



SCIENCE & CREATIVITY TO INVENT A SUSTAINABLE WORLD



Post-Doctoral Researcher

Karst hydrogeology and AI

Establishment:	IMT Mines Alès (National School of Mines of Alès)
Main assignment:	Research and Teaching Centre for Environment and Risks (CREER)
Administrative address:	Alès (Gard Department – Occitanie Region)
Type of contract:	24-month Fixed-Term Contract - Public Law Contract – Full Time
Start Date:	October 1, 2026

Presentation of Our Institution and CREER

The Institut Mines-Télécom

The Institut Mines-Télécom (IMT), a grand établissement within the meaning of the Education Code, is a public scientific, cultural and professional institution (EPSCP) under the primary supervision of the ministers responsible for industry and digital technology. As the leading group of engineering schools in France, it brings together 11 public engineering schools across the country, training 13,500 engineers and doctoral graduates. IMT employs 4,500 people and has an annual budget of €400M, of which 40% comes from its own resources. IMT includes 2 Carnot institutes, 35 industrial chairs, annually produces 2,100 rank-A publications, 60 patents, and carries out €110M in contract research.

IMT Mines Alès

School mission: “Building on its membership in IMT and its regional roots, IMT Mines Alès gives its students the best opportunities to succeed professionally and become responsible contributors to national development while preserving the planet’s resources.” Our core values: boldness! commitment, sharing, excellence.

Founded over 180 years ago, IMT Mines Alès currently has 1,400 students (including 250 international students) and 380 staff. It has two campuses in Alès and is also located in Montpellier and Pau. Its students include general engineers, specialist engineers (through apprenticeship programmes), doctoral candidates, and master’s or specialized master’s students. It also hosts over 500 trainees in continuing professional education.

The school has 3 high-level scientific and technological research and teaching centres, working in the fields of materials and civil engineering (C2MA), environment and risks (CREER), and artificial intelligence, industrial and digital engineering (CERIS). These entities bring together approximately 85 permanent academic researchers (half of whom hold HDR accreditation), 40 research support staff, and 100 doctoral and post-doctoral researchers, producing each year over 130 rank-A publications and €3M in research contracts, of which one third are direct contracts with companies. These research staff contribute to 6 research units, including 4 UMRs. IMT Mines Alès is accredited to award doctoral degrees in 4 doctoral schools.



It has 12 technological platforms and 1,600 partner companies. Creativity is a core characteristic that permeates all its activities. The school was the first to establish a business incubator in 1984 (200 companies created to date, 1,000 jobs). The school offers rich and varied career paths: faculty researchers have opportunities for professional mobility across the various IMT schools and may, if they wish, take on responsibilities within the school's functional directorates (academic, research, international, economic development, etc.) for part of their time.

IMT Mines Alès is a Sustainable Development & Corporate Social Responsibility (DD&RS) certified institution. Within the school, every person is a key player in our approach. We are committed to promoting environmentally responsible practices, fostering diversity and inclusion, and ensuring ethical conduct in our activities. We encourage all our staff to adopt a responsible approach in their daily actions and to put forward innovative ideas that enhance our positive impact on society and the environment.

Description of the Research and Teaching Centre for Environment and Risks (CREER)

Within IMT Mines Alès, the Research and Teaching Centre for Environment and Risks (CREER) conducts research activities in the fields of industrial environment and risk. Its research staff participate in:

- The UMR HydroSciences Montpellier-HSM joint research unit (University of Montpellier, IMT Mines Alès, CNRS, IRD),
- Or the "Study of Risks and Air Quality" team (EUREQUA)

Staff integrated in HSM work on integrated water management using a broad range of competencies drawing on research expertise in biology, chemistry, sensor measurement and development, industrial ecology, geology, geostatistics, statistics, and hydro(geo)logical and statistical modelling (Machine Learning).

The diversity of these disciplines enables the team to tackle major water-related challenges that require varied skills (monitoring, sensor network deployment, modeling, management, etc.), allowing the school's staff to participate in multidisciplinary projects and engage with various networks and communities, thereby expanding its influence. HSM's research team comprises 10 Assistant Professor (including 4 with HDR status), 3 technicians and engineers, 5 postdocs, and 9 doctoral students. This scale fosters a vibrant scientific dynamic and ensures regional, national, and international influence, particularly through joint doctoral supervision agreements. The research conducted by IMT faculty members takes place within five of the six teams at the HSM UMR. This UMR is heavily involved in projects and observatories, some of which are located in the Global South (e.g., Tunisia and Côte d'Ivoire), as well as in the observation networks of the IR OZCAR (the MEDYCYSS observatory, affiliated with the OSU OREME and the SNO KARST) and the workshop zones (ZABR). The successful candidate will contribute in particular to research activities conducted within the cross-cutting theme "Characterization and Modeling of the Eco-hydro(geo)logical Functioning of the Critical Zone", and, more specifically, in hydrogeology as part of the HYTAKE team (Hydrogeology and Transport in Karst and Heterogeneous Aquifers).

