



GEOTRACES: An international marine chemistry programme studying micronutrient cycles, contaminants and paleoproxy calibration

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A number of trace elements are critical for marine life and therefore influence the functioning of ocean ecosystems and the global carbon cycle. Some trace elements are also of concern as anthropogenic contaminants while others, together with a diverse array of isotopes, are used to assess modern ocean processes and the role of the ocean in past climate change. Despite the recognised importance of these trace elements and isotopes in the ocean, our understanding of their marine biogeochemical cycles remains sparse. Recent advances in our ability to sample the ocean cleanly and to make rapid and precise measurements of low-concentration constituents of seawater now enable a dramatic step forward in understanding. GEOTRACES is an international programme that aims to make this advance. Full details of the programme are available at <http://www.geotraces.org>.

In this presentation we will briefly summarize the scientific goals that motivate GEOTRACES, but also describe the processes of setting up the programme, its infrastructure, and the opportunities for collaboration between GEOTRACES and other programmes. The programme started through a bottom-up process of scientific discussion at international meetings. Planning and writing of the Science Plan proceeded under sponsorship from SCOR (Scientific Committee on Ocean Research) and European activities have more recently been co-ordinated through an ESF COST Action (see <http://costaction.earth.ox.ac.uk> for details). A number of workshops, including one focused on Arctic activities, set out plans for international implementation of the Science Plan involving more than 20 major ocean sections. Initial field work was conducted during IPY and generated exciting new discovery. Other early work has concentrated on enabling activities: setting up a data management system (<http://www.bodc.ac.uk/geotraces/>); a rigorous measurement intercalibration programme; opening of an International Project Office in Toulouse, and engagement of the ocean modelling community. The main field programme is now underway with a Japanese cruise ending early in 2010, and other cruises this year by the Germans, Dutch, UK and USA.

GEOTRACES is built around a global survey of the biogeochemical cycling of key trace elements and isotopes. It has a clear focus, but also offers significant potential for constructive collaboration with other programmes. Its goals are highly complementary international programmes such as SOLAS, IMBER, CLIVAR, PAGES and a large number of FP7 and ESF activities. We encourage discussion with such programmes and planning for future collaboration.