

GEOTRACES PLANNING GROUP  
ANNUAL REPORT TO SCOR 2006/2007  
June 2007

SCOR Scientific Steering Committee for GEOTRACES

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Publication of Science Plan and formation of SSC

The Science Plan for GEOTRACES was published in August 2006 (ISSN 1932-7943 Print; ISSN 1932-7951 Online). Copies can be downloaded from the GEOTRACES website ([www.geotraces.org](http://www.geotraces.org)). As described in last years report to SCOR, the Science Plan received extensive informal and formal review, and was approved by SCOR prior to publication.

The SCOR-sponsored GEOTRACES Planning Group had been formed specifically to generate a Science Plan for the programme so, following publication of the Science Plan, this Planning Group was disbanded. A Scientific Steering Committee has been formed in its place to oversee and manage the implementation of the research outlined in the Science Plan. The SSC membership (listed above) contains representatives of 13 different countries with diverse expertise including: Marine biogeochemistry of carbon and nutrients; Trace elements and isotopes as proxies for past climate conditions; Land-sea fluxes of trace elements/sediment-water interactions; Trace element effects on organisms; Hydrothermal fluxes of trace elements; Tracers of ocean circulation; Tracers of contaminant transport; Controls on distribution and speciation of trace elements; and Ocean Modelling.

SCOR meetings during 2006/2007

The first meeting of the GEOTRACES SSC was held for three days (16th-18th December 2006) immediately following the AGU meeting in San Francisco. This was attended by 13 of the SSC members along with one alternate (Jing Zhang, Japan, replacing Toshi Gamo). The chair of the GEOTRACES Intercalibration Subcommittee (Greg Cutter) also attended, as did Don Rice from US-NSF. In addition, representatives of other programmes attended the first day: Dick Feely from CLIVAR and Jeff Hare from SOLAS. Jay Cullen planned to attend to represent IMBER but was prevented from doing so by cancelled flights.

SSC discussions were wide ranging. In addition to funding issues and relationships with other programmes, major issues for discussion included measurement intercalibration, data management, ocean modelling, criteria for GEOTRACES participation, and reports of national activities.

This SSC meeting was the only International meeting for GEOTRACES in 2006/07, but there have been national meetings in this period (as described below) and several international meetings are planned for the remainder of 2007. This includes the next SSC meeting which will be held in Barcelona from 6th to 8th November 2007. Other planned meetings are detailed in the next two sections.

### Ocean Basin Workshops in 2007

Three international workshop meetings are planned for 2007 to plan the implementation of GEOTRACES science in each of the major ocean basins – Pacific, Atlantic, and Indian (note: initial work on the high latitude oceans has been planned under IPY, as detailed below). These workshop are planned in:

- Honolulu, Hawaii, USA. 26th to 29th June 2007 – Pacific Ocean
- Oxford, UK, 10th to 13th September 2007 – Atlantic Ocean
- Goa, India, 24th to 26th October 2007 – Indian Ocean

Further details of these workshops is available on the GEOTRACES website. Each meeting will bring together between 40 and 50 scientists with interests in GEOTRACES-related research in the relevant ocean basin. Discussion at the meeting will identify the key regions and research questions for that basin, and plan ocean sections (and to some extent process studies) to address the goals laid out in the GEOTRACES science plan. Recommendations of these Basin Workshops will be taken to the 2007 SSC meeting in November for approval and adoption as GEOTRACES implementation strategy.

### Modelling and GEOTRACES

A fourth workshop is also planned during 2007 to address the role of modelling in the GEOTRACES programme. This workshop will be held at the Hanse Wissenschaftskolleg, Delmenhorst, Germany from 6th to 8th September, 2007 and will be hosted by Reiner Schlitzer (Alfred Wegener Institute, Germany) and Jim Orr (IAEA, Monaco). The workshop will review the present state of models of trace elements and isotopes (TEI) in the marine environment and will discuss promising new modelling approaches and projects in the light of recent advances in our understanding of TEI cycles and the expected increase in quality and quantity of TEI observations during GEOTRACES. The workshop will produce a set of recommendations that will be used by the GEOTRACES SSC to develop a coherent modelling and synthesis plan for the GEOTRACES program.

### Measurement Intercalibration during the GEOTRACES programme

There was early recognition during the planning of GEOTRACES that intercalibration of measurements between laboratories would be critical to the success of the programme. To that end, a subcommittee on Intercalibration and Standardization was set up, chaired by Greg Cutter (Old Dominion University, USA). Following a meeting in Oct 2006, that committee produced a report on intercalibration which has been open for input from the community and was approved by the SSC in December 2006.

