



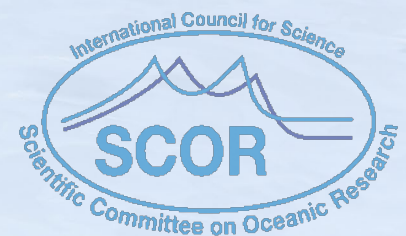
An International Study of the Marine Biogeochemical
Cycles of Trace Elements and their Isotopes



2021 United Nations Decade
2030 of Ocean Science
for Sustainable Development

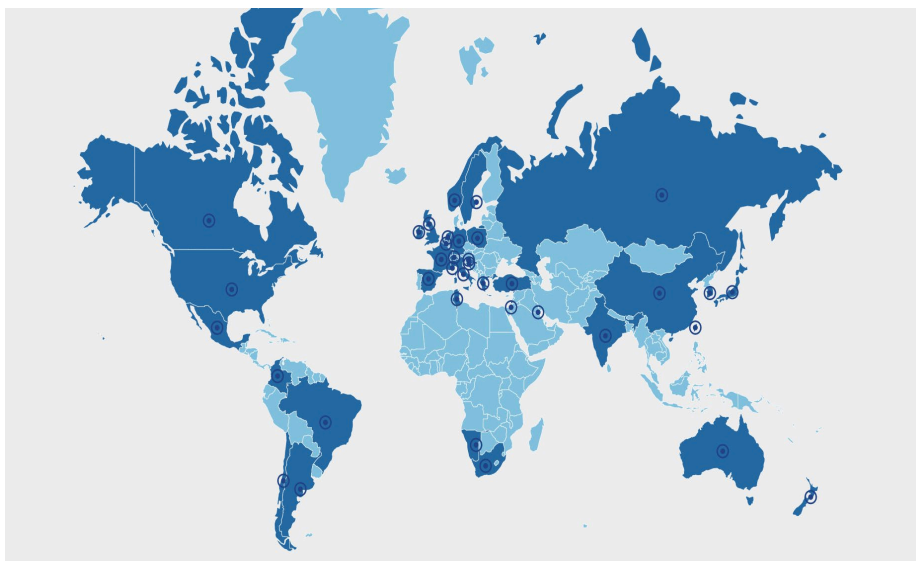


Co-chairs: Karen Casciotti, Stanford University
Maeve Lohan, Southampton University



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

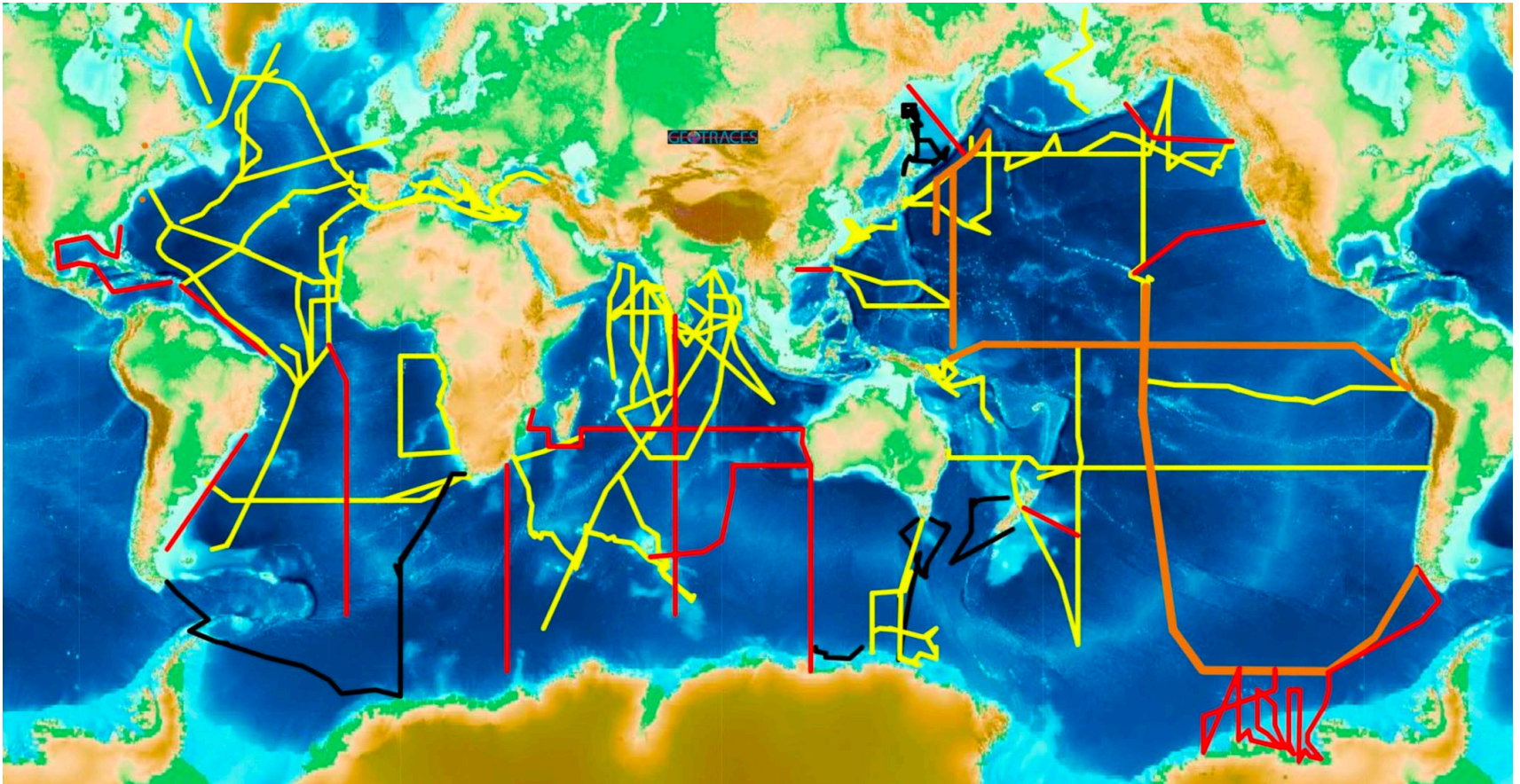
- **To accomplish this mission** GEOTRACES plans to complete at least 3 more section cruises and several process studies; release 3 more data products; undertake several synthesis workshops; and envision what products can be released with the final one (e.g., currently exploring a state estimate product).
- 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





