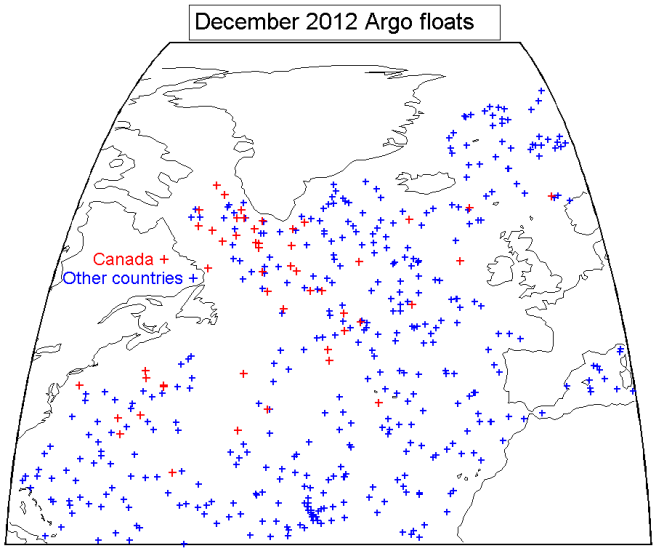
Canada

Examples of Transatlantic Ocean Cooperation; Canada

Doug Wallace
Canada Excellence Research Chair in Ocean Science and Technology
Dalhousie University

Government of Canada Gouvernement du Canada

Cooperation on Operational Systems

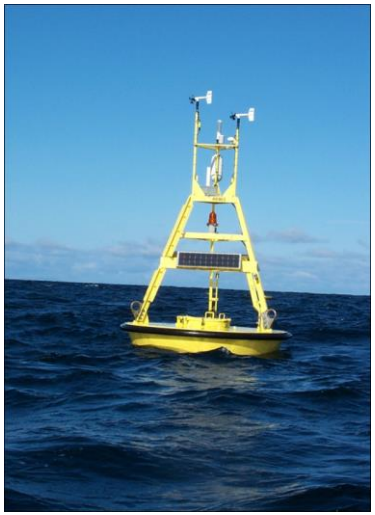


Argo

Fisheries and Oceans Canada | Pêches et Océans Canada

SmartBay
PLACENTIA BAY, NEWFOUNDLAND

→ expanding to “SmartAtlantic”



Links to:

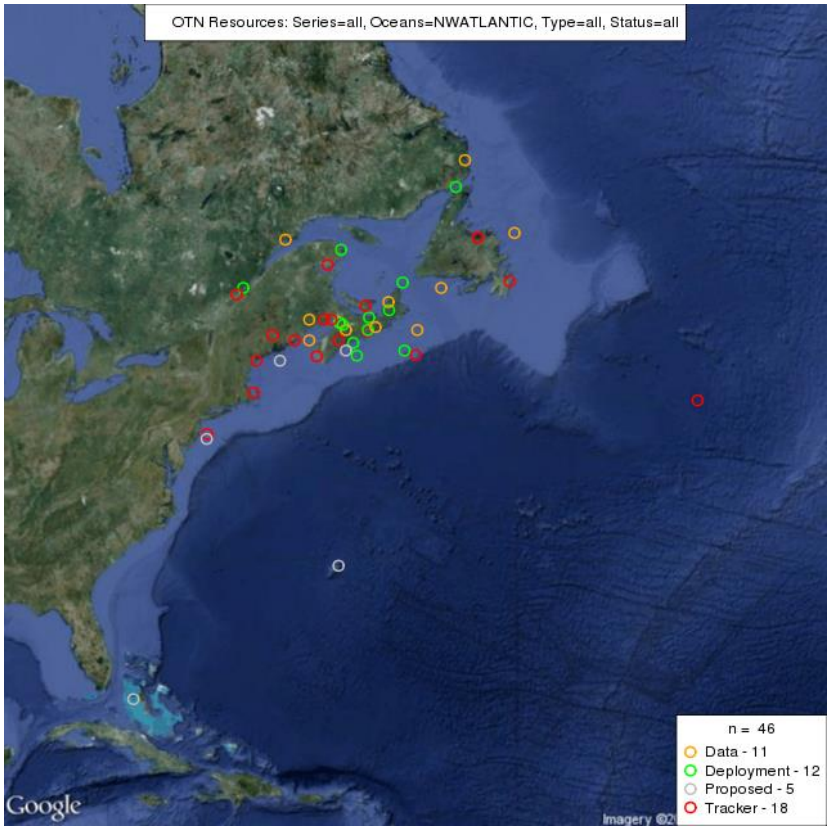
IOOS®
INTEGRATED OCEAN OBSERVING SYSTEM

SMARTBAY
IRELAND

and beyond….

Observing Infrastructure: Ocean Tracking Network (OTN)

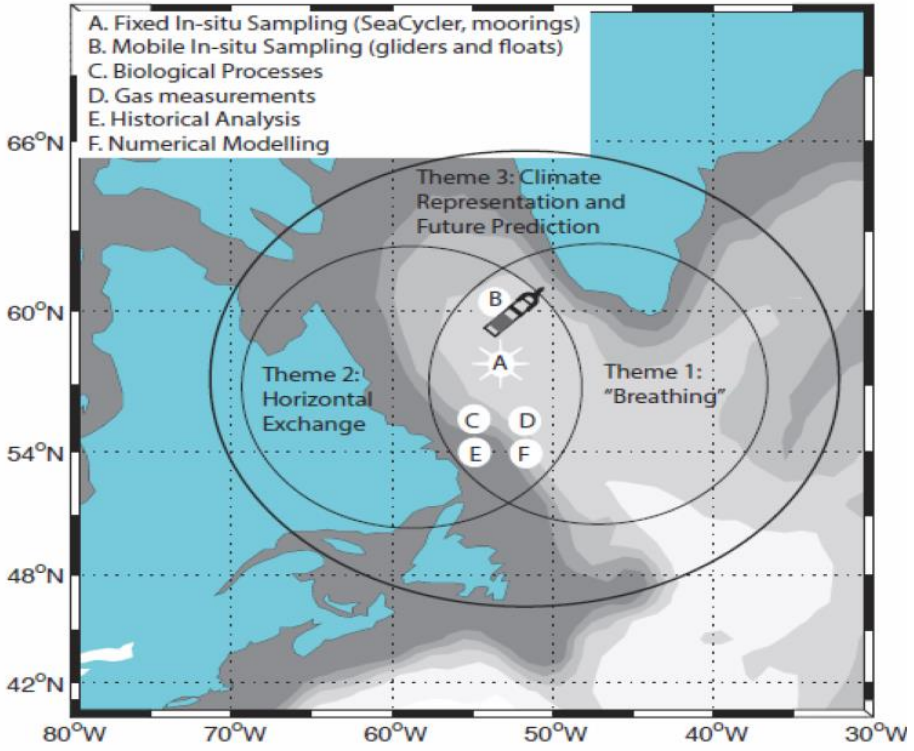
- International partnership for animal tracking/survival, and environmental correlates
- Built on Canadian acoustic tracking technology
- Incudes oceanographic components.
- Ocean tracking provides a link between oceanography, higher trophic levels and predictive modelling….
- OTN North Atlantic partners include: Canada, USA, Norway, France, UK, DK, Spain, Portugal