Building on the recommendations from that report, Cutter, along with two US colleagues (Ken Bruland, UCSC, and Rob Sherrell, Rutgers) wrote a successful proposal to the US-NSF which has secured shiptime for two intercalibration cruises. The first will be in the Atlantic in June-July, 2008, and the second in the Pacific early in 2009. These cruises have been widely publicised and efforts are underway to plan details of sampling techniques and sample distribution so that all interested laboratories can secure appropriate samples to assess all relevant measurements.

### Data Management for GEOTRACES

The importance of good protocols for data management was also recognized early in planning for GEOTRACES and a subcommittee convened under the leadership of Chris Measures (Hawaii, USA) and Raymond Pollard (National Oceanography Centre, UK). That subcommittee met in December 2005 and produced a report that, after input from the community, was approved by the SSC in December 2006. The report is available from the GEOTRACES website.

The Data Management Committee, now chaired by Chris Measures and Reiner Schlitzer, will next meet immediately following the Modelling workshop on 8th September in Germany to plan initiation of Data Management procedures.

### GEOTRACES cruises during IPY

A number of cruises are planned under the auspices of GEOTRACES during the International Polar Year (IPY). Hein de Baar (Netherlands) is acting as co-ordinator of these cruises. Briefly, planned cruises are as follows:

Arctic: a Swedish cruise to European shelves; A German/Netherlands/Spanish cruise to the European-Asian Arctic Shelves; a Canadian cruise to the Beaufort Sea; a Japanese cruise to the Sea of Okhotsk; and a Spanish cruise to the north of Iceland.

Antarctic: a German cruise to “Zero and Drake”; a French cruise, also in the Atlantic Sector; an Australian cruise south of Tasmania; and Japanese cruise in the Indian sector.

### Links with other programmes

GEOTRACES remains committed to maintaining strong links to other relevant programmes. Representatives of CLIVAR, SOLAS, and IMBER attended the SSC meeting, and GEOTRACES representatives attended the most recent SOLAS SSC (Jing Zhang, Japan) and IMBER SSC (Kristin Orians, Canada).

### Developments at national level

*USA:* In addition to leading the Intercalibration efforts, the US have been successful in establishing a national project office (at Lamont-Doherty Earth Observatory) which is now nearing the end of its first year of funding. To the extent permitted by available resources, this US project office will assist with matters pertaining to international GEOTRACES until an international project office can be established (Contact Bob Anderson, Lamont-Doherty Earth Observatory). A US-GEOTRACES-SSC was established in 2006 and met 4-5 June, 2007, to discuss US priorities within the programme.

*Canada:* Canadian scientists, having met in 2005, are initially focusing on IPY, with a cruise planned in 2008 (contact Roger Francois), but also hope to run a cruise in the North Pacific Ocean, probably

jointly with IMBER and/or SOLAS. Canadian scientists with GEOTRACES interests met together in May 2007 to discuss future plans.

*Germany:* German scientists have taken part in an Atlantic Ocean transect to test some measurement techniques, and are involved in IPY activities. Additional cruises which may have a significant GEOTRACES component include one from Las Palmas to Canary Islands in May 2009 and another to study oxygen minimum zones in the Peru and Chile upwelling zones.

*Japan:* Two cruises have been funded which will include a significant component of GEOTRACES research. One is a meridional section in the Indian Ocean, part of which represents a Japanese contribution to IPY. The other is in the Sea of Japan (contact Jing Zhang, Japan). An IPY cruise in the Sea of Okhotsk also contains GEOTRACES elements.

*Spain:* Spanish scientists met in January 2007 to discuss GEOTRACES activities. Initial work is under the auspices of IPY, with high-latitude work likely to remain a particular focus.

*Sweden:* In addition to planned IPY activities, the Swedish icebreaker, Oden, will be leased to the US for the next five years and plans are being developed to use that vessel to conduct Antarctic GEOTRACES work.

The above represent the most significant national developments, but GEOTRACES activities have also taken place in a number of other countries including: Australia; Brazil; Chile; China; India; Netherlands; New Zealand and the UK.

#### GEOTRACES sessions at international conferences

Open “town meetings” were held during the Fall meeting of the American Geophysical Union (11 December, 2006, San Francisco) and at the winter meeting of ASLO (7 February, 2007, Santa Fe, New Mexico). The general purpose of the meetings was to inform members of the oceanographic community about the objectives and status of the GEOTRACES program, and to encourage interested scientists to participate in the program. A specific mission for this meeting was to encourage participation in the intercalibration effort and provide details of these efforts.

A special session entitled “Evolution of ocean chemistry: past, present and future” was held at the 2006 Goldschmidt Conference, Melbourne, Australia, 27 August - 1 September, 2006.

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