

Observing essential ocean variables: Ocean Carbon & Biogeochemistry

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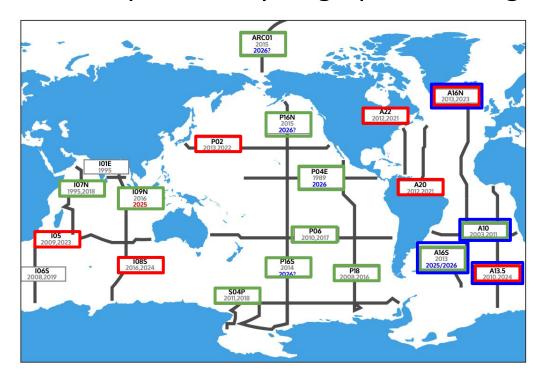
- ⁰¹ GO-SHIP
- Coastal Ocean Acidification Cruises
- O3 BGC-Argo
- Reference Material Facility





Global monitoring: GO-SHIP

Global Ocean Ship-based Hydrographic Investigations Program



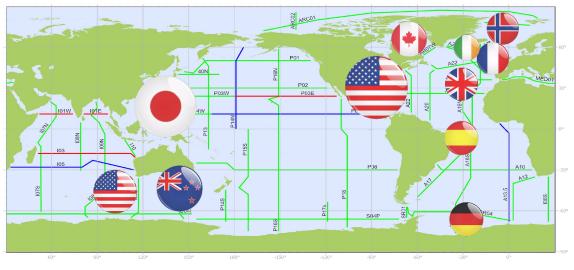
Occupied 2020-2024
Planned 2025-2029

AOML-led



Global monitoring: GO-SHIP

International collaborations



GO-SHIP

Status of 2012-2023 Survey (55 Core Lines)

May 2023



completed: 47 (86% of all core lines)
planned or funded: 4 (7% of all core lines)
not planned yet: 4 (7% of all core lines)

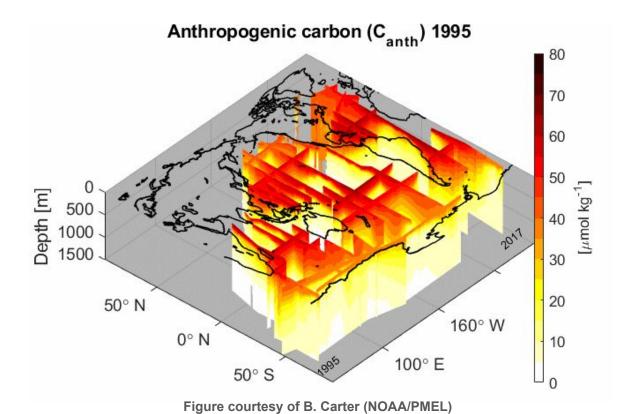
Lines completed or planned: 94% (51 core lines) Countries providing ship-time: 10 Elapsed survey time: 95% (floating 11 years)



