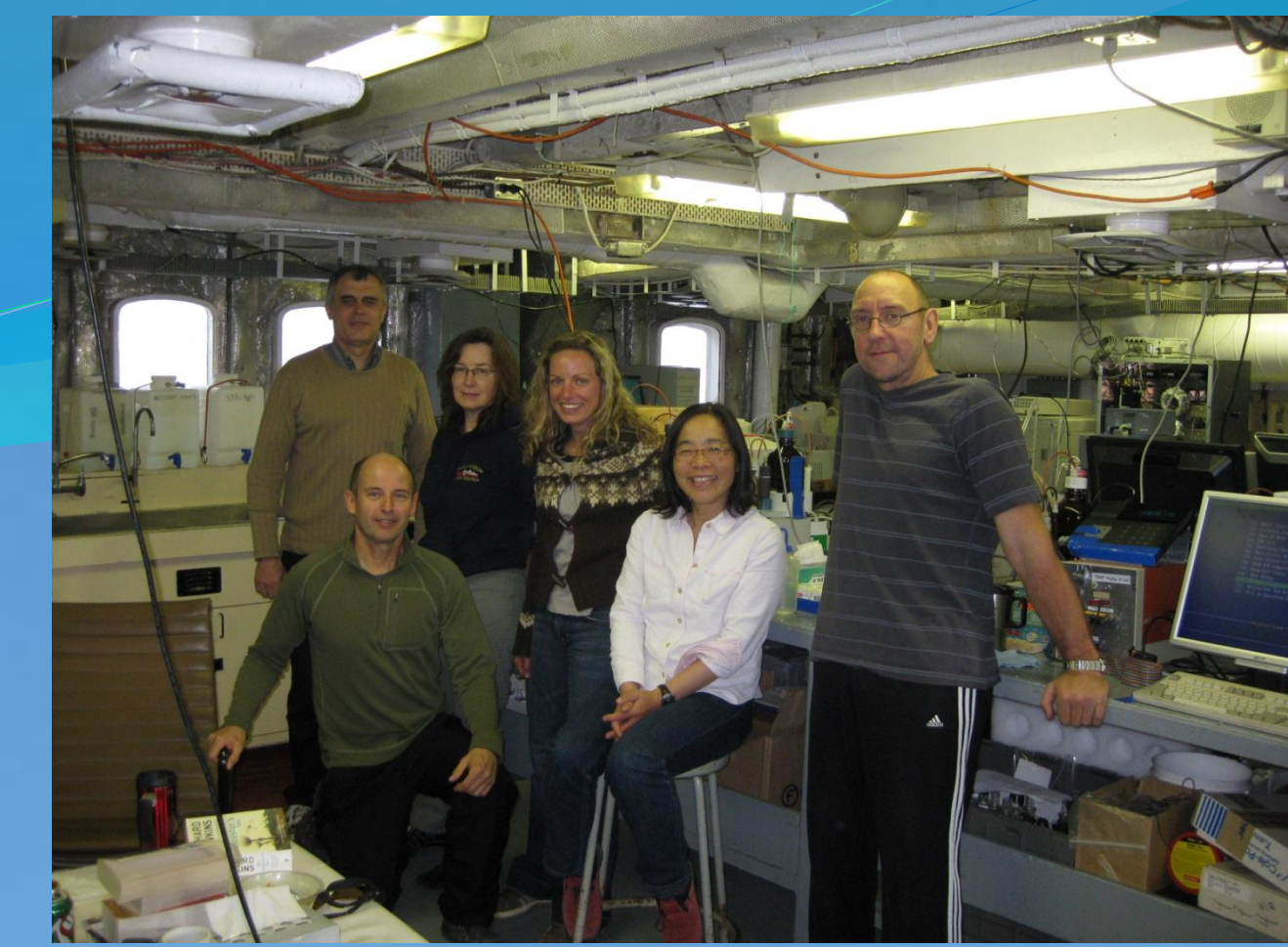




Time-Series monitoring of ocean chemistry in the North Atlantic Bedford Institute of Oceanography, Fisheries and Oceans Canada

Kumiko Azetsu-Scott, Stephen Punshon



Barrow Strait

Annual Sampling 2002-2010
DIC, TA, $^{18}\text{O}\text{-H}_2\text{O}$, nutrients
IceCycler
Moorings

Davis Strait

(In collaboration with Craig Lee, University of Washington)

