

Scientific Research During Round-the-World Sailing Race: Unique Opportunities for Data Collection, Outreach and Advocacy



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News

sky news

The Science Programme formed part of our wider sustainability communications which resulted in a total of **24,102 online articles**, attracting **820,555,488 online views**.

TURN THE TIDE
ON PLASTIC

sky
news

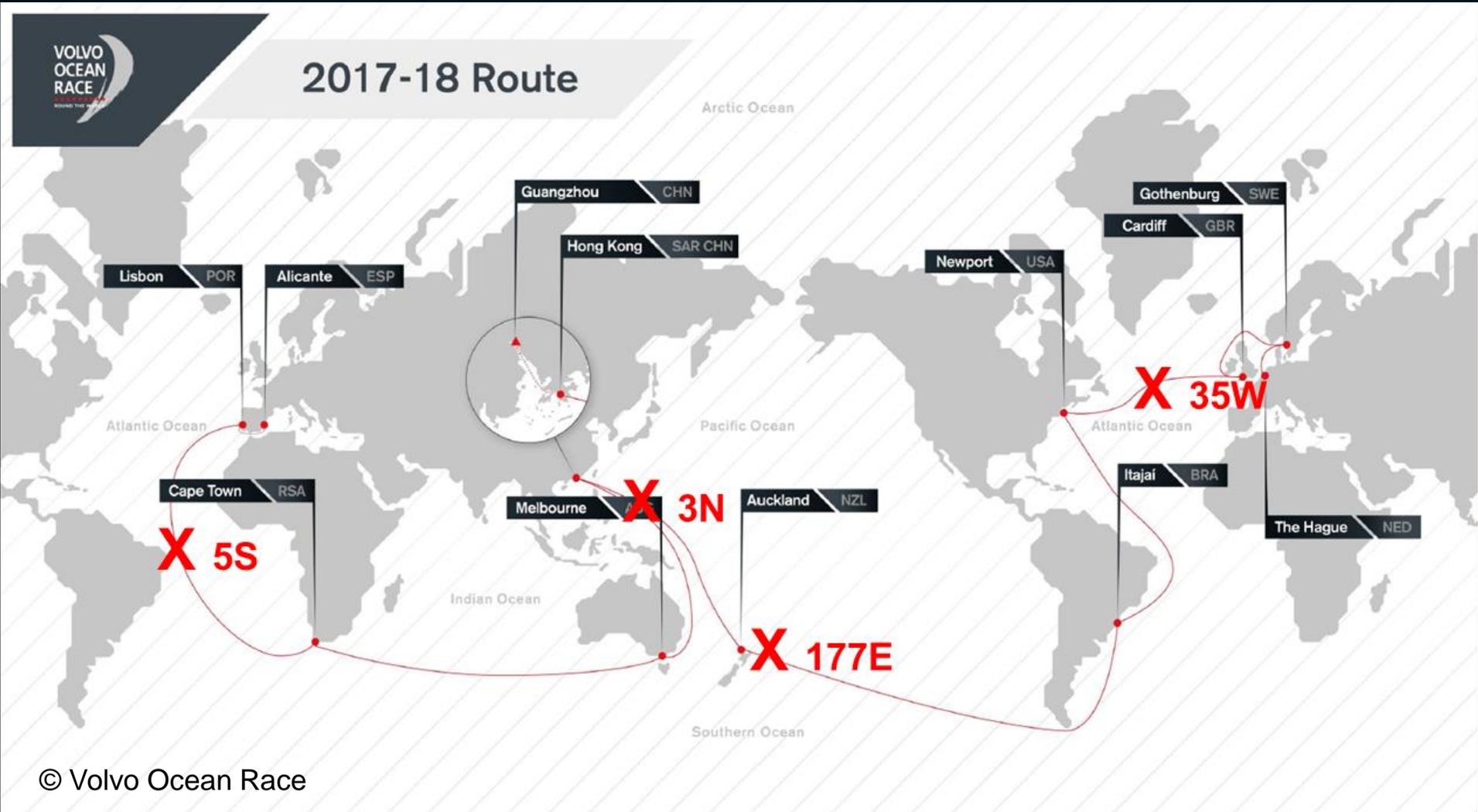
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The Ocean Race



VOLVO OCEAN RACE 2017-18 SCIENCE PROGRAMME



Meteorological data

Collected by the race boats to improve forecasts in remote areas

36 data points collected every 10 seconds and communicated via satellite to the National Oceanic and Atmospheric Administration and the European Centre for Medium Range Weather Forecasts



Scientific Surface Drifters

7 scientific drifter buoys are deployed to improve marine forecasts and global climate models



Sensors On Board

1. Sea Surface Temperature (SST)
2. Sea Surface Salinity (SSS)
3. Partial pressure of CO₂ (pCO₂)
4. Fluorometry of Chlorophyll a
5. Microplastics (MP, ex-situ).