Generated by ocean-ops.org, 2023-05-03 Projection: Plate Carree









From global to regional: Coastal Ocean Acidification cruises

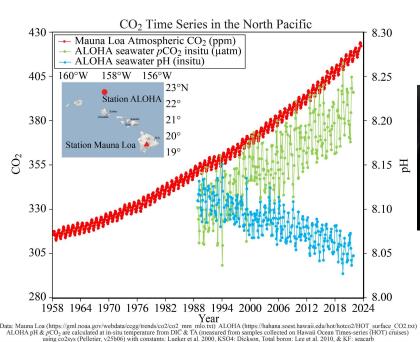


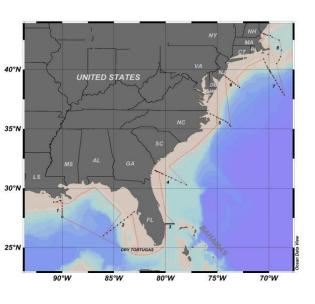
Image courtesy M. Martín-Mayor



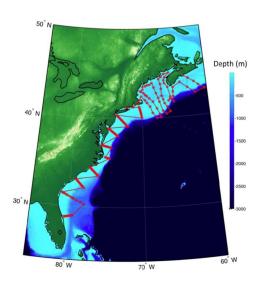


Coastal Ocean Acidification monitoring



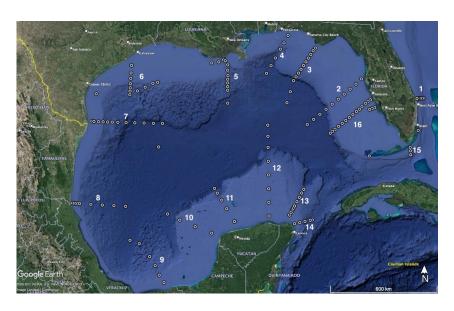








Coastal Ocean Acidification monitoring













Academic







NC STATE UNIVERSITY













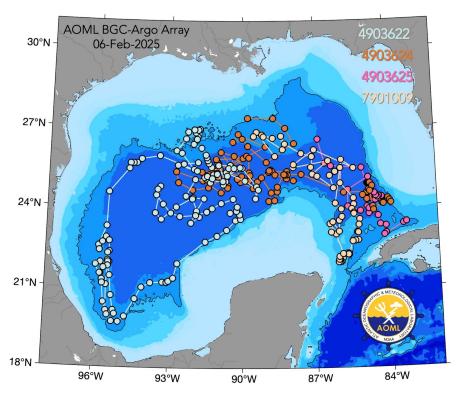




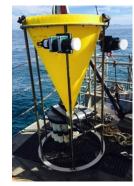


Biogeochemical-Argo in the Gulf region

AOML deploys the first Argos in the region that simultaneously observe physics, chemistry, and biology





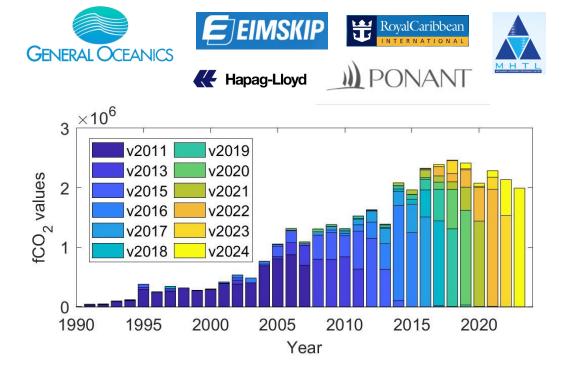






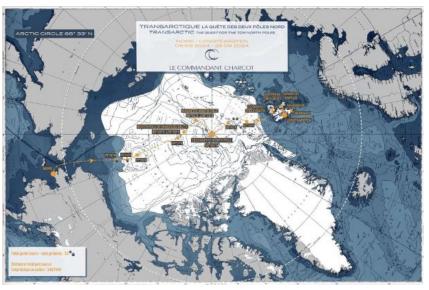


SOOP-CO2 Ships Of Opportunity Program







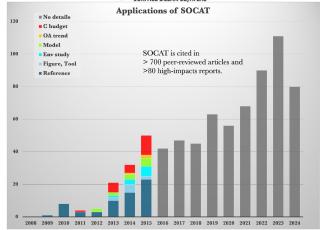






Impacts of our work





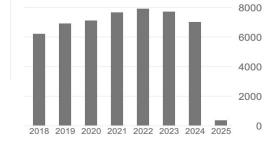
| TITLE | CITED BY | YEAR |
|---------------------------|----------|------|
| Global carbon budget 2023 | 11436 | 2023 |

P Friedlingstein, M O'sullivan, MW Jones, RM Andrew, DCE Bakker, ... Earth System Science Data 15 (12), 5301-5369





| All | | |
|-------|--------------|--|
| 91340 | 37830 | |
| 131 | 90 | |
| 557 | 433 | |
| | 91340 131 | |













Reference Making Facility Addressing community needs



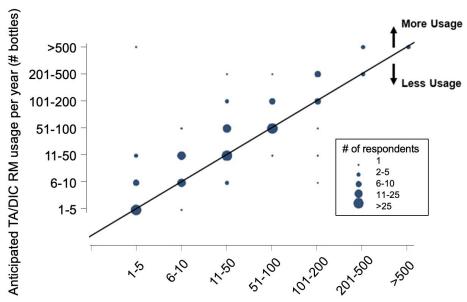




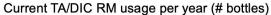




Reference Making Facility Addressing community needs



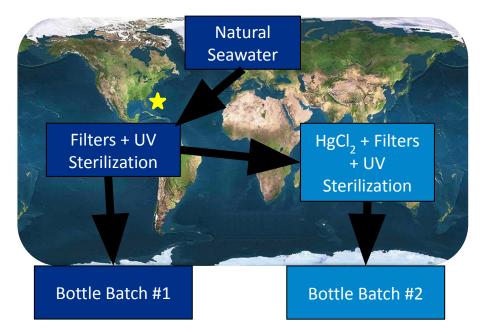






Reference Making Facility

Addressing community needs







Thank you

