

## Mineralogical Society of Great Britain and Ireland Senior Bursary 2016

I am grateful to the Mineralogical Society of Great Britain and Ireland for awarding me the Senior Bursary to support my attendance at the 26<sup>th</sup> V. M. Goldschmidt conference held in Yokohama, Japan during June 2016. Here I was able to present my research on the use of slow-release electron donors to bioremediate technetium groundwater contamination, which can be a common problem at nuclear sites. These slow-release donors work by stimulating the natural sediment microbial community to develop reducing conditions which consequently leads to the reduction of aqueous and mobile technetium(VII) to insoluble technetium(IV) biominerals, and thereby limiting contaminant transport and ecosystem risk.

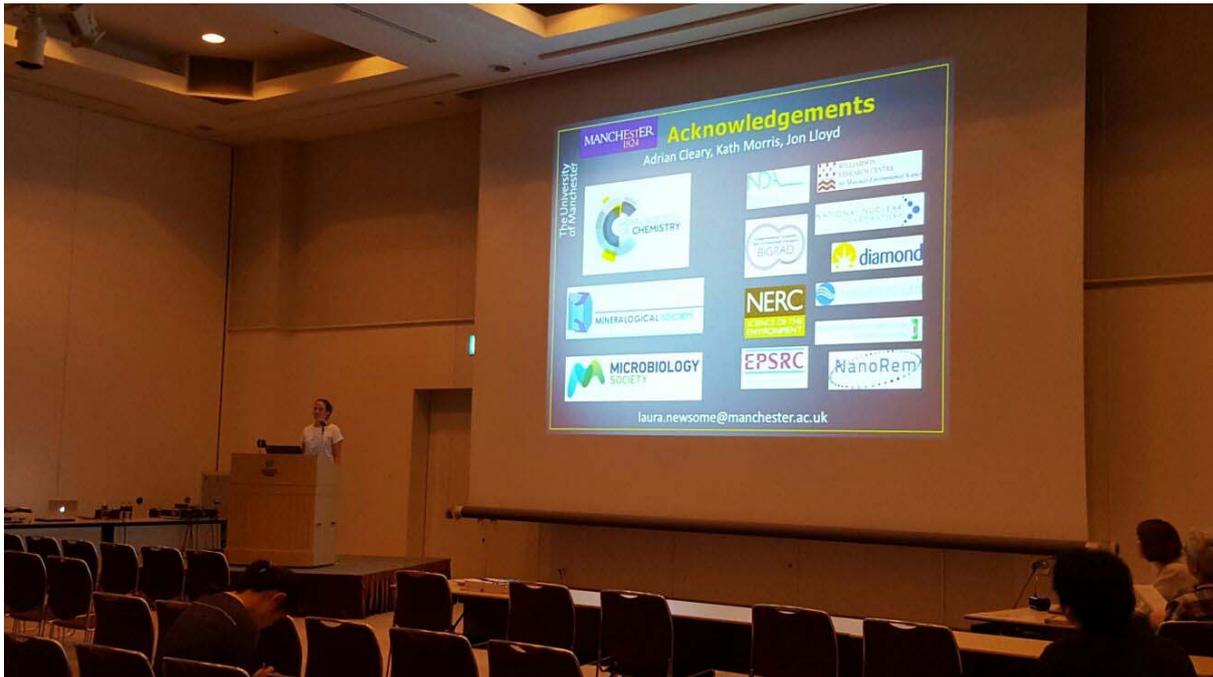
My presentation was scheduled for the third day of the conference in Session 15a entitled "Biogeochemical transformation and fate of natural and anthropogenic radionuclides in the environment". It was well attended, and I found it exciting to present my results which showed that the substrates tested were effective in removing technetium from contaminated groundwater, and that we can target the formation of Tc(IV)-oxide or Tc(IV)-sulfide minerals; both of which were recalcitrant to oxidative remobilisation under the conditions tested. After my presentation there were a lot of stimulating questions from the audience, which was very encouraging.

Particular highlights of the conference for me were talks by Robert Hazen on whether there was a mineralogical signal for the proposed Anthropocene period (mineral collections being the ultimate Anthropocene anomaly) and by Oliver Warr who described his xenon isotope analysis which identified the oldest fluids ever discovered, from a Canadian mine and a mere 2.3 billion years old! There were many talks relevant to my current work and that also will inspire my future research, including on microbe-metal interactions, the diversity of life in the deep biosphere, and on radionuclide contamination and remediation. Attending the conference gave me the opportunity to form connections with new and old contacts, and especially Japanese scientists who are involved with research on Fukushima whom I might be able to collaborate with in future.

### The start of my presentation



## Acknowledgements



With a colleague outside the conference centre

