GEOTRACES
An International Study of the Marine Biogeochemical Cycles of Trace Elements and their Isotopes
**GEOTRACES mission**

- **GEOTRACES** mission is to identify processes and quantify fluxes that control the distributions of key trace elements and isotopes (TEIs) in the ocean, and to establish the sensitivity of these distributions to changing environmental conditions.
- **Scientists** from more than **35 nations** have been involved in the programme, which is designed to study all major ocean basins.
To date:

- **35** nations
- **121** cruises completed
- **41** sections completed (in yellow and black)
- **1,469** publications

**Data Products** in 2014 and 2017

New data product forthcoming in 2021!

**Map legend:** Map of GEOTRACES sections. In red: Planned Sections. In yellow: Completed Sections. In black: Sections completed as GEOTRACES contribution to the IPY.
The GEOTRACES field programme includes **three different types of cruises:**

**GEOTRACES Sections** – These cruises cover all key TEI parameters over the full depth of the water column.

**GEOTRACES Process Studies** - The programme endorses a number of studies that focus on particular regions or processes, with often a smaller subset of TEIs studied. (see map)

**GEOTRACES compliant data** - GEOTRACES collates appropriately intercalibrated TEI data from other cruises.

**GEOTRACES cruises must be approved by the Scientific Steering Committee (SSC).** Decisions are based on the compliance of the pre-defined criteria as established and regularly reviewed by the SSC: [http://www.geotraces.org/cruises/cruise-summary](http://www.geotraces.org/cruises/cruise-summary).
GEOTRACES Organisation

• Quality and internal consistency of collected data rigorously controlled by intercalibration protocols, under the supervision of a Standards and Intercalibration (S&I) committee.

• With more than 3000 parameters identified, a Parameter Definition Committee was formed to create a rigorous structure of parameter designation.

• Once validated, the data are sent to the GEOTRACES Data Assembly Centre (GDAC, BODC, UK) under the supervision of the Data Management Committee (DMC) and publicly released through GEOTRACES Intermediate Data Products.

• The management and coordination is done by International Project Office (IPO) hosted in Toulouse (France), under the supervision of the Scientific Steering Committee (SSC).
GEOTRACES Intermediate Data Product, IDP2017

Trace metal data from more than 1800 stations and 39 cruises

It includes: (1) a compilation of digital trace metal data (geotraces.org/dp)
(2) the eGEOTRACES Electronic Atlas (egeotraces.org)

Freely available on-line!

3D scenes showing the distribution of dissolved iron (DFe) in the Atlantic and the Pacific. Hydrothermal iron inputs and important release of DFe from the margin sediments are identified in the two

*** Subset data extractor ***
https://geotraces.webodv.awi.de/
Working for a next release of the GEOTRACES Intermediate Data Product (IDP) in 2021.
GEOTRACES Data for Oceanic Research (DOoR)

- **Dedicated on-line portal to register data sets** for intercalibration and potential inclusion in IDP2021, generate templates for data submission and provide necessary metadata for the building of the IDP2021.

- **Management tool** for GEOTRACES subcommittees and GDAC to work on the preparation of the IDP2021.

https://geotraces-portal.sedoo.fr/pi/
A review constituting the halfway mark of GEOTRACES


- Review of the motivation and foundation processes of GEOTRACES,
- overview of many results of GEOTRACES activities related to the three guiding themes of the programme: (1) fluxes and processes at ocean interfaces (2) internal cycling of TEIs, and 3) the development of proxies for past change.

Elements issue devoted to GEOTRACES

Marine Biogeochemistry of Trace Elements and Their Isotopes

Catherine Jeandel, Zanna Chase, and Vanessa Hatje – Guest Editors
# GEOTRACES Synthesis Strategy

<table>
<thead>
<tr>
<th>1- Supply and removal of TEI at ocean interfaces</th>
<th>2- Internal cycling of TEIs within the ocean</th>
<th>3- Geochemical tracers as paleoceanographic proxies</th>
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</thead>
<tbody>
<tr>
<td>2 Royal Society Scientific Meetings</td>
<td>Joint GEOTRACES Ocean Carbon and Biogeochemistry (OCB) programme Workshop</td>
<td>Exploring partnership with the Past Global Changes project (PAGES)</td>
</tr>
<tr>
<td>December 2015</td>
<td>August 2016</td>
<td>December 2018</td>
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+ 4th synthesis workshop planned:

Sensitivity of TEI distribution to environmental change

- to be held in 2023
3rd GEOTRACES Summer School planned for 2021

• 11 – 16 July 2021 in Bremerhaven, Germany
• 50 students and 12 lecturers
• Course to include:
  – Lectures
  – Training in shipboard sampling (RV Heincke)
  – Sample processing
  – Some key analytical techniques
  – (web)ODV training
  – Workshops: Environmental aspects, Global change

(considering organising series of webinars in case in person summer school is not possible)

• Organisers: Walter Geibert (AWI), POLMAR Graduate School @AWI (Claudia Hanfland)
Learn more about GEOTRACES

GEOTRACES web site
www.geotraces.org

GEOTRACES eNewsletter

Subscribe to our eNewsletter and mailing list!
https://www.geotraces.org/subscribe-mailing-list-2/
GEOTRACES Publication database

- On-line GEOTRACES Publication database: 1,469 publications (up to November 2020)

https://www.geotraces.org/geotraces-publications-database/
2020 GEOTRACES SSC members

Co-Chairs
• Andrew Bowie, Australia
• Karen Casciotti, USA

Members
• Eric Achterberg, Germany
• Adrian Burd, USA
• Zanna Chase, Australia
• Jay T. Cullen, Canada
• Susanne Fietz, South Africa
• Tina van de Flierdt, UK
• Marina Kravishina, Russia
• Rob Middag, Netherlands
• Hajime Obata, Japan
• Haojia (Abby) Ren, China-Taipei
• Yeala Shaked, Israel
• Kazuyo Tachikawa, France
• Rodrigo Torres, Chile
• Antonio Tovar-Sanchez, Spain
• Liping Zhou, China-Beijing
GEOTRACES sub-committees co-chairs

Standards and Intercalibration Committee
• Maeve Lohan, UK
• Walter Geibert, Germany

Data Management Committee
• Alessandro Taglibue, UK
• William Landing, USA

Parameter Definition Committee
• Bob Anderson, USA
• Catherine Jeandel, France
• William Landing, USA
Thank you very much!

Contact us

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