The Lamont-Doherty Earth Observatory of Columbia University located in Palisades, New York, invites applications for a **Postdoctoral Research Scientist** position focusing on modeling fluid transport and geochemical controls on carbon mineralization in ultramafic systems (e.g. ophiolites). These systems may provide large-scale repositories for safe, permanent storage of CO2 to combat climate change. Research is needed to understand and optimize reactive flow in dynamically brittle media at both lab and field scale and accurately assess CO2 storage capacities.

This postdoctoral researcher will work collaboratively with a team of researchers at Lamont Doherty and Columbia University on a continuing project to advance technologies for CO2 injection including:

- Develop or use computational models to understand fundamental physics of reactive flow of mixed water-CO2 systems in poro-elastic-plastic-brittle materials to evaluate and optimize “reactive-cracking” processes that may enhance permeability during to mineral carbonation.
- Calibrate the theory against ongoing laboratory experiments.
- Extend the models to understand field-scale implementation of CO2 storage demonstration projects in ultramafic reservoirs.

**Qualifications**

Candidates should have completed or be nearing completion of a PhD in computational mathematics, civil or petroleum engineering, geochemistry, geological sciences or related disciplines, and have demonstrated competence in modeling geological reservoirs and/or coupled fluid-solid mechanics in large-deformation poro-elastic-plastic media. Excellent communication, interpersonal and organizational skills, independent judgment, and demonstrated ability to conduct and publish high-quality research are required.

Prior work with carbon mineralization is desirable, as well as an understanding of geochemical, thermodynamic and fluid processes involved with ultra-mafic rock systems. Any questions about the position may be directed to Marc Spiegelman at [mspieg@ldeo.columbia.edu](mailto:mspieg@ldeo.columbia.edu).

Initial appointment will be for 1 year, with eligibility for renewal for up to 2 additional years contingent on performance and funding.