

British Geological Survey

The training programme will build on the experience of hosting 10+ fellows since 2012. Firstly, the primary aim is to provide experience and training in modern geochemistry laboratories, alongside learning systems of work (e.g. Quality Assurance, H&S, infrastructure maintenance). Further objectives may include experience in contributing or leading on scientific outputs which may include use or presentation of data for interpretation (e.g. statistics, QGIS - depending on interest). The trainee will be led through a simplified Theory of Change process to evaluate their current laboratory capability and then how lessons learnt can be applied to their home situation for onward improvement and cascading of information to colleagues. The candidates will be linked into a WhatsApp group of previous BGS hosted Fellows from across Africa to contribute to building their own support network.

Eligibility

The candidate should have an environmental geochemistry background, but with a primary interest in laboratory activities. We have focused on building a group across Africa with previous fellows to ensure onward benefit for fellows, but are open to other contributors.

Website

<http://www.bgs.ac.uk/sciencefacilities/laboratories/geochemistry/igf/home.html>

Proposed activity

Provisional dates: Week 13th May 2019 (two candidates)

- Arrival 12th May
13-14th – Orientation, introduction to laboratory systems.
15-17th - Training in sample preparation of soil/plants brought from Africa; control and minimisation of sample contamination, phytosanitary control, use of modern equipment, production of material appropriate for analytical technique.
- Week 20th May
20th – Theory of dissolution, range/rationale for selection of techniques. Study day with tutorial for directed reading questions
21-24th – Dissolution methods (hot-block) for soil samples for elemental analyses, appropriate use of certified reference materials, safe practices. Comparison of hot- block with microwave dissolution for analyses of plants

- Week 27th May
27-31st - systems for data management and quality assurance checks of datasets - overview of use of MS Excel / Access databases for formalising reporting of data from laboratories and for future archiving.
- Week 3rd June
3-5th - Elemental analyses by ICP-MS.
6th - Data management/presentation; work-up of analytical data (MS Excel), introduction to statistical software e.g. evaluation of quality control charts, providing evidence/confidence in laboratory data
7th – Systems for inter-laboratory comparisons, round-robin proficiency testing schemes.
10-11th – Laboratory Information Management system (LIMS), importance in secure sample/data records e.g. archiving for future usage, integrity of data outputs, audit trail. We will use experience via African projects to tailor this aspect appropriately for the candidates.
- Week 17th June
17th - Attendance at industry symposia hosted by instrument manufacturer (Agilent and or CEM - analytical equipment, tbc) or visit to Agilent office.
18-21st - Shadow other laboratory techniques for soil and water analyses to reinforce laboratory safe working, quality assurance, training and development requirements for staff and building a mind-set for the preventative maintenance of equipment, planning for running costs.
- Week 24th June
24th - Isotope tracers for soil geochemistry processes – demonstrates modern laboratory methods to solve research questions.
25th - QA revision, each of the partner labs have ambitions for ISO17025 accreditation.
26-27th – (i) training on elemental speciation and use of isotope tracers.
- Week 1st July
1-5th Attend 35th International conference for Society for Environmental Geochemistry (Manchester). Candidates will meet ECRs, laboratory specialists and understand the importance for high quality data in scientific research. Day 4 provides training options in; I.T., writing of reports, QGIS, statistics. Candidates will be encouraged to join the SEGH ECR group to benefit from an ongoing mentorship programme and develop their own network for career development.
- Week 8th July
8-10th -Refresh techniques learnt, visit other laboratory methods of interest and discussion of future capacity strengthening requirements. Produce a plan for collaborative follow-on development, with specific aims and objectives - simplified Theory of Change.
11th - Finalise report for CSCUK, web blog (Geoblogy) to highlight experience of Fellowship.

12th – Spare day to cover gaps in forward planning, write-up. If appropriate encourage candidates to give a joint lunchtime lecture to BGS colleagues on their experience.
13th – Return home.

CSC theme

Priority Theme 1 Science and technology for development

Further details

For more information on how to apply, please visit the CSC website:
<http://cscuk.dfid.gov.uk/commonwealth-professional-fellowships-information-for-candidates/>