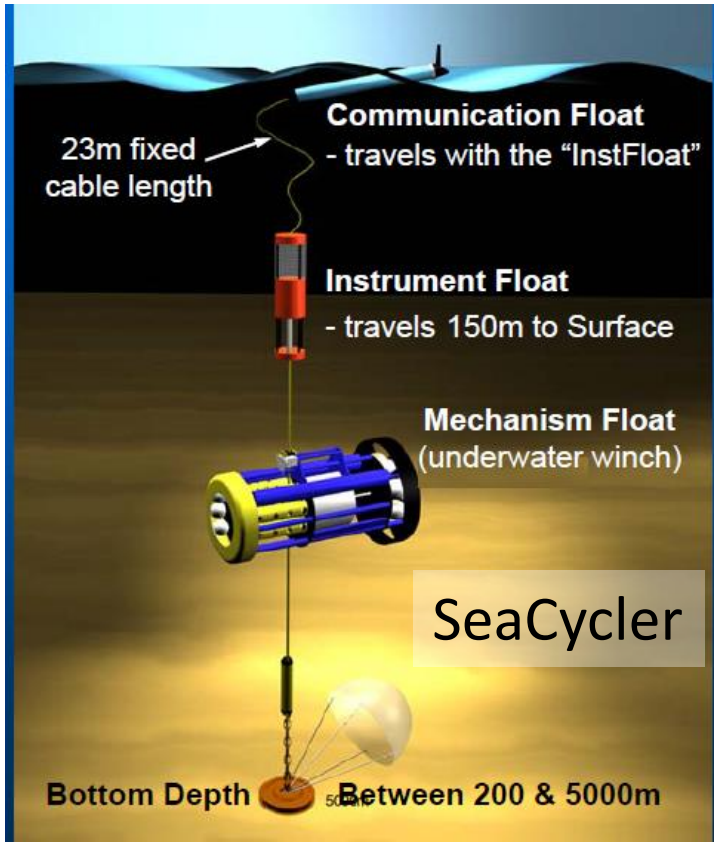


Joint Process Studies: 1. Labrador Sea

→ to study the **“breathing”** of the deep ocean and its sensitivity to climate change

VITALS: Ventilation, Interactions and Transport Across the Labrador Sea 2013-2018