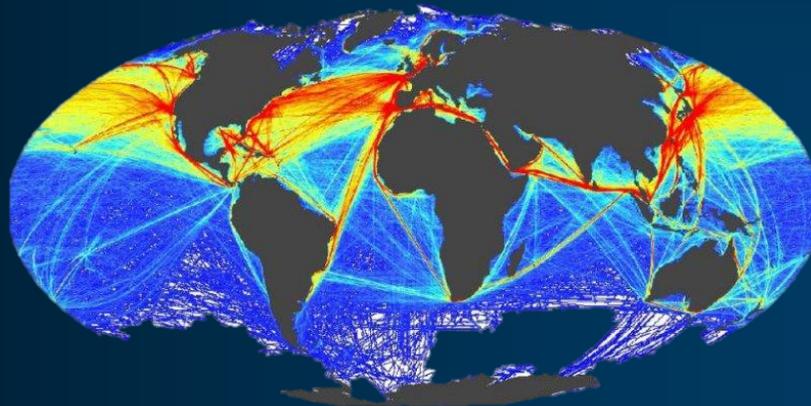
future ocean
KIEL MARINE SCIENCES



Setup



Turn the Tide on Plastic



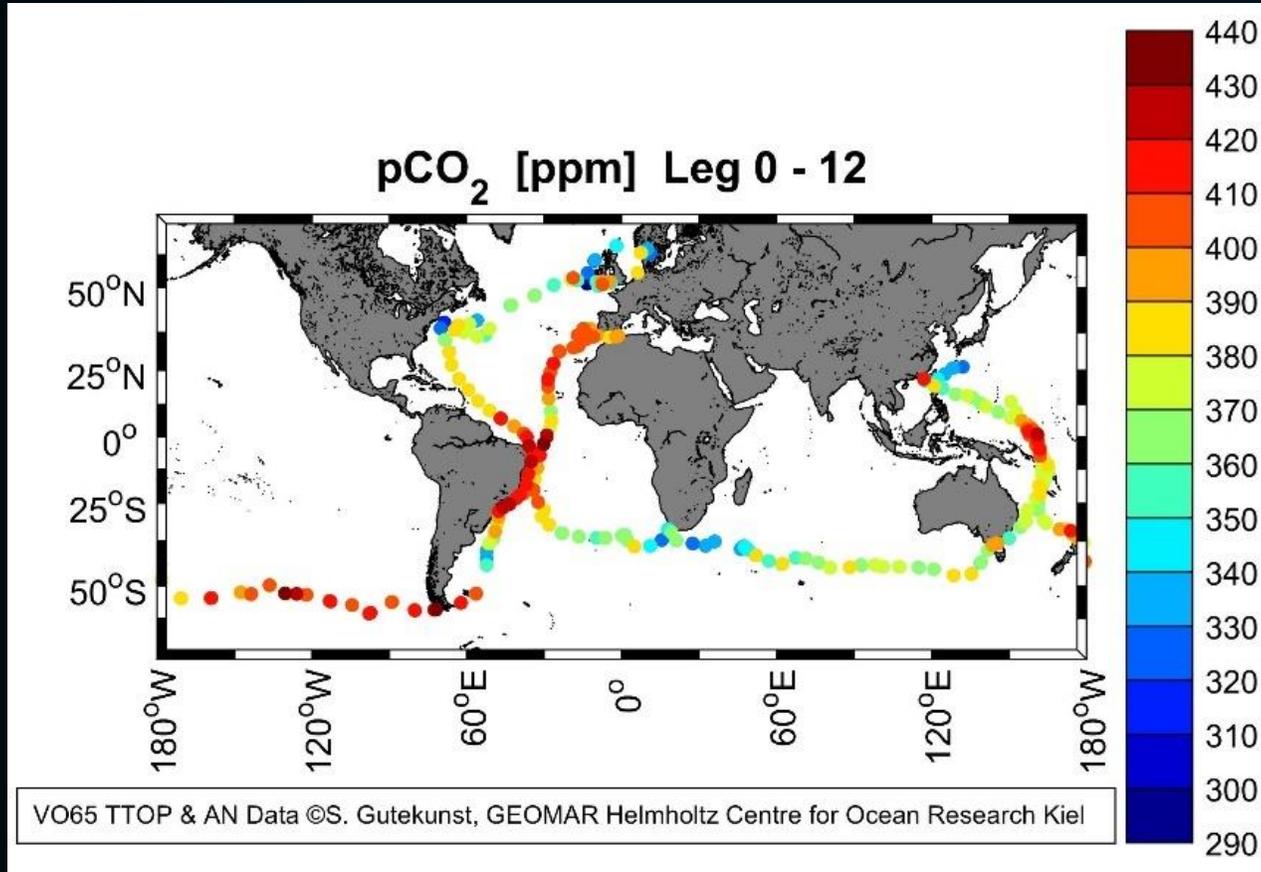
Team AkzoNobel



© Volvo Ocean Race



