

Provenance of Sediments in the Central Myanmar Basin, SE Asia

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Project Description:

Myanmar is a geologically important area, comprising the eastern extent of the India-Asia Collision Zone, and the Indo-Myanmar Ranges (IMR), an accretionary wedge that contains sediments shed from initial India-Asia collision. The dynamic tectonic history of Myanmar is potentially recorded by Cenozoic sediments deposited in the Central Myanmar Basin (CMB). These sediments are constrained to a series of sub-basins, separated by a central high often attributed to a buried magmatic arc. The basins contain up to 15 km of sediment and are bounded to the east by the Eastern Myanmar high. Recent research has considered the sedimentary provenance of the Chindwin and Salin Sub-basins in the west; however, little work exists on the correlation (or lack thereof) between the sub basins of the CMB, especially from west to east. This project will aim to identify any historic correlation between stratigraphy or connected routing pathways between the sub basins.

The project will combine fieldwork in Myanmar with sedimentary provenance analysis at Royal Holloway, University of London, or one of our collaborator institutions as well as using basin drainage history to better constrain the tectonics evolution of the accretionary wedge and the India-Asia collision. Fieldwork will include the collection of measured sedimentary sections and samples for analysis from the Oligocene and Miocene formations of all sub basins of the CMB. Once back from the field, samples will be processed in a mineral separation lab for analysis of light and heavy minerals (through both optical and novel Raman Spectrographic techniques). Further analysis will include U-Pb detrital geochronology of zircons, titanites, and apatites. There is also scope to expand the analyses based on your findings. The applicant should have a good knowledge of sedimentology, including sedimentary logging and facies analysis, should be comfortable doing extended fieldwork in tropical conditions (sometimes in remote areas with basic accommodation), and should be willing to learn laboratory techniques for sedimentary provenance.

Funding Notes:

The studentship is fully funded by the Southeast Asia Research Group for 3.5 years in the first instance. The studentship covers UK/EU fees, an annual stipend (competitive with NERC rates), fieldwork and analysis costs, and all conference fees.

Closing Date for Applications: 20th March 2020

References:

- Gough, A., Hall, R. and BouDagher-Fadel, M.K., 2019. Mid-Cenozoic fluvio-deltaic to marine environments of the Salin Sub-basin, Central Myanmar. *Journal of Asian Earth Sciences*, p.104-143.
- Westerweel, J., Roperch, P., Licht, A., Dupont-Nivet, G., Win, Z., Poblete, F., Ruffet, G., Swe, H.H., Thi, M.K. and Aung, D.W., 2019. Burma Terrane part of the Trans-Tethyan arc during collision with India according to palaeomagnetic data. *Nature Geoscience*, 12(10), pp.863-868.
- Licht, A., Reisberg, L., France-Lanord, C., Soe, A.N., Jaeger, J.J. 2016. Cenozoic evolution of the Central Myanmar drainage system: Insights from sediment provenance in the Minbu Sub-basin. *Basin Research*. 28. 237-251

Information on how to apply can be found here:

www.rhul.ac.uk/studyhere/postgraduate/applying

Please contact the lead supervisor directly for further details