Job description:

The position forms part of the ECHO project (Study to Improve Hydrogeological Knowledge of the Eastern *Corbières* Karst), an ambitious research project focused on understanding the eastern part of the *Corbières* karst. Assuming the construction of a railway tunnel to cross the eastern part of the *Corbières* karst, the study aims to improve geological, hydrological and hydrogeological knowledge of the eastern part of the *Corbières* massif, so that this information can be used by the SNCF as a decision-making tool to determine the feasibility and various possible routes for railway tunnels.

The study will develop statistical models, including artificial intelligence models (neural networks), that replicate hydrogeological phenomena, enabling the assessment of hydrogeological connections between the infiltration zones of the Eastern *Corbières* karst and: (i) the perched aquifers within the karst, (ii) the springs on its eastern and southern periphery.

To this end, the successful candidate will initially apply the Knox method (as defined in Line Kong A Siou's PhD thesis) to identify the contributing zones to the Fons Estramar spring; subsequently, they will apply the methods defined in Manon Erguy's PhD thesis to identify the various zones of homogeneous behaviour on the plateau. Ultimately, the



results obtained from these methods and supplementary measurements will enable the modelling of groundwater flow within the various aquifers. This modelling work will be supplemented by field visits to gather new data and observations.

Key terms to be considered are: karst, non-stationarity, methods for describing distributed and time-varying phenomena, geomatics, infiltration capacity, floods, uncertainties, climate change.

The research activities of the successful candidate will form part of a sustainable development approach based on the United Nations' Sustainable Development Goals (SDGs), in particular Goal 6 concerning the increasing scarcity of water resources and their sustainable management.

Candidate Profile and General Evaluation Criteria

Your supervisor and the existing team will support you in developing your skills, while valuing your experience and talents:

Minimum Required Education and/or Experience:

Beyond your degree, your personality will make the difference. 

Applicants must have:

- ▶ PhD in earth sciences

Required Skills, Knowledge and Experience:

- ▶ Proven experience with karst hydrogeological modelling,
- ▶ Field methods for studying infiltration zones (e.g. faults)
- ▶ Genuine ability and experience in organization and teamwork: organizing meetings, planning activities, contributing to the drafting of administrative documents
- ▶ Good command of scientific English

Desirable skills, knowledge and experience:

- ▶ Experience in machine learning for modelling complex natural phenomena
- ▶ Ability to apply one's skills within multidisciplinary projects

Required technical and soft skills:

- | | |
|--|-----------------------------|
| ▶ Drive | ▶ Rigour and methodology |
| ▶ Autonomy | ▶ Initiative |
| ▶ Commitment | ▶ Adaptability |
| ▶ Teamwork | ▶ Intellectual curiosity |
| ▶ Organisational skills | ▶ Creativity and innovation |
| ▶ Leading training, research or collaborative projects | |

From an administrative standpoint, the recruited person will be under the responsibility of the Head of the CREER Centre (IMT Mines Alès) and will be based at the HSM Alès site.



Candidature



Administrative Application Requirements

The position offered by IMT Mines Alès is a 24-month fixed-term contract, full-time, governed by public law under the management framework of the Institut Mines-Télécom, job category P, Post-doctoral researcher, category II.

Salary: €35,400 gross per year.



Application Process

Applications (CV and cover letter) should be sent **exclusively to** : 

<https://institutminestelecom.recruitee.com/o/post-doctorante-en-hydrogeologie-karstique-et-ia-cdd-24-mois-imt-mines-ales>

The recruitment team will carefully review your application.



Recruitment Timeline

A panel of several people will meet with you and will ensure you are given the best conditions to succeed in the interview.

Application deadline: **August 6, 2026**

Panel's decision: **Second half of August**

Desired Start Date: **October 1, 2026**



Contact Persons

If you need further clarification on any aspect of the application, please feel free to contact the individuals listed below :

Regarding the job description:

Anne JOHANNET, Project Manager

 : anne.johannet@mines-ales.fr

Tel : +33(0)4 66 78 53 49

Juliette CERCEAU, HSM Coordinator

juliette.cerceau@mines-ales.fr

Tél : +33(0)4 66 78 56 85

Regarding administrative matters:

Géraldine BRUNEL, Director of Human Resources

 : geraldine.brunel@mines-ales.fr

Tel : +33 (0)4 66 78 50 66



Onboarding

A smooth integration for a successful start

From your first day, you will benefit from an integration period to help you discover your responsibilities and your working environment. You will be welcomed by your HR contact, who will guide you through all the necessary steps for a smooth start.