**Proposed Studentship**

# Magmatism and Metamorphism in the Bird's Head, Papua, Indonesia

*Supervisors: Lloyd White, Robert Hall*

**Project Description:**

The Bird's Head of New Guinea is located at the junction between the Australian and Pacific plates. Relatively little is known about the geology of this region because mountainous terrain, high rainfall and lack of infrastructure have made mapping particularly difficult. New road construction has improved access in recent years.
Magmatism and metamorphism in the Bird
Most of what we know about this area comes from a joint mapping program by Indonesian and Australian government geologists in the 1970's. This pre-dates modern geochronological techniques (e.g. LA-ICPMS and SHRIMP) so knowledge of timing of tectonic events (e.g. magmatism and metamorphism) is quite limited and based on a limited number of K-Ar ages.

This project will investigate reported high-grade metamorphism of the Kemum Block (Palaeozoic basement/Australian crust) and their relationship to granitoid rocks (including the Anggi Granite). It will determine the extent of the metamorphic rocks, identify their relationship to Palaeozoic Kemum Formation, and discover when they were metamorphosed. The project will also involve characterising the distribution and emplacement history of the granitoid rocks.

The project will involve several months of fieldwork in a remote and challenging location, and will also require considerable time in the laboratory (e.g. for petrological and geochemical work and mineral separation). The candidate will require skills in mapping, petrology and structural geology. Dating of zircons using U-Pb geochronological techniques will be an important part of the study.

The student will join a large and active research group working in SE Asia based at Royal Holloway which includes several PhD and MSc students working on a wide range of field-based projects.

This project is one of several PhD studentships open to UK/EC students proposed for funding in 2014. The exact number of studentships to be supported is not yet certain but those selected will be fully funded, including fieldwork costs, by the SE Asia Research Group (http://searg.rhul.ac.uk/).

**References:**

Baldwin, S.L., Fitzgerald, P.G., Webb, L.E., 2012. Tectonics of the New Guinea region. Annual Review of Earth and Planetary Sciences 40, 495-520.

Gunawan, I., Hall, R. & Sevastjanova, I. 2012. Age, character and provenance of the Tipuma Formation, West Papua: New insights from detrital zircon dating. Proceedings Indonesian Petroleum Association, 36th Annual Convention, IPA12-G-027 1-14.

Pieters, P.E., Pigram, C.J., Trail, D.S., Dow, D.B., Ratman, N., Sukamto, R., 1983. The stratigraphy of western Irian Jaya. Bulletin Geological Research and Development Centre, Bandung 8, 14-48.

Visser, W.A., Hermes, J.J., 1962. Geological results of the exploration for oil in Netherlands New Guinea. Verhandelingen Koninklijk Nederlands Geologisch en Mijnbouwkundig Genootschap, Geologische Serie 20, 265pp.

*Please contact the Postgraduate Programmes Co-ordinator, if you have additional questions about the department or application procedures (email: **pgadmin@es.rhul.ac.uk** ; fax: 01784-471780; tel: 01784-443581).*
*An application form can be found here **www.rhul.ac.uk/studyhere/postgraduate/applying***
*Applicants are requested to send an additional copy of their CV directly to the lead supervisor of the project in which they are interested. Please also contact the supervisor if you have any questions about the project itself*