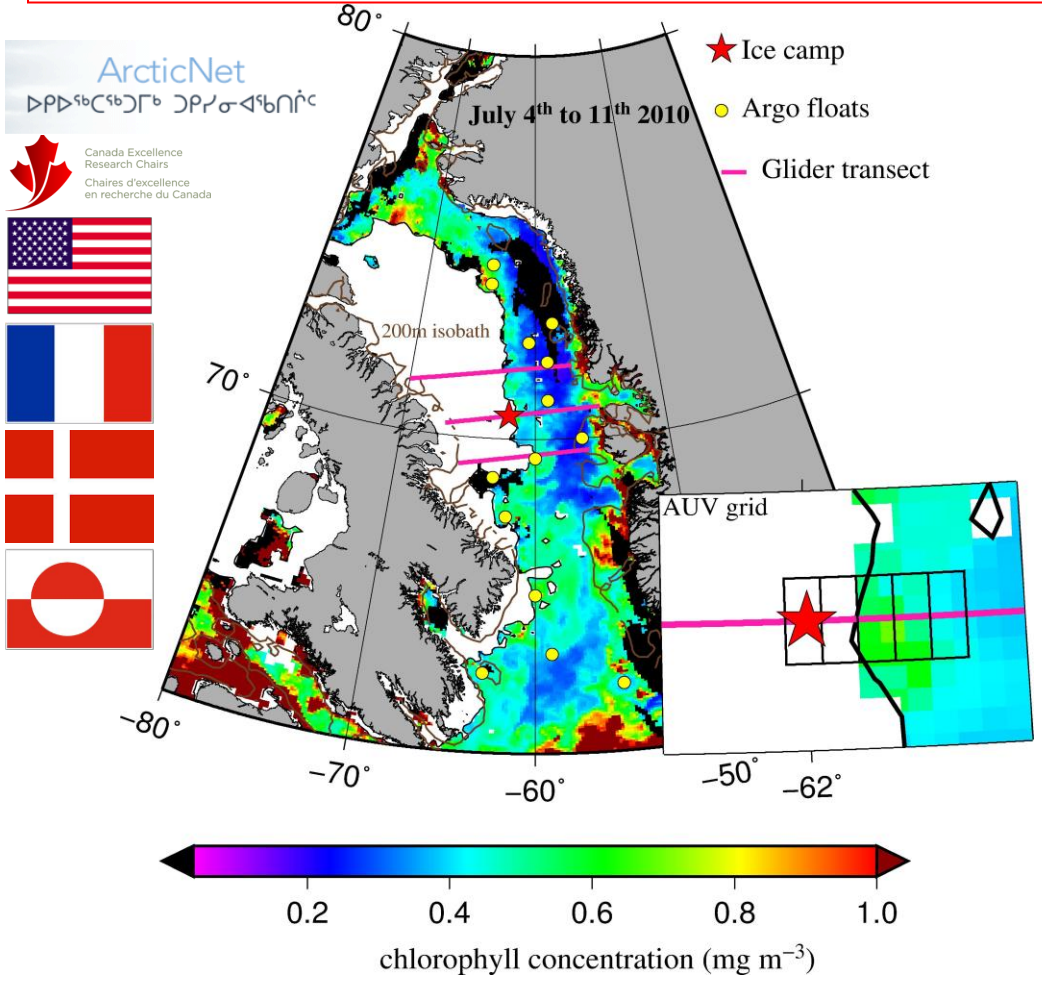




NSERC CRSNG

Joint Process Studies: 2. Baffin Bay

The Green Edge Project 2014-2018



To investigate the past,present and future response of Arctic phytoplankton blooms to climate variations

