC) Through research, experimentation, and innovation in the social sciences, humanities, and arts, the center explores social and cultural change, both theoretically and empirically. (https://www.uoc.edu/en/research/centres/social-cultural-transformations)	**Co-host Research Unit:** **CRIGUST – Critical Geographies in Urbanisation, Sustainability and Touristification** research group is a consolidated R&D group at the University of the Balearic Islands. The group is led by Professor Macià Blázquez and brings together researchers in geography, environmental studies, tourism studies, and related social sciences. The group conducts interdisciplinary research on the socio-spatial transformations associated with urbanization, tourism, environmental change, and sustainability from a critical geography perspective. It examines how tourism, real estate investment, financialization, and public policies reshape cities, regions, and landscapes, with particular attention to their social, economic, and environmental impacts. This group is part of the wider Department of Geography at the University of the Balearic Islands. The Department of Geography is responsible for teaching and research in geography and related disciplines at the University of the Balearic Islands. The research within the department has a strong emphasis on understanding the interactions between society, environment, and territory in Mediterranean and island contexts. The department combines expertise in physical geography, human geography, spatial planning, environmental management, tourism studies, and geographic information technologies to address such interactions.

Name of the first co-supervisor	**Name of the second co-supervisor**
Hug March : hmarch@uoc.edu	Ismael Yrigoy : ismael.yrigoy@uib.es
Doctoral School: Escola de Doctorat (Doctoral School; https://www.uoc.edu/en/research/doctoral-school), Doctoral programme in Society, Technology and Culture (https://www.uoc.edu/en/studies/doctorates/doctorate-society-technology-culture), Research line PhD: Sustainability, urbanization and (socio-) technology policies	**Doctoral School:** Escola de Doctorat UIB (Doctoral School, https://edoctorat.uib.cat/) PhD program in Geography, History and art History (https://edoctorat.uib.cat/doctorat/THA2/)
Research field(s) Urban political ecology, Urban Studies, Environmental Studies, critical heat studies	
Keywords Water security, energy security, housing insecurity, socio-economic vulnerability, climate emergency	

Description of the research project

Context and Rationale:

This research directly addresses the critical yet undertheorized interdependencies between water systems and energy access in households' adaptation to extreme and chronic heat in the Global North. While household water security, defined as safe, affordable, reliable, and acceptable water for a thriving life, is often assumed to be universal in European cities, recent empirical evidence demonstrates that household water poverty (on top of energy poverty) affects metropolitan populations in the Mediterranean. As a hotspot of the climate emergency, the possibilities for adapting to extreme heat through water and energy access are at the core of the fragile intersections among financial affordability, deteriorating sociomaterial housing conditions, housing accessibility/insecurity, and hydroclimatic risks.

Scientifically, this project investigates the Water-Energy-Climate-Housing nexus at the household and Mediterranean urban scales, in the context of a climate emergency, with more intense droughts and persistent heat. The project focuses on how water and energy (in)securities compound to shape the lived experiences and thermal coping capacities of vulnerable populations. Moving beyond "siloed" resource management, the research responds to recent calls in critical heat studies and heat justice scholarship to integrate household water access as a foundational pillar alongside housing access and financialization, green infrastructure, and cooling poverty.

This PhD project will bridge the research gap between household water and energy security (including affordability and plumbing/fixture efficiency gaps) and public policy to enhance territorial governance and climate resilience. The research builds upon recent empirical findings showing that for households experiencing systemic cooling poverty, where energy-fuelled cooling technologies (e.g., air conditioning) are unaffordable or inaccessible, water acts as the primary, lower-cost "air conditioner" of the urban poor. Such a role of water as an “air conditioner” is carried out through practices such as taking cool showers, wetting the body, and using public climate shelters or fountains.

However, as severe heatwaves interact with droughts, rising energy prices (in a context of geopolitical instability) and rising water tariffs (driven by the costly deployment of climate-proof infrastructure like desalination and water reuse) increase affordability pressures on vulnerable households. Recent studies reveal that households often view water as more manageable and tangible to save than energy yet forcing strict water-rationing behaviors within the home creates physical discomfort, emotional distress, and intra-household tensions. There is an urgent research and policy gap in understanding how these intersecting water-energy trade-offs convert water into a vital vector for heat adaptation, and how regional policies in the Pyrenees-Mediterranean Euroregion can address "Thermal Insecurity" to prevent the amplification of urban heat injustice.

