



PhD Position – Stable Isotope and Environmental Geochemistry
Four-Year PhD Opportunity | University of Texas at San Antonio (UT San Antonio)
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Applications are invited for a **four-year PhD position in Environmental and Low-Temperature Geochemistry**, focusing on the application of stable isotope and advanced geochemical techniques to understand sediment–water interactions and the mobility and fate of trace elements in natural and impacted sedimentary systems. Department: Earth and Planetary Sciences; Program -Environmental Sciences and Engineering PhD Program. The successful candidate will investigate how **organic matter, mineral phases, redox processes, and water–sediment interactions control the mobility, transformation, and speciation of trace elements in groundwater and aquifer sediments**. The research will integrate field observations, laboratory experiments, and high-resolution geochemical analyses to develop mechanistic understanding of contaminant transport and geochemical cycling in sedimentary and groundwater systems.

Potential Research Areas

The PhD research may include one or more of the following areas:

- **Stable isotope geochemistry** and isotope-based tracing of biogeochemical processes
- **Organic matter geochemistry** and its role in sediment–water reactions, Isotope applications
- Development of stable isotopic approaches for understanding **aquifer vulnerability and groundwater quality**

Research Environment and Facilities

The student will work within the **Chemical Hydrology and Mass Spectrometry Laboratory at UT San Antonio**, with access to advanced analytical and geochemical facilities across campus. The project will provide opportunities to work with **Delta-Q analytical capabilities**, stable isotope instrumentation, and complementary laboratory techniques for characterization of water, sediments, minerals, and organic matter.

The research will combine **field sampling, laboratory experimentation, isotope analysis, sediment and mineral characterization, and geochemical modelling**, providing broad interdisciplinary training in environmental geochemistry.

Candidate Profile

Applicants should have a strong background in one or more of the following areas: Geochemistry or, Environmental chemistry or Hydrogeology or Earth or environmental sciences or Chemistry or Geological or environmental engineering or Related disciplines.



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Experience with **stable isotope analysis, aqueous geochemistry, sediment characterization, analytical chemistry, or geochemical modelling** is desirable but not essential. Strong quantitative skills, laboratory aptitude, scientific curiosity, and an interest in interdisciplinary environmental research are highly valued.

What the PhD Will Provide

The student will receive comprehensive training in **stable isotope geochemistry, low-temperature geochemistry, aqueous chemistry, sediment-water interactions, trace-element speciation, analytical methods, and environmental geochemistry**. The research is intended to generate high-quality scientific publications and provide preparation for careers in **academia, environmental consulting, government laboratories, water-resource management, and environmental research**.

Interested candidates should contact saugata.datta@utsa.edu with a CV, brief statement of research interests, academic transcripts, and contact information for potential referees, for preliminary screening.

Possible Spring 2027 start.