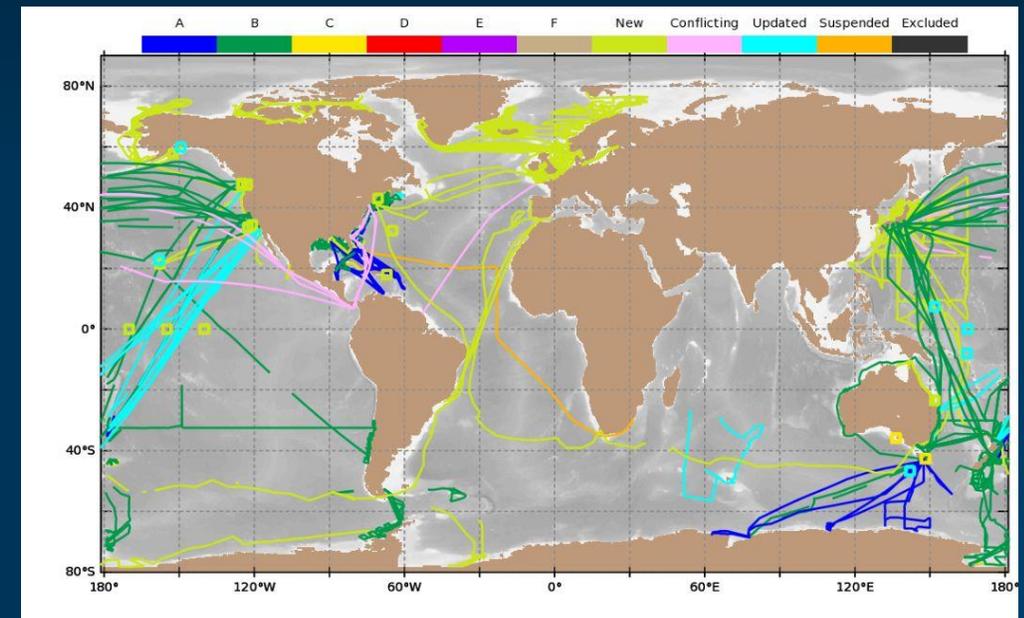
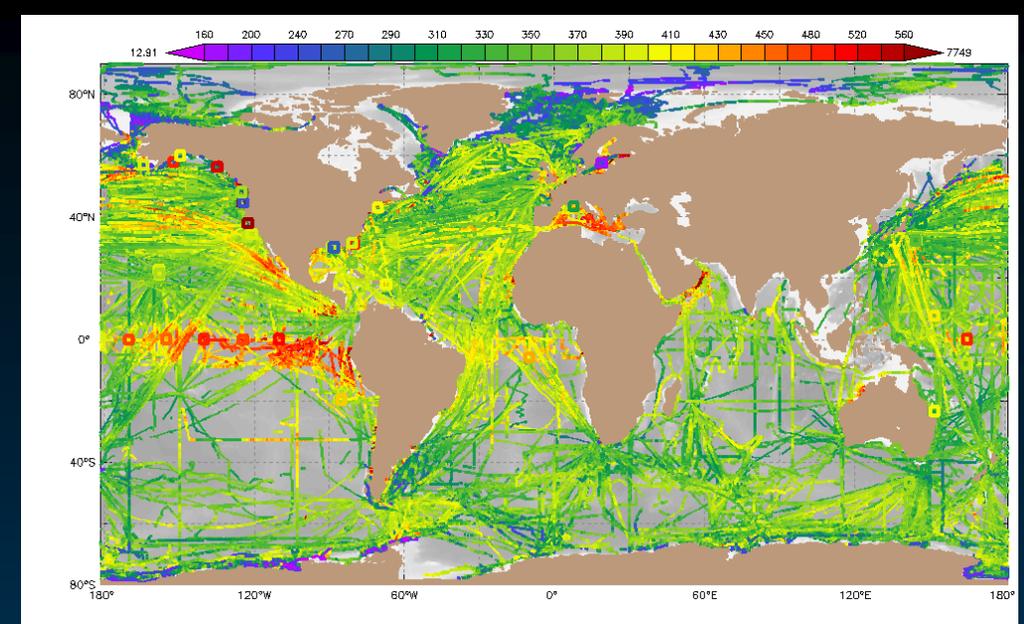
The pCO₂ data set – a world tour



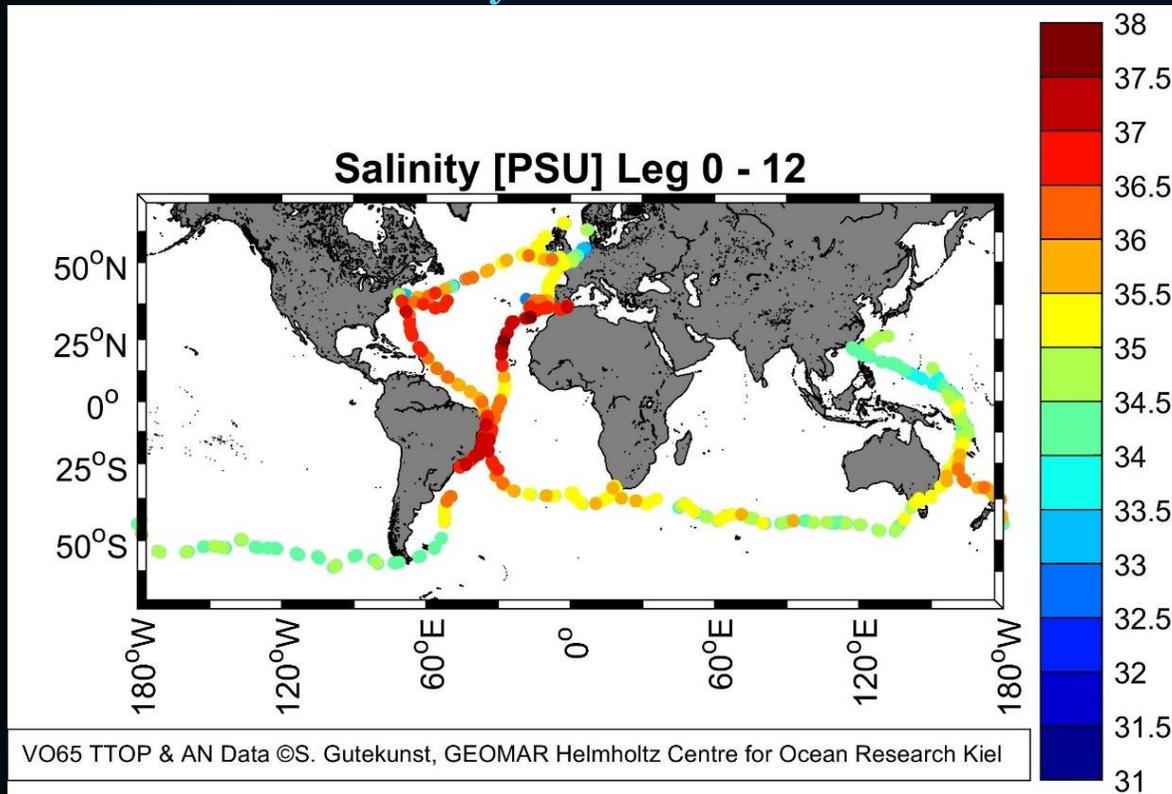
Compared to the SOCAT database
- all data to date