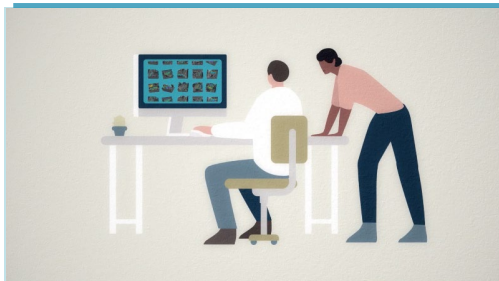
Version 2

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



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)

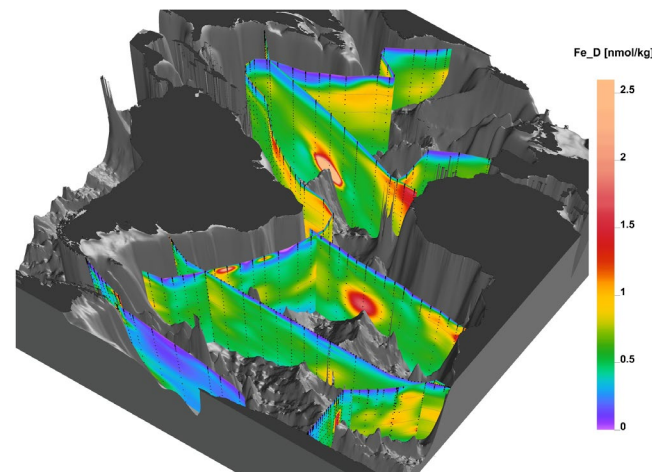
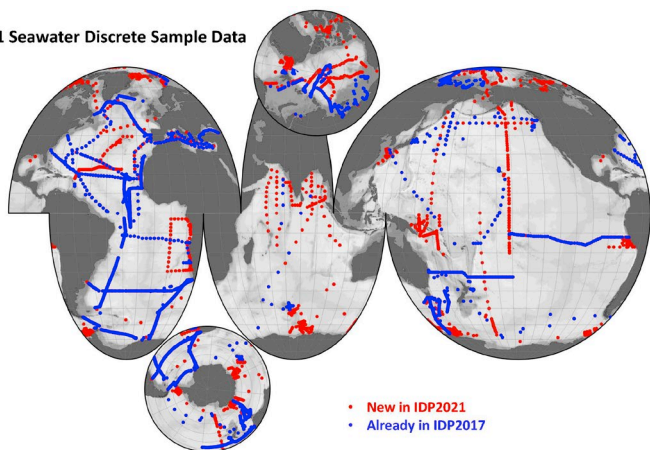
Thanks to the 350
data contributors!!!

