

Applications are invited for a PhD fellowship/scholarship at Environmental Geosciences, University of Basel, Switzerland within the [PhD Program Environmental Sciences](#). The position is available from 1 June 2026 or later.

Title:

AI-Driven Pathways to Healthy Soils.

Research area and project description:

The PhD project will explore the opportunities and risks of leveraging AI to support the pursuit of achieving healthy soils by 2050 through the implementation of key EU policies, including the Common Agricultural Policy (CAP), the Soil Monitoring Law, and the Carbon Removals and Carbon Farming (CRCF) Regulation.

AI can streamline administrative burdens in policy reporting and enhance the accuracy of EU monitoring obligations. When implemented responsibly, AI has the potential to simplify complex time-consuming processes. Furthermore, AI tools can be implemented to extrapolate soil and soil health data into space, thus supporting mapping endeavours. Additionally, soil data (and other environmental parameters) can be translated into accessible language for policymakers, farmers, and local authorities, democratizing access to EU resources and fostering informed decision-making.

The CAP and the Soil Monitoring Law both prioritize sustainable soil management and soil health improvement. AI-assisted research can empower researchers and policymakers by accelerating literature reviews, proposing best management practices, and enabling scenario analysis to inform policy decisions. Moreover, AI can guide land managers in adopting impactful sustainable soil management solutions and strategies based on Long-Term Experiments established across Europe. The project will also examine how AI can best translate the outcomes of Mission Soil Living Labs into actionable policy inputs, bridging the gap between scientific innovation and practical implementation.

The PhD student will:

1. Development of AI tools and models to extrapolate soil information and soil data into space and time. The AI tools will go beyond the classical machine learning models and would advance prediction of soil properties in time and space.
2. Development of AI-based methods to accelerate soil-related literature reviews and get best management practices from Long-Term Experiments (LTEs) established across Europe. As the LTEs include valuable knowledge/data on soil health, there is a need to develop AI Methods for getting the best soil management practices for improving soil health based on soil genesis, pedo-climatic conditions and crop management.
3. Propose AI-based methods to evaluate/score soil health based on different land degradation processes. As the evaluation of soil health faces many challenges, the project will explore AI options to better quantify soil health in across Europe.
4. Explore how AI can translate the findings of Soil Living Labs into actionable policy recommendations.

5. Propose scenario analysis according to EU soil-related policies (Soil Monitoring Law, CAP, Carbon Farming).

This project is an international collaboration between University of Basel and the European Commission's Joint Research Centre (JRC) and is part of the [Collaborative Doctoral Partnerships](#) programme (CDP), an initiative by the Joint Research Centre to train a new generation of doctoral graduates on the science-policy interface.

Eligibility criteria

Candidates should, prior to the start of the employment contract with the JRC and University of Basel:

- have the nationality of a Member State of the EU or [a country associated to the EU Research Framework Programme in force](#) or being resident in a EU Member State since at least five years and
- be enrolled in a PhD programme with the University of Basel.

Candidates who are already enrolled in the doctoral study program with the University of Basel for fewer than 12 months and have the nationality as indicated above can also be considered eligible.

The selected candidate will have no more than 6 months from the request for confirmation of interest in the position, to produce proof of enrolment in the doctoral study program.

Employment conditions

While employed at the JRC, the salary and benefits are those of a JRC Grantholder Category 20, following the Grantholder Rules. The annual gross salary will be around 45,000 Euro and is subject to national income tax.

While employed at the University of Basel, the salary and benefits are those of University of Basel.

Selection process

The University of Basel screens applications for eligibility and invites from the list of candidates for a first interview organised by the University of Basel. Based on the results of the first interview, the JRC invites 2 to 4 shortlisted candidates for a second and final interviews.

Qualifications and Specific competences:

- You have basic knowledge in soil science
- You have (or are near completion of) a Master in Ecology, Geo-statistics, Neural networks, Data Analysis, Artificial Intelligence, Soil Science, Soil Conservation, Agricultural Sciences, Environmental Sciences, Geosciences, Bioscience (or a related field).
- You have a strong interest in Artificial intelligence and Soil health.
- Experience with soil monitoring of bio-physical properties and data analysis/ modelling.
- Programming skills (e.g. R or Python) for data manipulation and visualisation, and to perform statistical analysis (e.g. mixed models).

- Knowledge of any of the following will be an advantage: geo-statistics, AI, Digital Soil Mapping, Remote sensing (COPERNICUS data ecosystem), spatial data modelling, spatial analysis, neural networks, large scale datasets management with GIS, cloud computing, Big Data tools.
- You work proactively and independently and have good communication skills.
- You have a very good knowledge of English, both spoken and written.
- If available, relevant publications in peer review journals should be highlighted.
- You are highly motivated, ambitious and result-oriented.

Place of employment and place of work:

The place of employment is Environmental Geosciences, University of Basel, Switzerland, and the European Commission Joint Research Centre (JRC), Via Enrico Fermi, 2749, 21027 Ispra (VA), Italy.

Contacts:

Applicants seeking further information are invited to contact: Professor Christine Alewell, christine.alewell@unibas.ch

How to apply:

Please submit your complete application documents, including a letter stating your motivation and a short statement of research and teaching interests, experience and skills, a CV and contact details of at least two references via our [online recruiting platform](#). Please follow [this link](#) to submit your application. Applications via Email will not be accepted. Application deadline is **April 6th 2026** 23:59 CET. Preferred starting date is 1 June 2026.

For information about application requirements and mandatory attachments, please see our [application guide](#).

For more information about the Grant Holder contract and its rules, please consult:

https://joint-research-centre.ec.europa.eu/collaborate-us/collaborative-doctoral-partnership-cdp-programme/cdp-programme-phd-candidates_en

Shortlisting will be used, which means that the evaluation committee only will evaluate the most relevant applications.