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Quelle

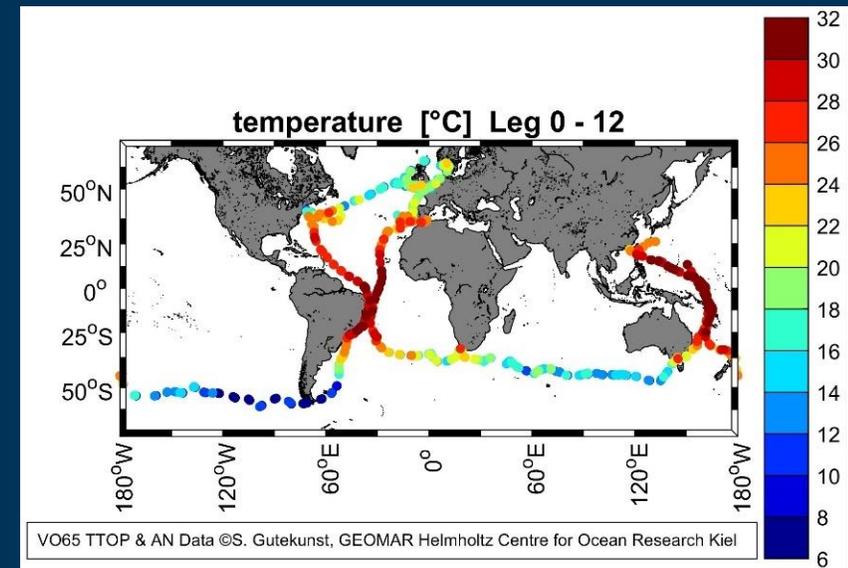
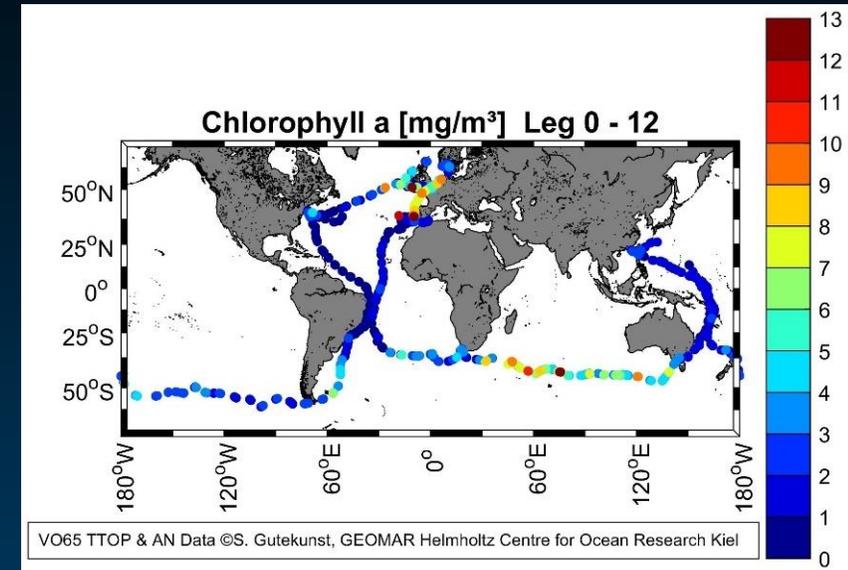


Sea surface salinity data



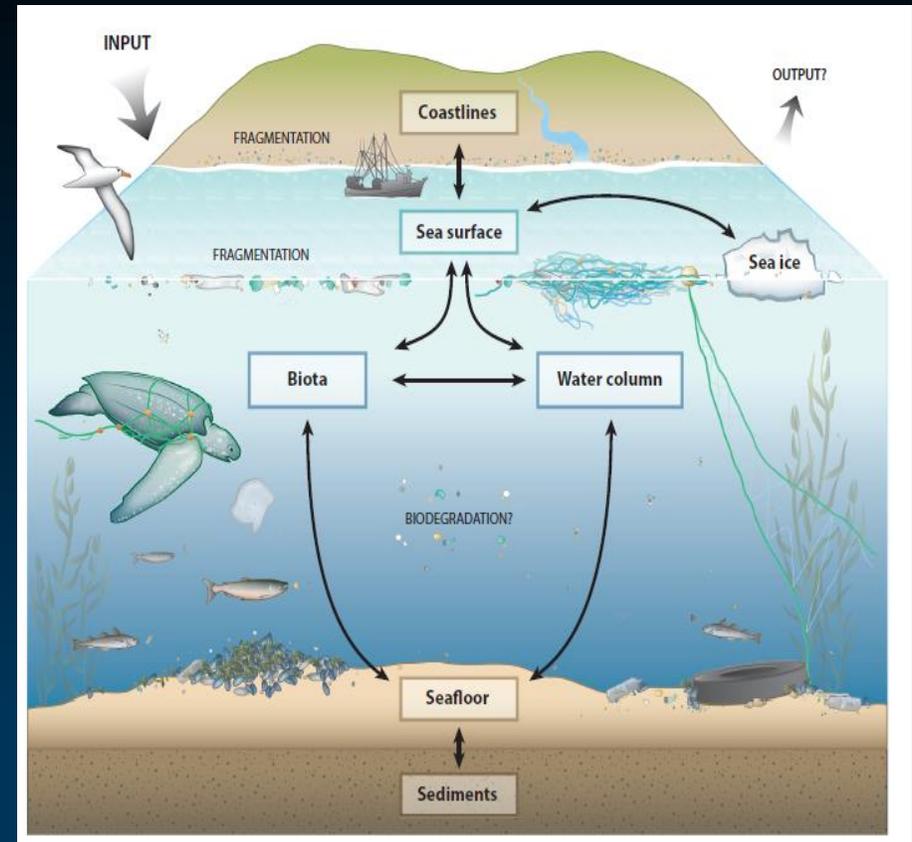
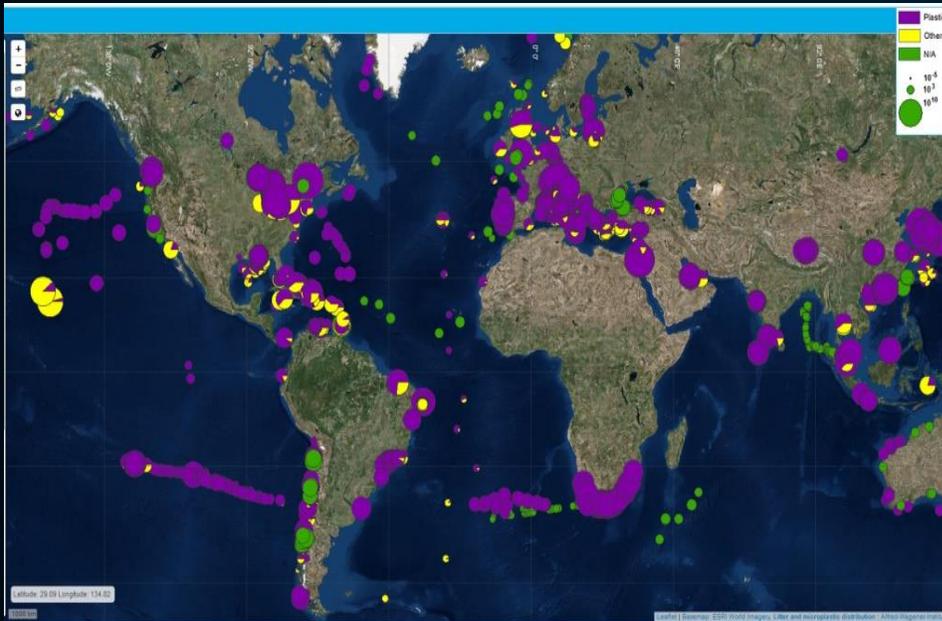
Sea Surface Salinity