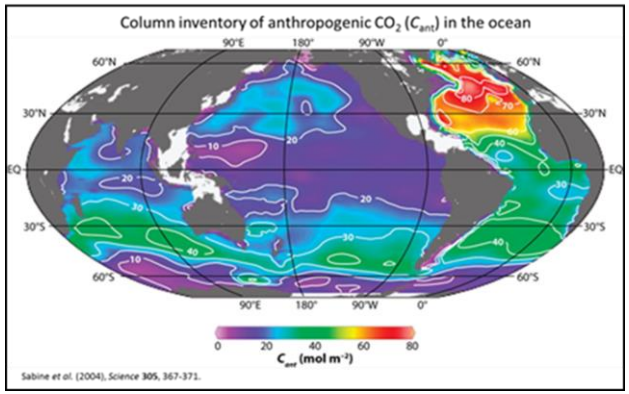
>80 scientists

>15 institutes

- Canada
- Unites States
- Europe

Air-Sea Carbon Uptake and Acidification in the North Atlantic Ocean

An intense sink for fossil-fuel CO_2

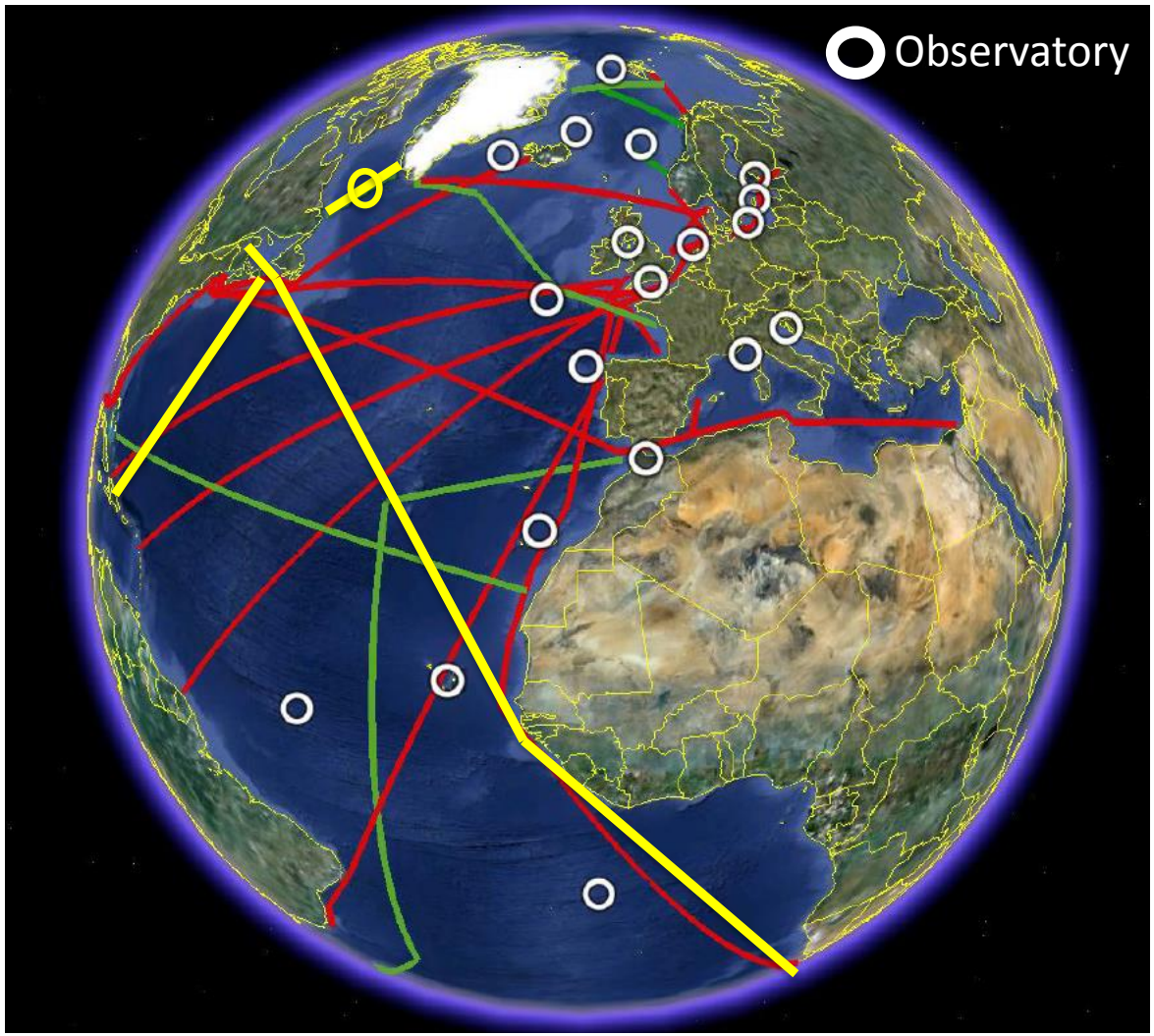


European VOS
Research Vessels
Canadian VOS

Canada Excellence Research Chairs
Chaires d'excellence en recherche du Canada

NSERC CRSNG

icos integrated carbon observation system

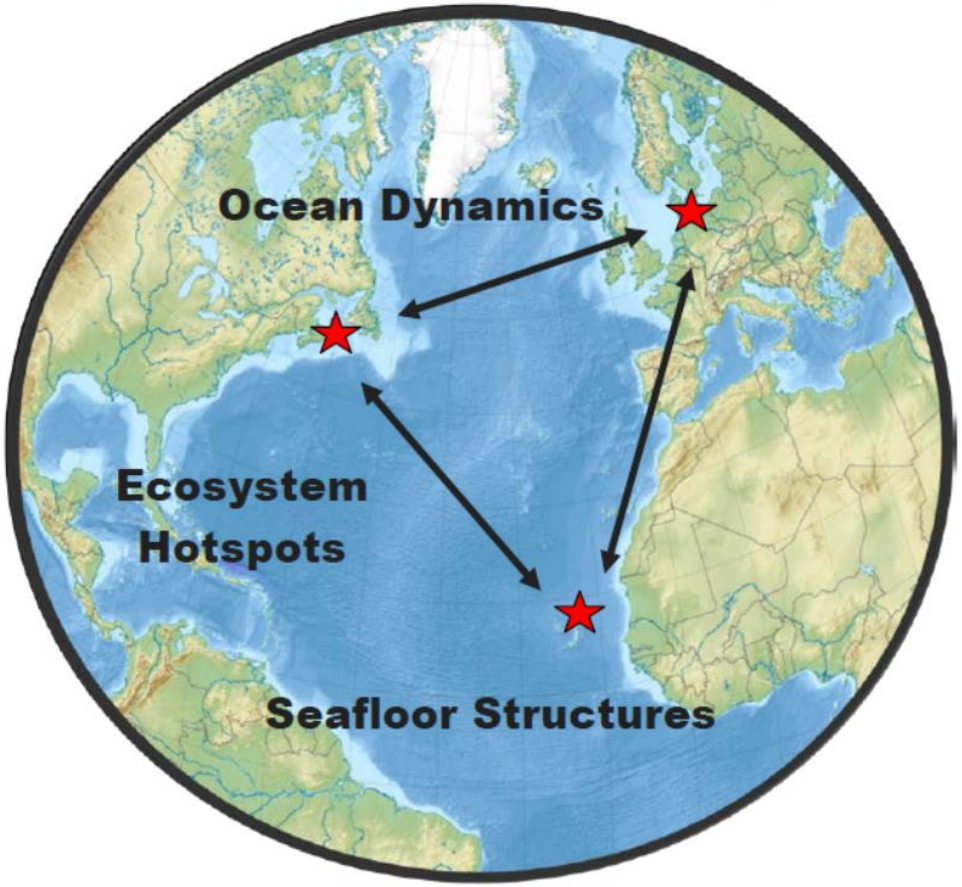


VOS = Volunteer Observing Ship

Transatlantic Training Opportunities (presently bilateral)

TRANSATLANTIC OCEAN SYSTEM SCIENCE & TECHNOLOGY
A Unique Transatlantic Graduate School Linking the Canadian Maritimes (Halifax) with Northern Germany (Kiel)

German Funding
Helmholtz Association
22 PhDs (6 yrs)
Canadian funding
NSERC CREATE:
c. 20 PhDs (5 yrs)



Joint research projects: co-supervision (+ research stays)

Regular joint seminars + lectures

Summer Schools (Halifax, Kiel, Cape Verde)

GEOMAR Helmholtz Centre for Ocea

C | A | U Christian-Albrechts-Universität zu Kiel

Halifax MARINE RESEARCH Institute

UNB

DALHOUSIE UNIVERSITY Inspiring Minds

MEOPAR: A New Network of Centres OF Excellence (NCE)

- a new Network of Centres of Excellence on **Marine Environmental Observation Prediction and Response (MEOPAR)**
- **$25M (5 years), renewable twice**
- To form multi-sectoral partnerships between researchers and users to better understand and predict the impact of marine hazards on human activities and ecosystems.

Strategic Outcome – MEOPAR will deliver knowledge, technology, and people to enable Canada's communities and industry to enhance resilience and economic opportunity through an informed relationship with the changing marine environment

