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 centers 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: **UM5**	**Water Reuse and Temporary Rivers: how to reconcile socio-political and ecological challenges in mediterrannean regions? Insights from France and Catalunya**

Host institution:	**Co-supervision / co-host institution:**
Université de Montpellier	Universitat de Girona
Country France	**Country: Spain**
Host Research Unit:	**Co-host Research Unit:**
G-EAU: The Joint Research Unit "Water Management, Actors, Territories" (UMR G-EAU) brings together 90 permanent researchers and engineers and around 50 PhD students and postdoctoral researchers from different disciplines who work together on integrated and adaptive water management issues. The unit conducts research on socio-hydrosystems and their regulation, it designs and evaluates tools to facilitate implementation of innovative public policies on water, and is involved in a multidisciplinary training course concerning the water sector. *www.g-eau.fr/* CEPEL, the Center for Political and Social Studies, is a joint research unit (UMR 5112) in Political Science and Sociology affiliated with the University of Montpellier and the French National Centre for Scientific Research (CNRS). CEPEL brings together 20 permanent researchers, 16 associate researchers, and around 30 doctoral and postdoctoral researchers in political science and sociology. Building on its longstanding expertise in public policy and comparative studies, CEPEL also develops research on issues of particular relevance to the Montpellier campus, notably health, agrifood systems, and the environment. Its research is structured around three thematic areas: Health, Environment, and Political Territories. *https://cepel.edu.umontpellier.fr/* The co-supervisor L.Michel has a strong experience in environmental policy analysis. The co-supervisor J.Guerrin research is specialized on water-related risks policy analysis and conflict analysis.	The Institute of Aquatic Ecology (IEA) is a university research institute created in 1987 and dedicated to the ecological study of inland-water (rivers, reservoirs, marshes, etc.) and marine ecosystems. It currently consists of three sections (limnology, microbiology and marine biology), corresponding to three research groups. It brings together more than 30 researchers with expertise in aquatic ecology (including studies on bacteria, algae, macro-invertebrates and fish), which facilitates multidisciplinary research. A large part of the IEA belongs to EcoAqua research group, that will welcome the proposed TERRA-MED PhD. EcoAqua brings 13 permanent researchers and 10 postdoctoral and PhDs. The research group focuses its activities on aquatic ecology and soil microbiology, integrating the study of biodiversity, ecosystem functioning, and nature-based solutions. The main challenges of the group are aligned with the Environmental and Green transition focusing on knowledge and strategies for improving biodiversity conservation and ecosystem services and resilience; and strengthening the science-basis of management decisions. Specifically, the co-supervisor A.M. Romaní has strong experience on river ecology and intermittent stream microbial responses and has collaborated with D. VonSchiller (co-supervisor), expert on ecology and biogeochemistry of temporary rivers from the University of Barcelona.

Name of the first co-supervisor	**Name of the second co-supervisor**
Pr. Laura Michel: laura.michel@umontpellier.fr Dr. Joana Guerrin : joana.guerrin@inrae.fr	Dr. Anna M. Romani : anna.romani@udg.edu Dr. Dani Von Schiller: d.vonschiller@ub.edu
Doctoral School: Doctoral School of Law and Political Science, University of Montpellier	**Doctoral School:** School of Doctoral Studies at the University of Girona, sec.edoctorat@udg.edu

Research field(s)

Political Science, Public policies analysis, Conflict analysis, Aquatic Ecology

Keywords

Water reuse ; Temporary rivers ; Non-perennial rivers ; France ; Spain

Description of the research project

Context and Rationale:

Scientific Context

Environmental policies such as water policies are under political and biophysical constraints and pressures: long-lasting pollution that was recently put on the agenda such as PFAS, continued and raising drought episodes in the south of Europe, and rivers drying. Within the context of intensifying climate change impacts, agriculture sector crisis and ecological backlash (Toygur & Sojka, 2026), political and social tensions over water regulation intensify at local, national, and European levels (Barone, 2025).

Water reuse is one of the policy solutions (Zittoun & al., 2021) supported by governments and private sectors to answer the current and structural water crises. This expression designates the process of capturing used water, cleaning it with advanced treatment methods, and repurposing it for a new benefit such as irrigation, industrial uses or recharging aquifers. At the agenda on the governmental Plan Eau in France after the 2022 drought, France has recently been developing its water reuse technologies but is said to be lagging far beyond other European countries in terms of water reuse technology development such as Spain (Collard, 2024). Recent decrees were adopted in 2023 and 2024 aimed at simplifying project approvals, aiming to drastically scale up water recycling. Conversely, Spain is one of the European leaders in water reuse, recycling about 12% of its total treated wastewater.

