

## Andrew Whitham CASP Fieldwork Awards 2024 – Winner

**Applicant:** Gabriela Meyer Neibert Knobelock dos Santos

**Project title:** Temporal and Spatial Evolution of the Lower Triassic Buntsandstein Group

**Award:** £1,500

**Scientific question and rationale:** The Lower Triassic succession of the German Basin has been analysed in the Vosges Mountains (France), Palatinate Forest (Germany), and in subsurface of the Upper Rhine Graben (URG). These deposits are composed of fluvial and aeolian sediments with laterally extensive, and significant perm-porosity, that comprise one of the main reservoirs for the geothermal brines within the URG. The occurrence of these deposits in outcrop and subsurface allows sedimentological and architectural analysis with significant lateral correlation of continental sandstones and conglomerates over c. 2,500 Km<sup>2</sup>, with a high level of confidence; thus, favouring the palaeoenvironmental reconstruction of the Lower Triassic's Scythian cycle in the German Basin. The aim of this project is to characterise the depositional environment of the Grès Vosgien and Conglomérat Principal Formations (Lower Triassic, Middle Buntsandstein), and to reconstruct the temporal and spatial distribution of these units during its evolution, and their auto versus allocyclic drives (fluvial channel migration versus dry climatic periods).

### Specific objectives and deliverables:

- Characterisation and interpretation of the fluvio-aeolian interaction of the Grès Vosgien Fm. in outcrop, at the Vosges Mountain (France) and Palatinate Forest (German), and in core (Upper Rhine Graben).
- Reconstruction of the spatial and temporal distribution of the fluvio-aeolian deposits.
- Characterisation and interpretation of the relationship between the Grès Vosgien Fm. and the overlying Conglomérat Principal.
- Palaeoenvironmental reconstruction of the Grès Vosgien Fm.

### Proposed work plan:

Outcrops in the western shoulder of the URG (Vosges Mountain), and core samples from a geothermal well in the URG, were described at the start of the PhD. The focus for the spring-summer 2024 is on fieldwork campaign to describe fifteen selected outcrops in the Palatinate Forest (Rhineland-Palatinate - German) and Vosges du Nord Regional Nature Park (France). Thus, expanding the reconstruction area of the Lower Triassic in the German Basin. The methods used in this project is the facies and, architectural analysis, palaeocurrents measurement, and petrographic analyses in thin sections to characterise the fluvio-aeolian interactions and reconstruct the palaeoenvironment of the Grès Vosgien Fm.

Around 30 samples will be collected to prepare thin sections for petrography and faciological characterisation of fluvial and aeolian facies, as well as fluvial-aeolian interactions and other related depositional environments.

### Proposed expenditure, including details of any other sources of funding:

Accommodation 20 days of fieldwork: c. £ 1,100

Alimentation: c. £ 400

30 thin sections: Waiting for a quote

Petrol: The laboratory provides the car and the team funds the petrol used in during the trip