Challenges and Needs:

Most funds for international cooperation remain ***small-scale*** and focussed on short-term exchanges of ***individuals***.

Complicated and risky to establish international research or training programs.

New mechanisms required to fund research at scales that match the magnitude of the problems being addressed.

Waters surrounding **developing countries** are impacted by, and impact the ocean we share. Programs should include these countries as partners where relevant.

In Canada, NCEs, Networks, CERCS and new structures such as HMRI have been successful in **initiating** transatlantic research and training partnerships.

But: Need remains for international, long-range planning and support of ***major infrastructures, long-term observations*** and ***a long-term concerted approach to capacity building***.

Canadian Science Partners include:

Federal Ministries:

Fisheries and Oceans Canada | Pêches et Océans Canada

Natural Resources Canada | Ressources naturelles Canada

Environment Canada | Environnement Canada

Networks of Centres of Excellence:

NCE RCE
Networks of Centres of Excellence of Canada | Réseaux de centres d'excellence du Canada

ArticNet

MEOPAR

OCEAN NETWORKS CANADA
Exploration · Innovation · Action for a Changing Planet

NSERC Networks and Strategic Networks:

NSERC CRSNG

CHONe
CANADIAN HEALTHY OCEANS NETWORK

CAISN
CANADIAN AQUATIC INVASIVE SPECIES NETWORK

OCEAN TRACKING NETWORK

Canada Excellence Research Chairs:

Canada Excellence Research Chairs
Chaires d'excellence en recherche du Canada

DALHOUSIE UNIVERSITY
Inspiring Minds

UNIVERSITY OF MANITOBA

UNIVERSITÉ LAVAL