Temporary rivers, also called non-perennial rivers and streams (NPRS), are characterized by intermittent flows, which during the dry phase can include isolated pools or completely dry beds. While intermittency is a natural phenomenon for NPRS, anthropogenic factors such as land use changes, water withdrawals, and climate change are extending dry periods and converting some perennial rivers into non-perennial systems (Larned et al 2010, Jorda-Capdevila et al 2021). NPRS constitute over half of the global river network (Messager et al., 2021), support diverse and unique aquatic and riparian biota, and provide numerous ecosystem services and socio-cultural values (Koundouri et al 2017). However, rivers suffering strong drought periods may modify their ecosystem functions, such as nutrient and carbon cycling, reduce microbial diversity and determine the streambed transformation from aquatic to a terrestrial habitat (Camacho-Santamans et al. 2026, VonSchiller et al. 2019, Gionchetta et al. 2020, Arce et al. 2019). Also, intermittency can modify the structure of the streambed biofilm (the active microbial layer) and enhance pesticide accumulation (Romaní et al. 2025, Artigas et al. 2026). In France, temporary rivers represent a third of the streams

in the country (Snelder et al., 2013). They are experiencing longer dryer periods and suffer from pollution and development. While temporary rivers are not limited to southern regions, hydrological models predict a decrease of global flows in the South of France, and longer periods of dryness (Datry et al. 2012). However, in France, intermittent rivers benefit from the same regulations as permanent rivers, which could lead to their degradation. No specific evaluating tool has been developed in France to know and evaluate temporary rivers in the country (Datry et al. 2012). The legal cartography that listed the legally recognized streams in France tends to ignore temporary rivers (Messager et al., 2024).

Research Gap

Despite their ecological significance (Datry et al 2017), temporary rivers have frequently been neglected by management and protection policies (Acuña et al 2014) and have historically received less attention by scientists (Datry et al. 2014). The limited existing literature in social science on temporary rivers indicates that managers' negative perceptions of these rivers correlate to their reduced management and protection: these rivers tend to be devalued in terms of aesthetics, recreation, and biological values (Cottet et al., 2023). If water reuse is promoted by national and local governments, at the scale of the rivers, and in temporary rivers areas, developing water reuse has an impact of the rivers flow. In the south of Europe, many temporary rivers hydrological regime are being supported by water treatment plants flows. Developing water reuse would diminish the water flow and therefore increase the non-perennial character of the rivers.

The research gaps are the following: Little literature was developed on temporary rivers governance and political and social stakes in the South of Europe, in particular around the mechanisms that led to certain temporary streams not receiving legal protection. Given their importance and their vulnerability, urgent need is to analyze the policy stakes around their regulation. Water reuse has been studied by social scientists in terms of its social perceptions and the levers to the adoption of this technology (Wester, 2015), and on the history of this development in France (Collard, 2024). However, no research was developed on its perceived adverse impacts on temporary rivers and on the tensions over water this technology could create locally.

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

Temporary rivers represent half of the waterways in the world (Messager et al. 2021), and their extent expected to grow with climate change, as some perennial rivers dry and become temporary (Carlson et al. 2024). In the context of ongoing climate change and increasing pressures on water resources, understanding the unique biophysical characteristics of temporary streams and how they relate to existing societal evolutions is critical to biodiversity conservation and sustainable water management. In the growing tensions over water that develop in the South of Europe, due to water shortages and heat waves, water reuse is being increasingly identified as a relevant policy solution to avoid tensions over water. The impacts of water reuse development on the ecological, social and political stakes on temporary rivers of the South of Europe is a critical research agenda in a changing climate. The stakes are particularly high for temporary rivers, which have often been denied the legal protections given to perennial rivers in Europe.

Objectives:

This PhD project, grounded in Political Science, in dialogue with eco-hydrology, will investigate how expanding water-reuse policies intersect with the ecological and political governance of intermittent streams in two climatically similar yet institutionally distinct regions: the south of France and northern Spain/Baleares. As both territories face intensifying water scarcity, the rise of reclaimed water as a strategic resource raises questions about how local authorities, agricultural actors, and environmental agencies negotiate competing priorities between human demand and the fragile hydrological rhythms of temporary rivers. The PhD will investigate the tensions over water reuse in temporary rivers area by: i) characterizing the governance frameworks regulating water reuse and temporary rivers France and Spain; ii) mapping the actors and the institutional coalitions organized around the topics of water reuse and temporary rivers; iii) analyzing the competing interests and ideas of the actors in tensions over the development of this technology/the protection of temporary rivers, highlighting different conflict and tensions over those topics; iv) realize a state-of-the art regarding the ecological impact of water reuse for intermittent rivers; v) analyze key biological variables indicative of ecosystem services and sensitive to hydrology, from river sediments collected in Catalan and French case studies; vi) proposing policy solutions in order to better integrated temporary rivers stakes in the development of water reuse.

