

The geochemistry of rare earth elements in river systems of northern Vietnam

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Rare earth elements are critical minerals vital for modern technologies, facilitating the global transition to a green, low-carbon, and digital economy, and supporting net-zero goals.

Nevertheless, significant gaps remain in understanding their environmental impacts because their biogeochemical cycles and biochemical effects are largely unknown, resulting in a lack of environmental guidelines. This project aims to explore the geochemistry of rare earth elements in the rivers of northern Vietnam; this region is well known for mineral wealth and rare earth element reserves. The project aims to support geochemical exploration and the sustainable development of critical mineral sectors by relating elemental composition in river waters and suspended particles to watershed processes, with consideration of spatial and temporal resolution. The Queen Elizabeth Scholar(s) will have access to the advanced analytical facilities of the EnIGMA laboratory and the Water Quality Centre for elemental and isotope analyses.