

Example of the level of detail that NERC would expect to see in the Justification of Resources attachment to a research grant application.

Research Staff

Central to this project is careful sample selection followed by collecting and combining Ar/Ar, fluid inclusion and microtextural data from the samples. For this to be made possible we seek funds for a PDRA for 36 months, who will be based in Aberdeen with the PI and will travel to Milton Keynes and Glasgow to carry out data collection under the guidance of the Co-Is.

Directly Incurred

Fieldwork travel and subsistence: The samples will be selected from a key number of localities – Newfoundland, New York/Ontario/Wisconsin and Scotland. We seek support for field trips to all these areas for the PDRA and a field assistant. Two overseas trips are sought to enable Newfoundland to be sampled separately from the USA and Ontario sites given the more remote nature of Newfoundland.

Analysis and project meeting travel and subsistence: Laboratory analysis of the samples are essential. Whilst the fluid inclusion analyses will be carried out in Aberdeen, the Ar/Ar analyses will be carried out at The Open University and microtextural analysis at The University of Glasgow. We seek funds for the PDRA to spend 60 days carrying out Ar/Ar dating in Milton Keynes and 60 days carrying out microtextural analysis in Glasgow. Since the investigators and their laboratories are located in three different UK HEI's we seek support for travel and subsistence between Aberdeen, Glasgow and Milton Keynes to enable the group to meet regularly to discuss progress.

Conference Attendance: We seek funding for conference attendance for the PDRA and investigators. This is essential for the international dissemination of results and to provide networking and career development opportunities for the PDRA. We have chosen AGU (San Francisco 2008) and Geofluids (Adelaide 2009), both of which will attract wide international audiences both in the specific fields of the proposal and more broadly.

Consumables: We seek funding to cover consumables for fluid inclusion laboratory and computing facilities at the University of Aberdeen. The main cost of fluid inclusion analysis is the preparation of doubly polished wafers which we will also use for Ar/Ar and microtextural analysis. The project also relies upon thin sections for petrographic analysis. We also seek funding for the running costs of the Ar/Ar dating system, an integral technique to this research and in order to complete the project we require 60 days of analytical running costs. We also seek funding to allow access to the electron microscopy suite at the University of Glasgow, to complete the project we require the use of the Scanning Electron Microscope to initially characterise the sample microtextures, Focussed Ion Beam instrument to cut out the samples for TEM, and Transition Electron Microscopy to characterise microtextures in detail. For Ar/Ar dating we seek funds for irradiating the samples prior to analysis.

Directly Allocated

Investigator effort: The PI will spend an average of 2.5 hours per week throughout the 36 months which will cover grant administration, guiding the PDRA in fluid inclusion analysis, and co-ordinating the research team. The Co-I effort varies: Co-I One will spend an average of 5 hours per week guiding the PDRA in microtextural techniques and data analysis, and contributing to project meetings. Co-I Two will spend an average of 7.5 hours per week training and guiding the PDRA in Ar/Ar dating, which encompasses sample preparation, the use of the laserprobe and noble gas mass spectrometry, data collection, data quality assessment, data reduction and presentation. Ar/Ar data interpretation is critically dependent on the measured sub-grains (from microtextural analysis) and microthermometry (from fluid inclusion analysis) and will involve modelling of the measured Ar/Ar data with respect to grain sizes and temperatures under the guidance of Co-I Two.

Shared staff costs: A contribution to existing technical support for the Ar/Ar dating aspect of this proposal is sought in order to manage the irradiation and post-irradiation handling of the samples and associated mineral standards, loading and unloading of samples and monitoring system performance.