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

Co-chairs: Karen Casciotti, Stanford University
Maeve Lohan, Southampton University
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.

To date:

- 36 countries
- 144 cruises completed
- 2,204 publications
- 30 scientific workshops

Data Products in 2014, 2017 and 2021
Synthesis Workshops in 2015, 2016, 2018

- **To accomplish this mission** GEOTRACES plans to complete at least 3 more section cruises and several process studies; release 3 more data products; undertake several synthesis workshops; and envision what products can be released with the final one (e.g., currently exploring a state estimate product).
- Also, **GEOTRACES seeks to engage with early career scientists** to transmit the GEOTRACES knowledge and keep data management legacy.
Field programme

Global GEOTRACES Cruise Section Map:
https://www.bodc.ac.uk/geotraces/cruises/section_maps/interactive_map/

3 new section cruises from Japan, Germany and USA (marked in orange) since last report
Version 2 released in July 2023!

By releasing and sharing more hydrographic and marine geochemical high-quality data from **89 cruises**, we wish **to strengthen and intensify the collaboration** within the marine geochemical community itself, but also invite colleagues from other communities to join us.

IDP release ensures that GEOTRACES data is **FAIR** (findable, accessible, interoperable, and reusable)
GEOTRACES Intermediate Data Product, IDP2021 version 2 (freely available online!)

www.bodc.ac.uk/geotraces/data/dp

Data from: 89 cruises and 3362 stations
(9 cruises and 211 more stations than version 1)

Thanks to the 350 data contributors!!!
Tutorials:
* What does IDP2021 include and how can be accessed? [https://youtu.be/j3mjfh-RSjU](https://youtu.be/j3mjfh-RSjU)
* Working with IDP2021 and webODV Explore tool: [https://youtu.be/y5WqlrjU1bs](https://youtu.be/y5WqlrjU1bs)
* Linking trace metal and isotope TEI and genomics data with webODV: [https://youtu.be/ON1PKvHQNIA](https://youtu.be/ON1PKvHQNIA)
Fourth Intermediate Data Product (IDP) to be released in

November 2025

Deadlines for inclusion in next IDP are as follows:

15th May 2024 – First deadline for the submission of datasets to GDAC (or national data centres) using DOoR templates and completed intercalibration reports via DOoR to guarantee inclusion in IDP2025. After this date we cannot guarantee your data will be included

15th of December 2024 – Final deadline for submission of datasets to GDAC (or national data centres) using DOoR templates and the complete intercalibration reports via DOoR.
GTEd – GEOTRACES Education

- Series of short (about 3 min) videos aiming at explaining the GEOTRACES programme and some categories of GEOTRACES key parameters for the general audience and for teaching purposes.

- Working with Adrian Artis, graphical designer.

- 1 video released each month starting early 2023 until July 2023 (presented at the Goldschmidt International Conference)

- 7 videos in total
Neodymium, the element that attracts us

Not only is it omnipresent in our daily lives (phones, cars, etc.), in the ocean neodymium has important powers...

https://youtu.be/u9KkyTMRNXk
#1 The GEOTRACES International Programme

#2 Isotopes, tracers of origins & chronometers

#3 Lead, humans and oceans

#4 Iron, essential for life in the ocean

#5 Thorium, a luminous element

#6 Radium, a chronometer of ocean currents
Other outreach products (soon available!)

**Video tutorials** from Summer School:  
W. Geibert, AWI

- ICP-MS and ICP-OES for analysing marine samples
- Trace metal clean preparation of marine samples
- Calibrating and validating analyses of marine samples

**Sailing with GEOTRACES**  
360° virtual reality experience  
C.L. Wiederwohl, R. Bogdanoff, A. Thomas, J.N. Fitzsimmons, B.S. Twining, and G.A. Cutter
Thank you!

Contact us

**International Coordination:**

GEOTRACES International Project Office (LEGOS-OMP, Toulouse, France)

Catherine Jeandel (Scientific Director)
Elena Masferrer Dodas (Executive Officer)

ipo@geotraces.org

**Data Management:**

GEOTRACES Data Assembly Centre
Donna Cockwell (Data Manager)
Centre (BODC, Liverpool)
geotraces.dac@bodc.ac.uk