- Data essential for calculation of CO₂
- Data used for calibration / validation of satellite data



Why observe the ocean?
Some reasons

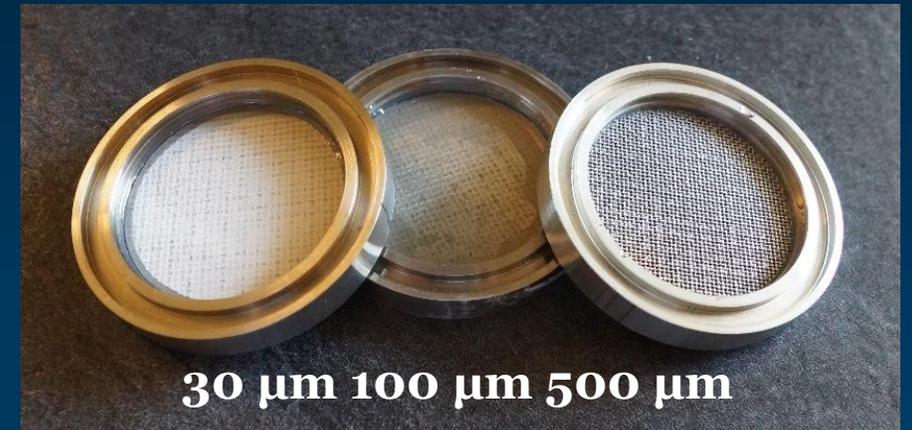
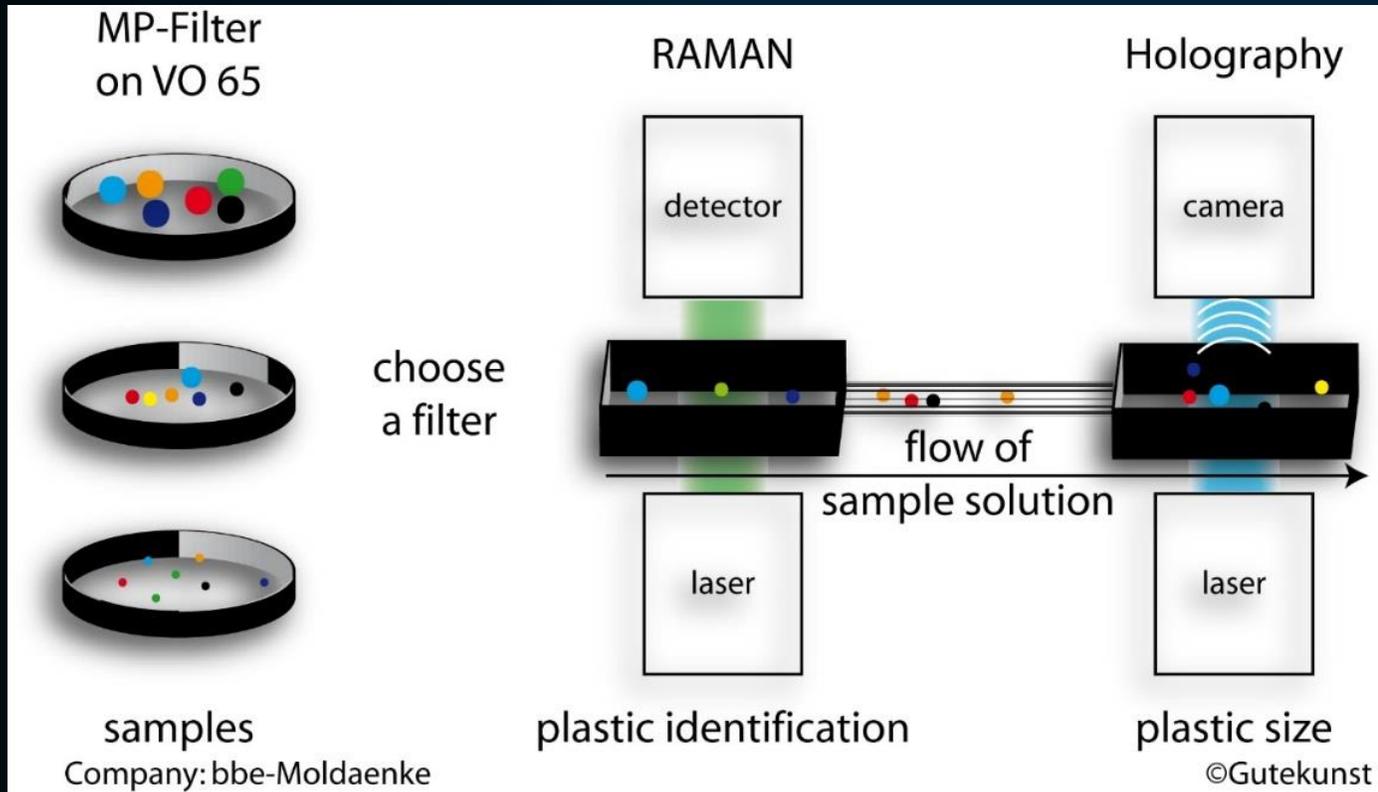
Plastic Pollution