Objectives:

This PhD project critically interrogates how extreme heat, encompassing both acute heatwaves and chronic high temperatures, is fundamentally transforming urban metabolism, household resource dynamics, and everyday life in the Mediterranean Euroregion. Adopting an intersectional perspective rooted in political ecology, urban environmental justice, and critical heat studies, the research investigates the challenge of "Thermal Insecurity" by examining how extreme heat compounds existing pressures on household access to water and energy, and how disruptions to these vital resources amplify the vulnerability of marginalized populations.

Building on recent empirical insights into water poverty and cooling poverty in the Global North, the project seeks to move beyond traditional meteorological metrics to center the "lived experience" of thermal stress within and outside the home. Specifically, the project analyzes how vulnerable households navigate complex sociomaterial conditions (e.g., outdated or inefficient housing fixtures), financial burdens, and trade-offs between water-based and energy-based cooling mechanisms to maintain daily thermal comfort and social reproduction.

Geographically, the project explicitly adopts a multi-site, comparative regional perspective across three key territories of the Euroregion. **Metropolitan Barcelona** (a high-density metropolitan area marked by severe urban heat island dynamics and socio-spatial polarization) and Metropolitan Palma (an insular context facing extreme tourist-driven seasonal water pressure and intense summer heatwaves) serve as **mandatory primary empirical case studies**. In addition, additional **Pyrenees-Mediterranean location(s) could be considered** in coordination with the project co-supervisors.

Key Research Questions:

1. How do intersecting water and energy (in)securities dictate the "thermal coping strategies" of vulnerable households, and under what sociomaterial and economic conditions does water replace energy as the primary, lower-cost "air conditioner" of the urban poor?
2. What are the socio-spatial and resource trade-offs between private, energy-intensive adaptation mechanisms (e.g., individual air conditioning) and water-dependent or public adaptation infrastructures (e.g., cold showers, public pools, public fountains, municipal climate shelters) in terms of urban metabolism and resource justice?
3. How do deteriorating housing conditions and rising utility tariffs, driven by climate adaptation investments like desalination or wastewater reuse and more expensive electricity, exacerbate household water affordability and emotional distress during prolonged heat and drought episodes?
4. How can regional public policies and urban governance frameworks across the Euroregion be redesigned to transition from siloed utility management toward an integrated, right-to-the-city framework that connects housing justice and resource access to recognize "Thermal (In)security" as a core dimension of urban heat justice?

Expected Results:

- Conceptual Framework on the urban political ecology of heat: a novel theoretical relational framework on thermal insecurity dialoguing with Water-Energy-Climate-Housing insecurities during extreme and chronic heat events in Mediterranean urban contexts.

- Empirical Assessment of Coping Strategies: Detailed qualitative and quantitative datasets capturing household thermal coping strategies, highlighting how cooling poverty and housing precarity shapes the use of energy and water as a primary household heat adaptation mechanism.
- Social infrastructures to adapt to heat beyond the household: A spatial and socio-economic evaluation of the systemic trade-offs between private, resource-intensive adaptation mechanisms (e.g., individual air conditioning) and public social infrastructures (e.g., municipal climate shelters, public fountains, green spaces), cross-referenced with local housing market pressures and tenure precarity.
- Policy Recommendations and Governance Framework: Actionable policy briefs and guidelines for Euroregional and local public authorities, offering strategies to bridge utility, housing, and urban planning policies into an integrated right-to-the-city framework promoting urban heat justice.
- Academic Output & Dissemination: At least 2–3 peer-reviewed journal articles published in high-impact open-access journals, along with presentations at international conferences and policy workshops.

Work plan:

The 36-month work plan is structured into four main Work Packages (WPs), integrating mandatory academic mobility (9 months) and a non-academic secondment (3-6 months) aligned with TERRA-MED guidelines. This is a very preliminary work plan, subject to discussion with PhD candidate once the project starts:

- **WP1: Theoretical & Methodological Framework (Months 1-5)**
  - Conduct a systematic literature review on the political ecology of heat, urban heat injustice, and cooling poverty.
  - Establish the methodology (mixed methods: spatial mapping, household surveys, and semi-structured interviews). Design and launch local household surveys and qualitative fieldwork to document the lived experiences of heat adaptation, water/energy and housing insecurities.
  - Draft the initial Career Development Plan (CDP) and complete the TERRA-MED Ethics requirements.
- **WP2: Empirical Data Collection & Academic Mobility (Months 6-20)**
  - **Months 6-11 (Host Institution, UOC):** Fieldwork lived experiences of heat adaptation, water/energy insecurity and housing in Metropolitan Barcelona
  - **Months 12-20 (Academic Mobility - Co-Host Institution, UIB):** Fieldwork lived experiences of heat adaptation, water/energy insecurity and housing in Metropolitan Palma.
- **WP3: Data Analysis & Non-Academic Policy Secondment (Months 20-31)**
  - Months 20-31: Comparative data analysis + Considering a 3rd case in the Euroregion (with a simpler fieldwork, secondary data, or shorter fieldwork) if agreed with PhD candidate and supervisors, depending on time availability. First drafts of papers 1-3 developed.
  - **This WP3 would include (Non-Academic Secondment, to be determined, 3 months):** Complete a 3-month secondment at a public authority, NGO, or urban planning entity to

translate research findings into actionable urban heat policies and test governance toolkits.

