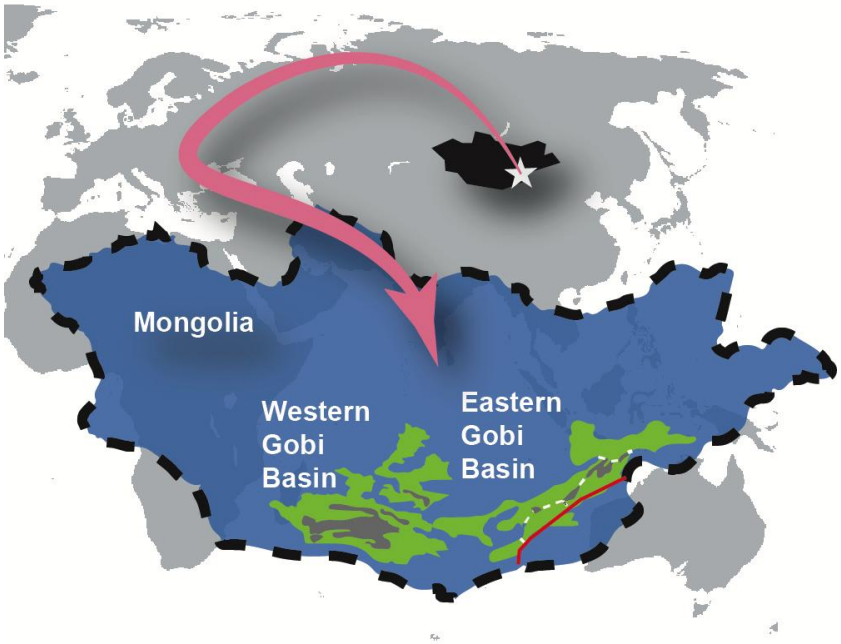
Advertisement

Join us: Work on a PhD at the intersection of geology, paleobiology, and climate science to illuminate how life on Earth responds to extreme environmental change—past, present, and future.

Collaborating Institutions: Stellenbosch University • University of the Witwatersrand (WITS) • University of KwaZulu-Natal (UKZN) within a multi-partner international collaborative project.



Overview: Earth's sedimentary record preserves the story of climate change and life's resilience through deep time. Around 95 million years ago, during the **Cretaceous Thermal Maximum (KTM)**, our planet experienced one of its most extreme warming events—driven by the same forces shaping our modern climate crisis. Temperatures rose to levels three times higher than those projected for the end of this century. While marine systems record catastrophic deoxygenation and biodiversity loss, the terrestrial response remains poorly understood.

Our multidisciplinary, international team of Earth and life scientists will reconstruct patterns of biotic and environmental change during this pivotal interval. Drawing on exceptional fossil and

geological archives from **Mongolia's Gobi Basin** and **North America's Western Interior Basin**, the project will generate open-access datasets integrating:

- Biodiversity and functional trait analyses
- Stratigraphic, sedimentologic, and geochronologic frameworks
- Temperature and precipitation proxies
- Ecosystem response and recovery models

By coupling geological and biological data, this research will shed light on **ecosystem resilience and vulnerability under extreme climate forcing**, offering valuable analogs for present-day and future climate scenarios.

Applicants should note that these projects are field-intensive, with complementary data processing (coding in Python or R) or analytical components (XRF, XRD, LA-MC-ICP-MS, or CA-ID-TIMS). Field-based work will be at least two expeditions (each lasting upwards of two months) to the remote Gobi Basin of Mongolia. *Applicants should note that conditions are often harsh or challenging at the best of times; being comfortable in the outdoors is a must.*

> Applicants will be considered until a suitable applicant is found or the NRF application process closes in 2026.

> Applicants must also meet the NRF PhD application requirements to be considered.

> Applicants should also note that, based on the grant framework, preference will be given to South African Citizens and Residents; however, international students who are motivated may apply.

>Stellenbosch University (Supervisor: Dr. Ryan T Tucker)
Focus: Temporal calibration of fossil-bearing strata in the Eastern and Western Gobi Basins using innovative geochronological techniques, including **U–Pb carbonate (calcite) dating of fossil eggshell** and associated materials. **PROJECT FILLED**

>University of the Witwatersrand (Supervisor: Dr. Zubair Jinnah)
Focus: Linking sedimentology, stratigraphy, and basin tectonics in the Eastern Gobi Basin - integrating lithofacies, palaeoenvironment, stratigraphic profiles, and structural geology to refine tectonostratigraphic models of basin formation.

> University of KwaZulu-Natal (Supervisor: Dr. Matthew Huber)

Focus: Determine the timing and structural context of sites in the Eastern Gobi Desert, including the potentially Cretaceous Tabun-Kara-Obo impact structure.

Application Details

merge all requested documents into a single PDF file, then email to Zubair.Jinnah@wits.ac.za

-Letter of Motivation
-Full CV
-Letters of Academic Recommendation (3)
-Undergraduate/Honours Transcripts
-Include any publications (full citation and abstract only) that resulted from your Honours or Masters research, accompanied by a description of your role within the publication.
-Detailed in-field experience from your Honours or Masters research