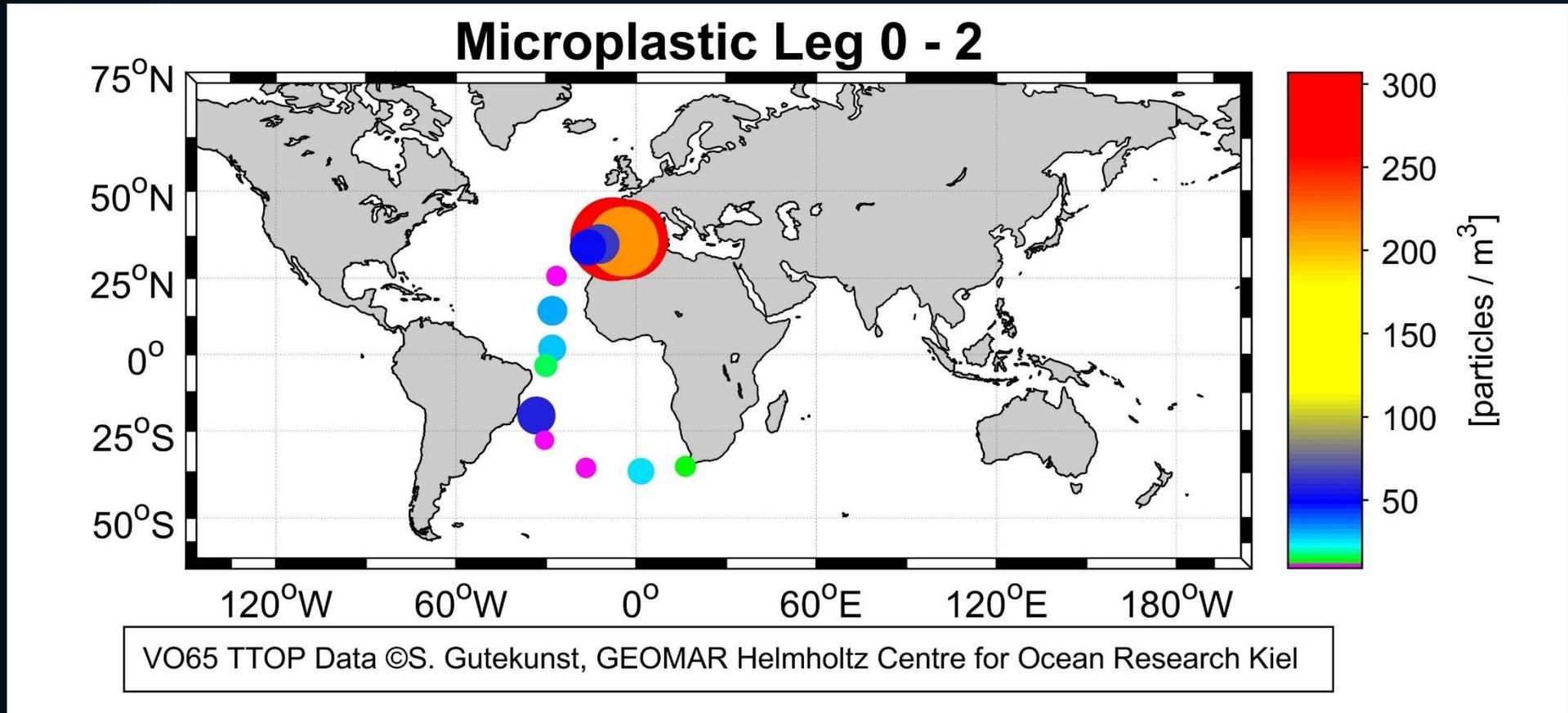
- Few and scattered data on the distribution of marine plastic.
- Data accounts for only **1%** plastics that are estimated to enter the ocean every year.

The new MP-Analyser is a combination of three techniques:

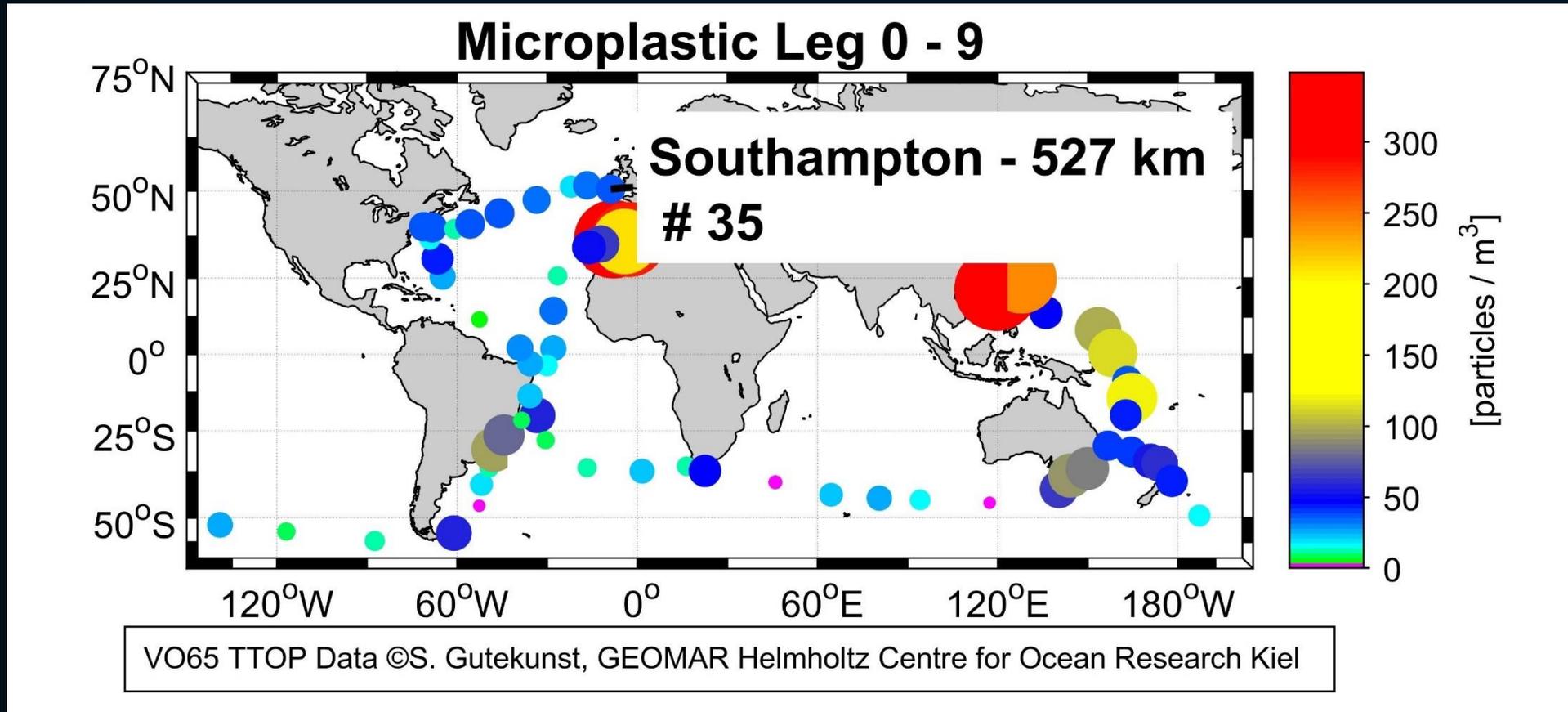
- **Microfluidics**
- **RAMAN-Spectroscopy (particle identification as polymers)**
- **Holography (size identification)**