- **WP4: Paper submissions, policy brief, and PhD thesis dissertation finalization (Months 32-36)**
  - Finalize comparative cross-regional synthesis reports and policy briefs for Mediterranean stakeholders.
  - Submission of paper 1 on Metropolitan Barcelona (including theoretical contribution on the political ecology of heat)+ paper 2 on Metro Palma (including theoretical contribution on housing insecurity and heat adaptation) + third paper (comparative dimension, including potential inclusion of third case for comparative purposes).
  - Publish research outputs in open-access journals following EU visibility and MSCA guidelines.
  - Update the final CDP and draft and defend the PhD dissertation.

References of both supervisors:

Full reference list of Hug March: https://orcid.org/0000-0003-2549-0803 ; https://scholar.google.es/citations?hl=es&user=DRc4xB8AAAAJ&view_op=list_works&sortby=pubdate

Full reference list of Ismael Yrigoy: https://orcid.org/0000-0002-3953-4152 ; https://scholar.google.es/citations?user=TaD9Xg0AAAAJ&hl=es&inst=10323132390403702 41&oi=ao

Selection of relevant publications related to the topic:

Saurí, D., Domene, E., Satorras, M., March, H., & Romero-Gomez, G. (2026). Water poverty, sociomaterial conditions and climate change: Outlining intersections in the global north. *Local Environment*, 1–21.

March, H., & Saurí, D. (s. d.). Developing institutional frameworks to promote the uptake of alternative water resources at the building level: The case of the province of Barcelona. *Water Policy*, wp2026127.

March, H., Meehan, K., Domene, E., et al. (2026). Why water security matters to cities under extreme heat in the Global North. *npj Urban Sustainability*, *6*, Article 15. https://doi.org/10.1038/s42949-025-00317-6

March, H., & Saurí, D. (s. d.). Citizens' perceptions of the extreme drought in metropolitan Barcelona 2022-2025. *Environmental Research: Water*, *2*(2), Article 025008.

March, H., Gorostiza, S., & Saurí, D. (s. d.). Redrawing the hydrosocial cycle through treated wastewater reuse in the metropolitan area of Barcelona. *Water Alternatives*, *16*(2), 463.

Romero-Gomez, G., Garcia, X., March, H., & Sauri, D. (2026). Water insecurity and structural inequalities in metropolitan Barcelona: A socio-spatial analysis of water consumption before, during and after the COVID-19 pandemic. *Urban Water Journal*, *23*(2), 245–260. https://doi.org/10.1080/1573062X.2025.2565694

Yrigoy, I., Horrach, P., Escudero, L., & Carles. (2023). Co-opting overtourism: Tourism stakeholders' use of the perceptions of overtourism in their power struggles. *Journal of Sustainable Tourism*, *32*(4), 818–834. https://doi.org/10.1080/09669582.2023.2178445

Yrigoy, I. (2023). Unpacking capital switching. Value, rentierism and displacement in absolute and relative forms of switching. *International Journal of Urban and Regional Research*, *47*(6), 940–956. https://doi.org/10.1111/1468-2427.13183

Yrigoy, I., Lidmark, H., & Berman, A. (2023). Unpacking the unequal privileges within transnational lifestyle relocation: Swedish lifestyle migrants' advantages and challenges in the Spanish housing market. *Population, Space and Place*, *30*(1). https://doi.org/10.1002/psp.2726

Agustín, Angela, Christian, & Ismael. (2021). Short-term rentals as a new urban frontier. *Environment and Planning A: Economy and Space*, *53*(7), 1601–1608.