IDP2021 version 2 consists on:

(1) a **compilation of digital trace metal data**
from 89 cruises (geotraces.org/dp)

(2) the **eGEOTRACES Electronic Atlas**
(egeotraces.org)

IDP2021 Seawater Discrete Sample Data

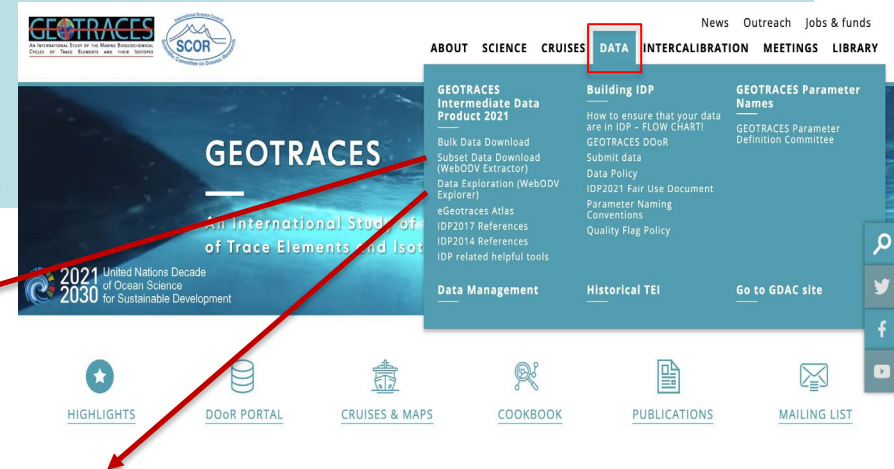


Data: Eric Achterberg, Andrew Bowie, Ken Bruland, Tim Conway, Hein de Baar, Fanny Chever, Seth John, Maarten Klunder, Patrick Laan, Francois Lican, Rob Middag, Abigail Noble, Micha Rijkenberg, Mak Saito, Geraldine Sarthou, Christian Schlosser, Peter Sedwick, Jingfeng Wu
Graphics: Reiner Schlitzer

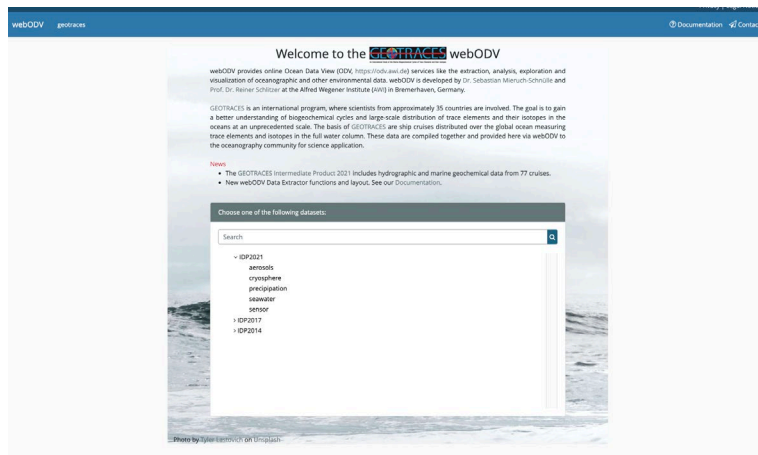
GEOTRACES Intermediate Data Product



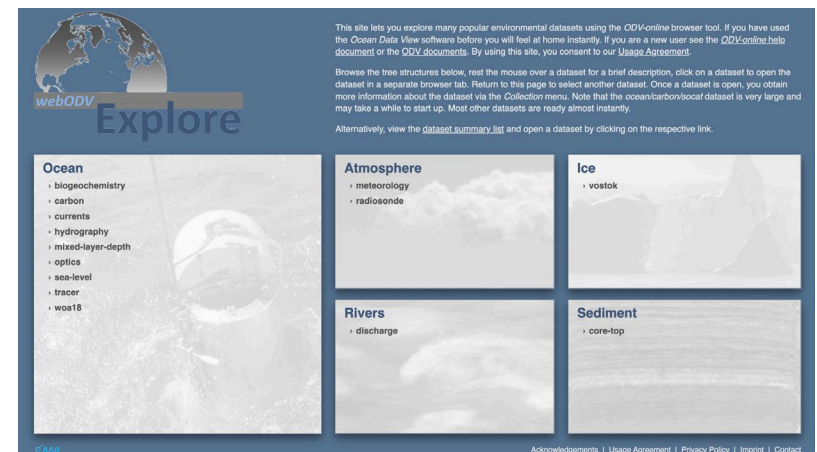
Access GEOTRACES data tools:
(www.geotraces.org)



(1) Subset extraction with **web ODV Extractor tool**
(<https://geotraces.webodv.awi.de/>)



(2) Analysis, exploration and visualisation without download with **web ODV Explore tool**
(<https://geotraces.webodv.awi.de/>)



Tutorials:

*What does IDP2021 include and how can be accessed? <https://youtu.be/j3mjfh-RSjU>

*Working with IDP2021 and webODV Explore tool:
<https://youtu.be/y5WqlrjU1bs>

*Linking trace metal and isotope TEI and genomics data with webODV: <https://youtu.be/ON1PKvHQNIA>



Next Intermediate Data Product Timeline

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...



