

# Postdoctoral position in urban drainage network modelling (F/M)

Features : Urban Drainage Network, modelling, geomatics

**Postdoctoral researcher**

**Duration 18 months,**

**City Montpellier,**

**Country France**

## Employer Description

The French National Research Institute for Sustainable Development (IRD) is a multidisciplinary public research organization that has been engaged in equitable partnerships with countries in the Global South and French overseas territories for nearly 80 years. As a key player in the international development agenda, IRD aligns its priorities with the Sustainable Development Goals (SDGs). Together, researchers and partners develop concrete solutions to address global challenges faced by societies and the planet. This win-win collaboration makes science and innovation powerful drivers of sustainable development. The Institute operates under the dual supervision of the Ministry of Higher Education and Research and the Ministry for Europe and Foreign Affairs.

## The structure you will be joining (maximum 1500 caractères espaces compris)


HydroSciences Montpellier (HSM) is a joint research unit under the umbrella of IRD, the University of Montpellier, the CNRS, and IMT Mines Alès. It specializes in several disciplines within the field of water sciences and has developed extensive expertise in metrology and numerical modeling. Its primary hydrological study areas are located in West Africa and the northern and southern Mediterranean and it participates in the coordination and management of major observation networks accredited by the IRD and the INSU.

## An attractive mission (maximum 3000 caractères espaces compris)

This postoc is carried out as part of a project titled 'Leveraging External Data for Enhanced Understanding and Causal Attribution of Anomalies in Water Network Systems' (LUCAS – ANR-25-CE23-2189), which aims to use external data (urban databases, inspection videos, geospatial data) to represent, analyse, understand and identify the causes of anomalies observed in water networks. The project consortium is multidisciplinary and brings together researchers in water sciences, data science and artificial intelligence.

Your responsibilities will include the following:

- Formalizing network conception rules and establishing axioms in collaboration with partners specialising in logic, who will need to develop rules and inference engines based on your work.

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- Developing methods for data correction (network topology, geometry) using geospatial data and urban databases.
  - Testing and validating the algorithms developed by the consortium's IT partners.
  - Writing scientific articles.

### **Your future team**

You will join a multidisciplinary, multicultural and dedicated team. You will work at the HSM's premises in Montpellier (15 avenue Charles Flahault, 34090 Montpellier). You will contribute to the work of the 'Urban Hydrology and Hydraulics (H2U)' research team as well as the HSM's modelling workshop.

### **The profile we are seeking (maximum 3000 caractères espaces compris)**

The successful candidate must have developed the following skills:

- Open channel and closed conduit flow modelling. Water network design.
- Geomatics. Prior knowledge of the STAR'EAU and RAEPA geostandards will be considered an advantage.
- Semantic modelling and ontologies
- Knowledge of graph theory
- Programming (particularly Python)
- English: Level B2 to C1 of the Common European Framework of Reference for Languages.

You possess the following personal qualities:

- The ability to integrate into and work within a multidisciplinary research team.
- Good interpersonal skills.
- Thoroughness and a sense of responsibility.
- The ability to work independently

You hold a Level 8 qualification in the fields of hydraulics, applied mathematics or computer science/geomatics.

You have a PhD (level 8) in Specify domains ...


### **Join the IRD**

During your professional career, the IRD supports you in the development of your skills. The institute provides you with a range of tools such as the digital integration process, access to continuing education, promotion and mobility.

The IRD offers, depending on the activity, the possibility of teleworking from 1 to 3 days a week. Please specify if teleworking is possible for this position:

Yes

No



By joining the IRD, you will benefit from:

- 32 days of leave + 13 RTT (for a full-time 38h30 week)
- Meal vouchers OR collective catering (depending on the site)
- Annual subscription (optional) to the Association des Œuvres Sociales: holiday-leisure and sports-cultural services
- Participation of up to 15€/month for social protection

 **The IRD, an Institute that gives meaning to your career.**

Your mission to support science committed to a sustainable future: The IRD in 230 seconds

**The deadline for applying**

Date

**Interviews**

Date

**The  
selection**

Date

**Taking up the  
position**

Date