Annual sampling: 2004-2011
Biennially 2013, 2015

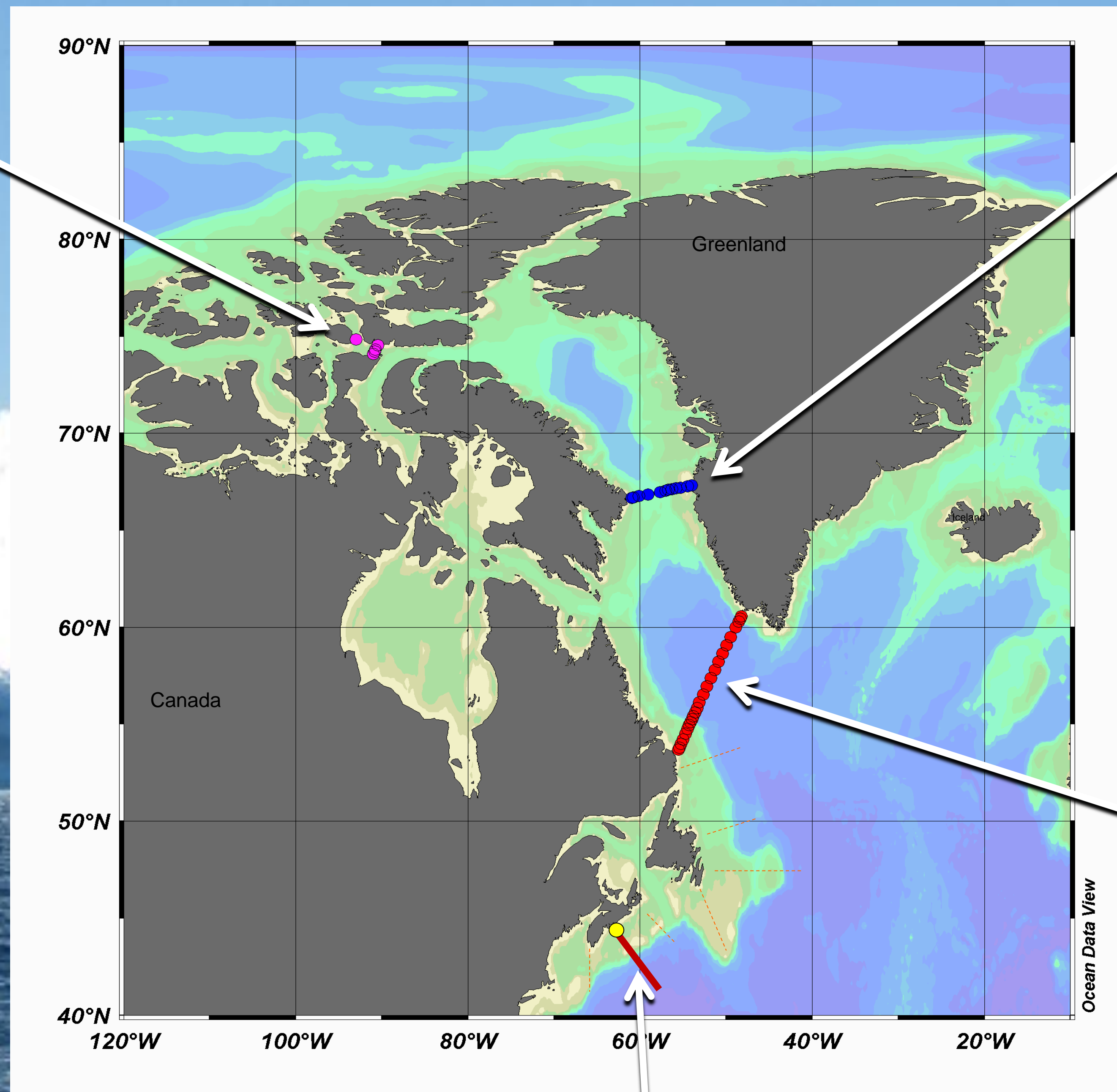
DIC, TA, $^{18}\text{O}\text{-H}_2\text{O}$, nutrients
Moorings: current meters
Gliders
Dissolved methane in 2011

Labrador Sea

AR7W line

Annual sampling since 1991

DIC, TA from 1993
Dissolved oxygen
Transient tracers
(CFC-11, CFC-12, CFC-113)
Nutrients
pH and ^{18}O from 2009
 SF_6 from 2011



Extended Halifax Line (Atlantic Zone Monitoring Program)

Annual Sampling since 2006

DIC, TA,
Dissolved oxygen
Transient tracers
(CFC-11, CFC-12, CFC-113)
Nutrients
pH from 2009
 SF_6 from 2011

Methods for shipboard analysis of discrete water samples

DIC: Sample preparation and stripping with SOMMA, coulometric determination of CO_2

TA: Automated sample handling system with open-cell titration using Titrando/Tiamo dosimat and software

pH: Spectrophotometric determination using m-cresol purple dye and photodiode array scanning spectrophotometer

$\text{SF}_6/\text{CFC-12}$: Sample collection in 250 mL glass syringes. Analysis by Purge and Trap Gas Chromatography-Electron Capture Detector

Dissolved Oxygen: Winkler titration with automated colorimetric endpoint determination

Nutrients: Nitrate, phosphate and silicate measurements with Technicon Autoanalyser

Time-Series profiles along the AR7W Line, Labrador Sea, showing the increase in total CO_2 between 1993 and 2011