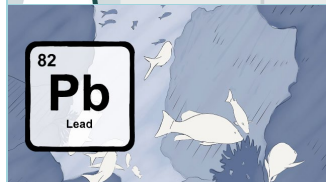
<https://youtu.be/u9KkyTMRNXk>



#1 The **GEOTRACES** International Programme



#2 **Isotopes**, tracers of origins & chronometers



#3 **Lead**, humans and oceans



#4 **Iron**, essential for life in the ocean

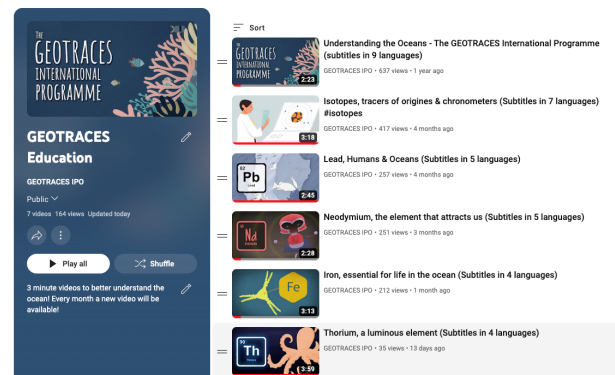


#5 **Thorium**, a luminous element

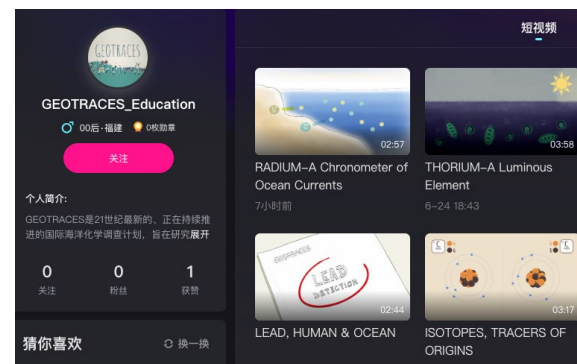


#6 **Radium**, a chronometer of ocean currents

Youtube:

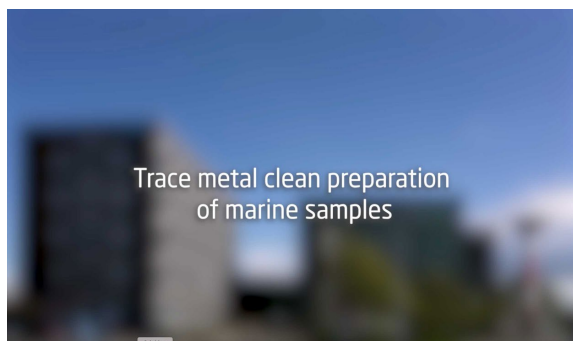


Youku:



Other outreach products (soon available!)

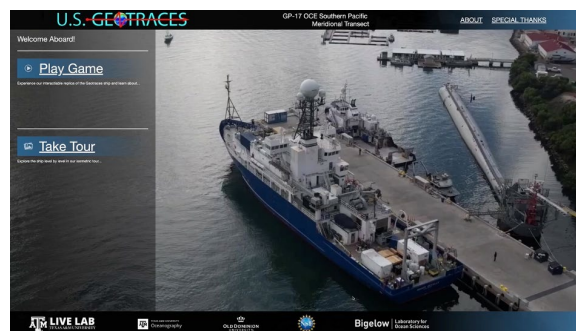
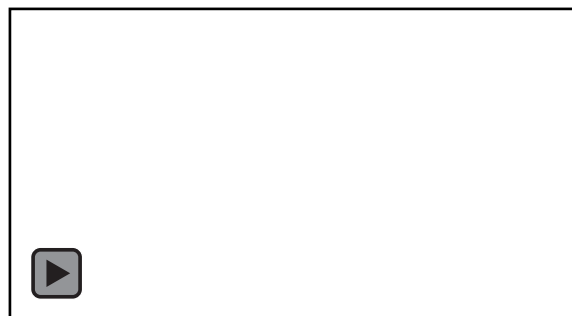
Video tutorials from Summer School: W. Geibert, AWI



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!



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Contact us

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