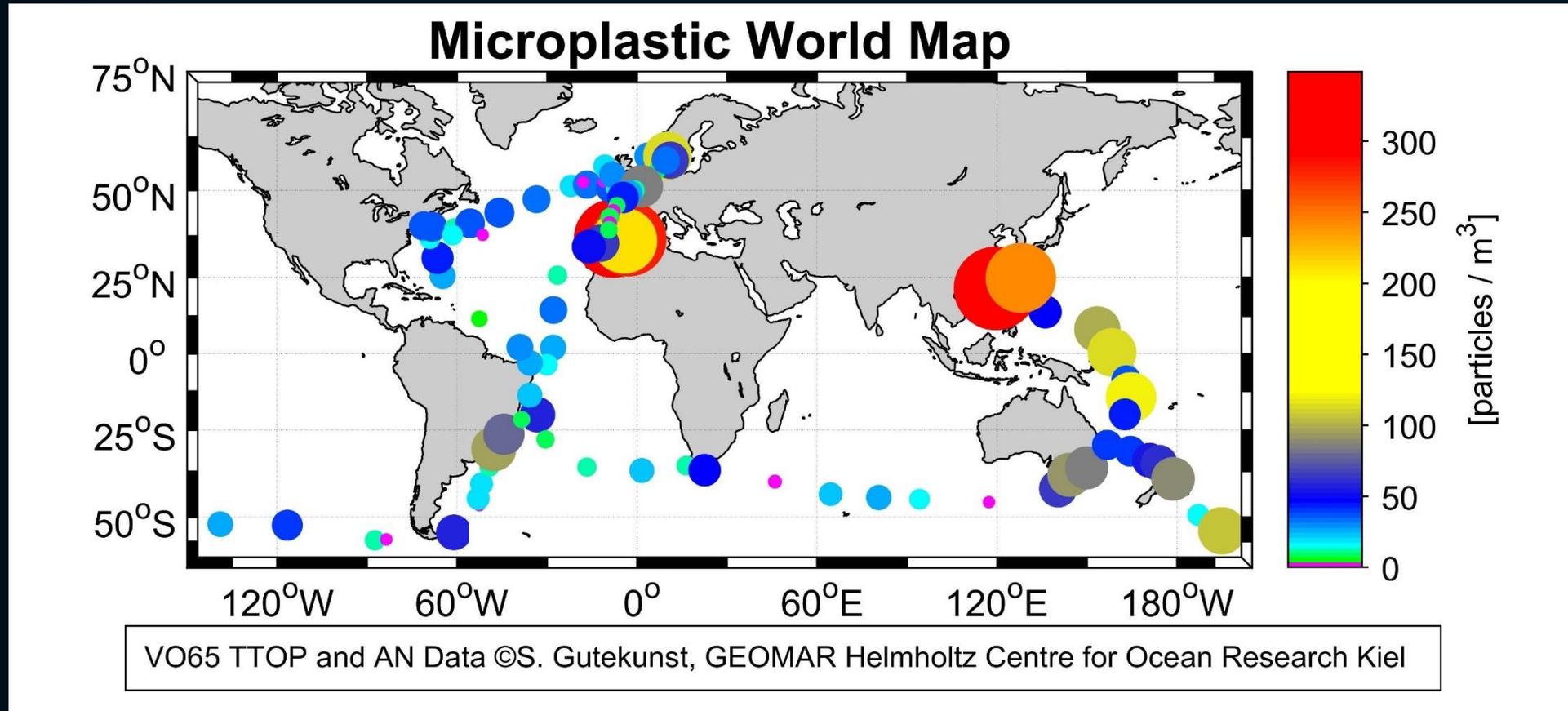
The Microplastic journey



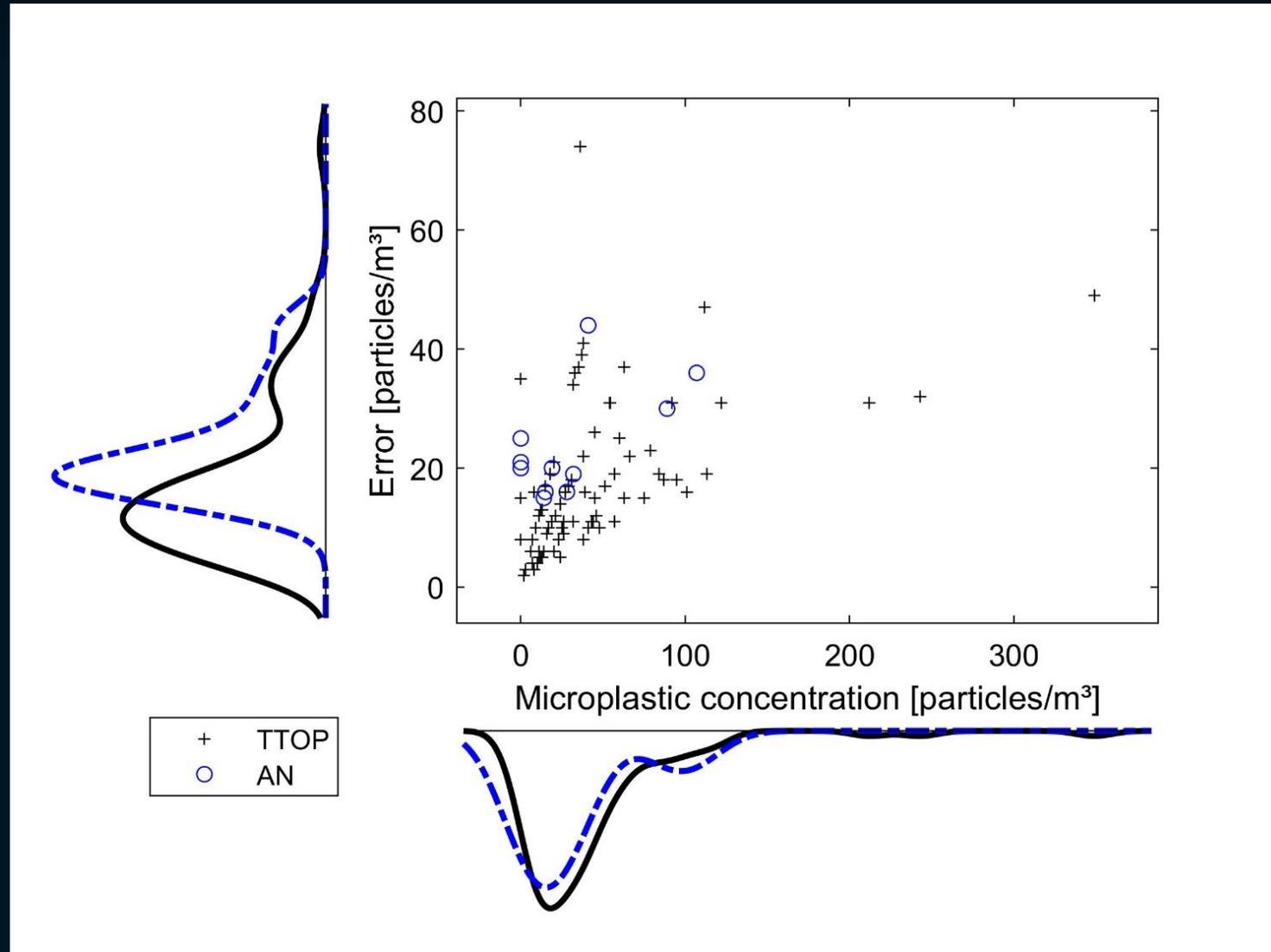
The Microplastic journey



The Microplastic journey



Error calculations



Data is available open-source!

NOAA NCEI S2N
www.nodc.noaa.gov/archivesearch/

NCEI Accession 0170967

- **Oceanographic data**
- **Meteorological data**

SOCAT V7 coming soon

- **Scientific Programme Final Report**
VolvoOceanRace.com > sustainability
- **Microplastic data at EMODnet**
 - **[Search for Ocean Race and GEOMAR](#)**

*Just click on the links
to find the data*

Outreach Ocean Summits



Ocean Summits in 7 ports – commitments to sustainable use of the ocean and reduce the use of plastic

Great platform for interests from media, public, stakeholders and policy makers.

Many partners, some main sponsors



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What's coming next? Some suggestions

- 1. Collaboration with space sector/agencies** for measurements and to contribute to their development as a validation tool as a platform (e.g. from measurements to estimates)
- 2. Get input and interests in future cooperation!**
autonomous vehicle release, sensor field or drone tests or..?
- 3. Extend the range of marine litter/ocean health observations from *in-situ* microplastic to macroplastic and interconnect these results**
- 4. Outreach and dissemination of science**

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