

# Geochemistry

## Inductively Coupled Plasma Mass Spectrometry (ICP-MS).

UNIVERSITY OF  
Southampton

### Introduction

The ThermoScientific XSeries2 ICP-MS allows for the rapid concentration determination of a wide variety of different elements with sub ppb detection limits. The instrument has a collision cell fitted to improve the analyses of elements that normally suffer from interferences from molecular argon species. It is housed in a purpose built clean laboratory along with the other ICP instruments. The instrument can be run in solution mode, for liquids and digested samples, and also connected to the New Wave laser system for solid samples enabling high spatial resolution analyses.

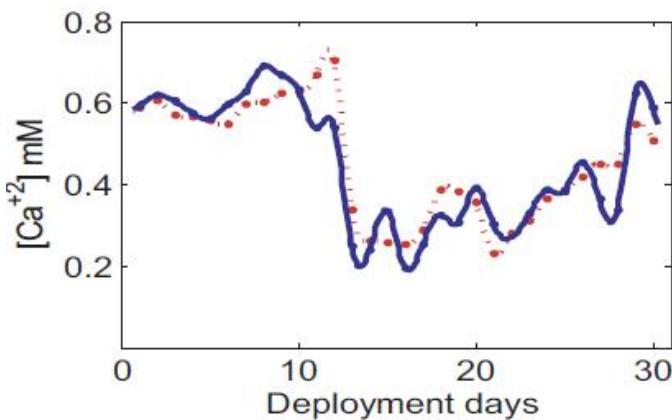
### Consultancy Work

In addition to carrying out analyses to support research projects across Southampton University and elsewhere across the world, we are also undertake bespoke analyses on behalf of commercial partners.

We have a group of expert scientific and technical staff who are happy to engage in confidential discussions and provide quotes for interested users.



ThermoScientific Quadrupole XSeries 2 (photo: M. Cooper)



Ca concentrations determined by ICP-MS in river water samples collected by bottle (blue) and by osmotic pump (red) over 30 days.  
Source: Gkritzalis-Papadopoulos et al. (2011) *Hydrol. Process.* DOI: 10.1002/hyp.8237.

### Current Activity

The analysis of element concentrations is a vital part of the work in the geochemistry group. Examples of work carried out on this instrument include:

#### Solution Mode

- Ore deposit formation and hydrothermal processes
- Studies of fluid flow through the ocean crust
- Silver analysis in seawater
- Characterisation of airborne particulate material

#### Laser Mode

- Fish migration studies using otolith chemistry
- High resolution studies of magmatic processes

### Future Work

We are always looking to extend our research portfolio and welcome enquiries from potential collaborators, especially those seeking support for post-doctoral fellowships.

Key Contacts: [Prof. Martin Palmer](#), [Dr Matt Cooper](#), [Dr Andy Milton](#)