

## JOB OFFER

<b><u>Job title :</u></b>	<b>Investigating the Thermal Regime and Competing Flow Processes in the Upper Rhine Graben through 3D Modeling</b>
<b><u>Reason for the request :</u></b>	Job creation
<b><u>Source of funding :</u></b>	Mines – from grant
<b><u>Recruitment type :</u></b>	Mobility within the company and external hire
<b><u>The job :</u></b>	<p><b>Your environment :</b></p> <p>The Centre de Géosciences de l'Ecole des Mines de Paris has over 25 years' experience in EGS-type deep geothermal research since the European pilot project at Soultz sous Forêts was launched, developing numerical approaches and mathematical tools. Today, this renewable resource, with its low GHG emissions and high efficiency in heat production, needs to be better mastered before it can be considered for large-scale deployment. The offered position is part of a PEPR project funded under the France2030 program, one of whose targets is the Rhine Graben. This project is bringing together 17 research partners to develop a strategy for the safe exploitation of the subsoil in the production of energy (heat/electricity) and associated co-products (lithium) in a key region combining local energy transition and societal acceptance issues.</p> <p><b>Your challenges and responsibilities :</b></p> <p>The ambition of Geosciences Mines PSL in this project is to re-evaluate conceptual models of fluid circulation currently proposed in the central part of this graben, in Alsace (France) and the Palatinate (Germany). The aim is to reconsider the mechanisms of heat transfer, conduction and convection, whether free or forced, and to propose, on a regional scale and incorporating a set of structural data, a dynamic 3D model of flow and heat transfer. This model will possibly be exploitable for resource assessments, capable of explaining the heat flow anomalies known at the surface, as well as the proven observations of brine convection in the basement. Your added value will be in the analysis of the role of faults and role of tertiary sedimentary formations in the circulation of fresh waters from the graben shoulders and brines in the basement, along the margins or in the center of the basin. This will be crucial to make progress into unifying all relevant data.</p> <p>The numerical simulation tools will be open source codes. OpenGeoSys and ComPASS. Among tasks, the postdoc will be responsible of installing and testing on reference sections. Structural data will be worked on with partner BRGM, to create data and assemble 3D models. The aim is to help stimulate debate in the scientific community, at least through the publication of an article, to make geothermal energy a local, economically viable and socially shared energy source.</p>
<b><u>The profile :</u></b>	<p><b>Let's talk about you !...</b></p> <p>A PhD in Hydrogeology or reservoir modeling is recommended, with knowledges in coupled transport (heat/solutes) processes. Are you passionate about challenging data at regional scale in faulted areas with open questions still under debate and skilled at new codes handling? If so, we have this opportunity for you.</p> <p><b>The main skills required for this post are :</b></p>

	<p><b>Knowledge and skills :</b></p> <ul style="list-style-type: none"> <li>• PhD in Geosciences, Hydrogeology or a related field with a specialization in fluid and coupled transfer processes.</li> <li>• Previous experience with structural geology data base.</li> <li>• Programming skills in Python and experience using relevant libraries and frameworks.</li> <li>• Solid understanding of data and modeling results visualization.</li> <li>• Proficiency in both French and English is essential, this work is being done in collaboration with various -french- partners.</li> </ul> <p><b>Soft skills :</b></p> <ul style="list-style-type: none"> <li>• Strong communication and teamwork abilities.</li> <li>• Effective written and oral communication skills.</li> <li>• Effective organizational skills and the ability to coordinate across a broad spectrum of numerical activities.</li> </ul> <p><b>...And about us ! Working at Mines Paris also means :</b></p> <ul style="list-style-type: none"> <li>• Joining a prestigious institution with a rich history</li> <li>• Playing a part in the digital transition and the transition to carbon neutrality to tackle the climate emergency</li> <li>• Belonging to PSL University, ranked 41st in the Academic Ranking of World Universities</li> <li>• Up to 47 days of annual leave</li> <li>• Meal vouchers valued at €11.52, with 60% covered by the employer</li> </ul>
<b>Management :</b>	<p><i>(Specify whether the position involves hierarchical management)</i></p> <p><input checked="" type="checkbox"/> No      <input type="checkbox"/> Yes</p> <p>If yes, how many direct reports will be managed ? : <b>X</b></p>
<b>Job location :</b>	<p><b>Centre de Géosciences / Mines Paris - PSL</b>  35 rue Saint Honoré  77305 Fontainebleau  France</p>
<b>Contract type :</b>	Post-doctoral      If fixed-term, duration : 18 months
<b>Starting date :</b>	18/01/01/2025
<b>Working time :</b>	Full-time day rate
<b>Specific working conditions :</b>	<i>regular travel between Fontainebleau, Orleans and Paris</i>
<b>Teleworking :</b>	Partial teleworking

<b>Reporting line :</b>	<i>Dominique Bruel (Mines Paris -PSL) Antoine Armandine Les Landes (BRGM)</i>
<b>Operational recruiter :</b>	<i>Dominique Bruel</i>

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