Expected Results:

By comparing regulatory frameworks, stakeholder coalitions, and on-the-ground management practices, the research will illuminate how different political settings shape the integration—or marginalization—of intermittent stream ecosystems within broader water-reuse strategies, ultimately revealing the tensions between sustainability narratives and the lived realities of Mediterranean water governance. This PhD will target research gaps regarding the socio-political implications, governance, and identify the main political and ecological stakes related to water reuse impact to intermittent rivers in different institutional settings in the mediterranean region. The PhD will be hosted in Montpellier (UM and INRAE) with a 6-9 months stay in Girona (UdG). Case studies will integrate streams in Montpellier Region, Catalunya and Baleares.

Work plan:

Year 1:

- Literature review on temporary river governance and water reuse in France and Spain/Baleares, and on ecological impacts of water reuse on temporary rivers.
- Interviews in Montpellier region and fieldwork analysis (interviews, observation, grew literature review)
- Actors' cartography on water reuse and temporary river governance
- Secondment (3 months stay) in a local water management organization in Montpellier region.
- Monthly meetings with co-supervisors

Year 2:

- 9 months stay in Spain (Universitat de Girona)

- Identification of key biological variables indicative of ecosystem services and sensitive to hydrology, from river sediments collected in Catalan and French case studies
- Interviews in Catalunya and Baleares and fieldwork analysis (interviews, observation, grew literature review).
- Monthly meetings with co-supervisors

Year 3:

- Submission of 2 papers.
- PhD thesis redaction

References of both supervisors:

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Required Skills and Competences:

Semi-structured interviews; Qualitative social sciences methodology; Thematic analysis ; Policy analysis; Proficiency in French and/or Spanish; Knowledge on water policies or environmental policies.

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

Political Science, Public Policy Analysis, Environmental policy analysis, Sociology, Environmental sociology, Human geography, Political Ecology

Co-supervision partnership framework

Co-supervision (2 supervisors): Yes
Double degree PhD (France / Spain) where applicable and approved by the relevant institutions: Yes

Indicative mobility arrangements:
Hosting institution: 24 mths (University of Montpellier, INRAE)
Co-hosting institution secondment: 9 mths (University of Girona)
Non-Academic secondment: 3 months

Work conditions

Duration: 36 months

Indicative start date: October 2027

Indicative gross salary: 2450-2550€ /month including Mobility allowance. 29.400-30.600€/ year.
If eligible (fellow with 1 or more dependent child), Family allowance: additional 100€ / month

Trainings: The Doctoral School of Law and Political Science requires doctoral students to undertake training courses during their PhD to broaden their disciplinary horizons and prepare them for entry into the workforce. It is compulsory to provide certificates demonstrating that the doctoral student has completed a minimum of 90 hours over three years, preferably during the first two years. The choice of training courses must be discussed with the thesis supervisor and during the thesis monitoring committee meeting. Training courses are offered by the doctoral school, including a compulsory course on ethics. It is recommended that approximately 50 per cent of the training be interdisciplinary (general and professional) and 50 per cent be scientific.

Mobility required : yes

Non-academic secondment : yes

Double degree / Cotutelle possible : yes

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 PhD student will join the University of Montpellier, one of the leading European universities in the fields of ecology, agriculture, and environmental sciences. Located in the heart of the Mediterranean region, Montpellier offers a large international scientific community, with numerous research institutes working on biodiversity, climate change, agriculture, and health, providing outstanding opportunities for interdisciplinary collaborations. CEPEL (Centre for Political and Social Studies) is a research laboratory at the University of Montpellier, specializing in political science and social sciences. Its research focuses on contemporary political and social issues at local, national, European, and international levels.	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). Girona itself is a very comfortable city for doctoral life: safe, walkable, and full of cultural activity. It offers a calm environment that helps maintain balance during intensive research periods. Moreover, Catalunya has a strong innovation ecosystem and many environmental and water-technology companies, creating opportunities for collaboration and applied research.

The laboratory brings together researchers working on political institutions, public policies, citizenship, democracy, and social transformations. CEPEL promotes interdisciplinary research and collaborates with other academic institutions and research networks in Montpellier and in France	

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