Required Skills and Competences:

- Core Academic Knowledge: Solid grounding in political ecology, urban environmental justice, or the governance and management of urban water and energy systems.
- Mixed-Methods Research Skills, Qualitative Methods: Proficiency in qualitative data collection (e.g., semi-structured interviews, focus groups, etc.) and computer-assisted qualitative data analysis software (e.g., NVivo, ATLAS.ti).
- Mixed-Methods Research Skills, Quantitative Methods: Working knowledge of quantitative data analysis and statistical software (e.g., R, SPSS, Stata) for handling household survey data.
- Spatial Analysis: Basic command of Geographic Information Systems (GIS) for spatial mapping of urban vulnerabilities and infrastructure distribution.
- Language Proficiency: High level of English proficiency (minimum B2 level according to EU guidelines). Proficiency in local Mediterranean languages (e.g., Catalan, Spanish, or French) is an asset for field data collection across the Euroregion.
- An intermediate level of Spanish or Catalan is requested for field data collection.

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

Master's degree in Urban Studies, Human/Environmental Geography, Environmental Studies, Urban Sociology, Planning/Urbanism, or a closely related social science discipline.

Co-supervision partnership framework

Co-supervision (2 supervisors): Yes
Double degree PhD (France / Spain) where applicable and approved by the relevant institutions : No

Hosting institution: 24 months (Universitat Oberta de Catalunya)
Co-hosting institution secondment: 9 months (University of Balearic Islands)
Non-Academic secondment: 3 months (place to be determined)
International mobility: if the non-academic secondment is undertaken in Spain, the student will need to complete an additional international mobility stage at an academic institution outside Spain during the PhD.

Work conditions

Duration: 36 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: Training on urban political ecology, critical heat studies, and socio-environmental justice frameworks; advanced mixed-methods research design (qualitative interviewing, survey design, and statistical data analysis using R/SPSS); Geographic Information Systems (GIS) for spatial mapping of socio-environmental vulnerabilities; policy translation and urban heat governance toolkits; TERRA-MED interdisciplinary core modules on climate change resilience and resource stress; research ethics, open science, innovation, entrepreneurship, and project management.

Mobility required : yes
Non-academic secondment : yes
Double degree / Cotutelle possible : No
Doctoral tuition fees and Visa fees: fully covered by TERRA-MED program
Social security: Full employer contributions covered by the recruiting entity.

Host institution	Co-host institution
The Universitat Oberta de Catalunya (UOC) offers an exceptional environment for doctoral research and academic development. Within this framework, the host research group0 TURBA Lab (Urban Transformation & Global Change Lab), hosted at the Interdisciplinary Research Centre on Social and Cultural Transformations (UOC-TRÀNSIC), provides a vibrant, interdisciplinary space to critically explore socio-environmental governance, urban water political ecology, and socio-ecological justice. Researchers benefit from state-of-the-art digital infrastructure, open-access resources, and robust support for international MSCA projects. Located at the UOC Interdisciplinary R&I Hub in Barcelona's dynamic 22@ Innovation District (Rambla del Poblenou), TURBA provides proximity to key socio-economic, policy, and academic actors, turning the metropolitan region into a privileged living	The University of the Balearic Islands (UIB) offers an outstanding environment for research and academic development. As the leading public university in the Balearic Islands, UIB combines high-quality research with an international outlook, fostering interdisciplinary collaboration across a wide range of disciplines. The university has modern research facilities, well-equipped laboratories, extensive library resources, advanced computing services, and strong administrative support for research projects and international collaborations. Its compact campus promotes close interaction among researchers from different departments, facilitating the exchange of ideas and the development of innovative research initiatives. Working at UIB also provides exceptional opportunities to develop research with direct societal relevance. The Balearic Islands constitute one of the world's most important tourism

laboratory for analyzing climate adaptation, urban heat, and water security. Beyond academic excellence, working at UOC and TURBA provides an outstanding quality of life and a progressive research culture. Situated in Barcelona, researchers enjoy a world-class Mediterranean setting, high quality of life, and excellent international transport links across Europe. The UOC combines a strong commitment to work-life balance, flexible work arrangements, and gender equality with a collaborative, welcoming environment for early-stage researchers. This combination of cutting-edge interdisciplinary scholarship, top-tier research facilities, and an exceptional urban living environment makes UOC an ideal host institution for doctoral candidates.	destinations and offer a unique living laboratory for studying tourism, urbanization, environmental change, housing, and sustainability. This geographical setting enables researchers to combine theoretical advances with empirical research on globally relevant challenges. Beyond its academic strengths, UIB offers an excellent quality of life. Located on the island of Mallorca, the university enjoys a Mediterranean climate, outstanding natural landscapes, and a safe, welcoming environment. The campus is well connected to the city of Palma by metro, bus, and cycling infrastructure, while the island benefits from excellent international air connections to major European cities. This combination of academic excellence, an internationally connected research community, and an exceptional living environment makes UIB an attractive destination for researchers at all career stages.

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