



Geochemical Modeller

About the role

At UNDO, geochemical modelling is essential for underpinning our carbon dioxide removal methodology used in our commercial operations, enabling the company to sell carbon credits, helping both us as a business to achieve our goal of removing 1 billion tonnes of CO₂ by 2030 and in turn helping to alleviate the climate emergency. As such, we need to keep growing and developing our geochemical model and are hiring a new geochemical modeller for this task.

As a geochemical modeller, you will be responsible for the development and testing of the UNDO geochemical model and help to deliver the company's carbon removal goals and associated research priorities. You will join the geochemistry group which is an intricate part of UNDO's science, research and innovation team, and while you will be assigned with specific tasks, the work will be extremely collaborative with other members of the close-knit geochemical team. This role is crucial for developing and validating our geochemical model which is needed to underpin our methodology.

What will you do

You'll be working closely alongside the geochemistry team with our current modeller to continuously develop and improve the UNDO geochemistry model by supporting the following tasks, collaboratively:

- Validation of the UNDO geochemical model used to predict the rate of enhanced weathering, and therefore carbon dioxide removal, in various operational locations.
- Improvement of model representations of hydrological, seasonal, biological and chemical processes.
- Development of additional dimensions into the model (i.e. 2D and 3D modelling).
- Communication of enhanced weathering research, such as writing peer-reviewed publications and presenting at conferences.

About you

As a suitable candidate for this role, you'll have a strong interest and in-depth background in geochemical modelling and be prepared to learn a range of new knowledge and skills. You'll have a can-do attitude coupled with a desire to contribute positively to alleviating the climate crisis. The work we do is very collaborative, and as such, you'll be able to work independently on tasks, but also be able to work collaboratively with others in our team so together we can excel the current understanding of enhanced weathering and its contribution to preventing climate change.

Essential:

- MSc or equivalent in chemistry, environmental chemistry, chemical engineering, geochemistry, biogeochemistry or geoscience.
- Evidenced experience in process based modelling of some of the following: reactive transport modelling, chemical-kinetic modelling, geochemical modelling, biogeochemical modelling (i.e. through thesis or dissertation/past job experience).
- Experience using chemical speciation/reactive transport models (e.g. PHREEQC, VS2DR2, GWB, PHAST, CrunchFlow).
- Strong understanding of chemical processes that operate in soil including: kinetic rate laws, chemical speciation, chemical equilibrium, chemical adsorption.
- Willingness to continue learning new techniques, software and theory to further develop our geochemical model.
- Ability to operate independently as well as work effectively on a diverse team.
- Proven ability to analyse data and provide recommendations.
- Good problem solving, analytical thinking and decision-making skills.
- Ability to adapt to changing circumstances

Desirable

- PhD or equivalent in chemistry, environmental chemistry, chemical engineering, geochemistry or geoscience.
- Proficiency in PHREEQC and PHREEQpy, including reactive transport functions.
- Experience in the design, planning and interpretation of experiments.
- Experience in microbiology and/or microbial geochemistry.
- Pre-existing understanding of soil, rock and soil solution characterisation methods (i.e. sequential extractions, x-ray diffraction).
- Use of statistical methods for data analysis and handling using Python, R, Matlab etc.
- Experience in hydrogeological and reactive transport modelling.
- Understanding of agricultural ecosystems.

Working environment

We are a remote company, the science, research and innovation team works from home. We meet up for subject specific science deep dives when necessary. However if you prefer to work out of an office, then we have a great shared working space in central London. We encourage everyone to come in once or twice a month just to connect in person and get to know everyone!