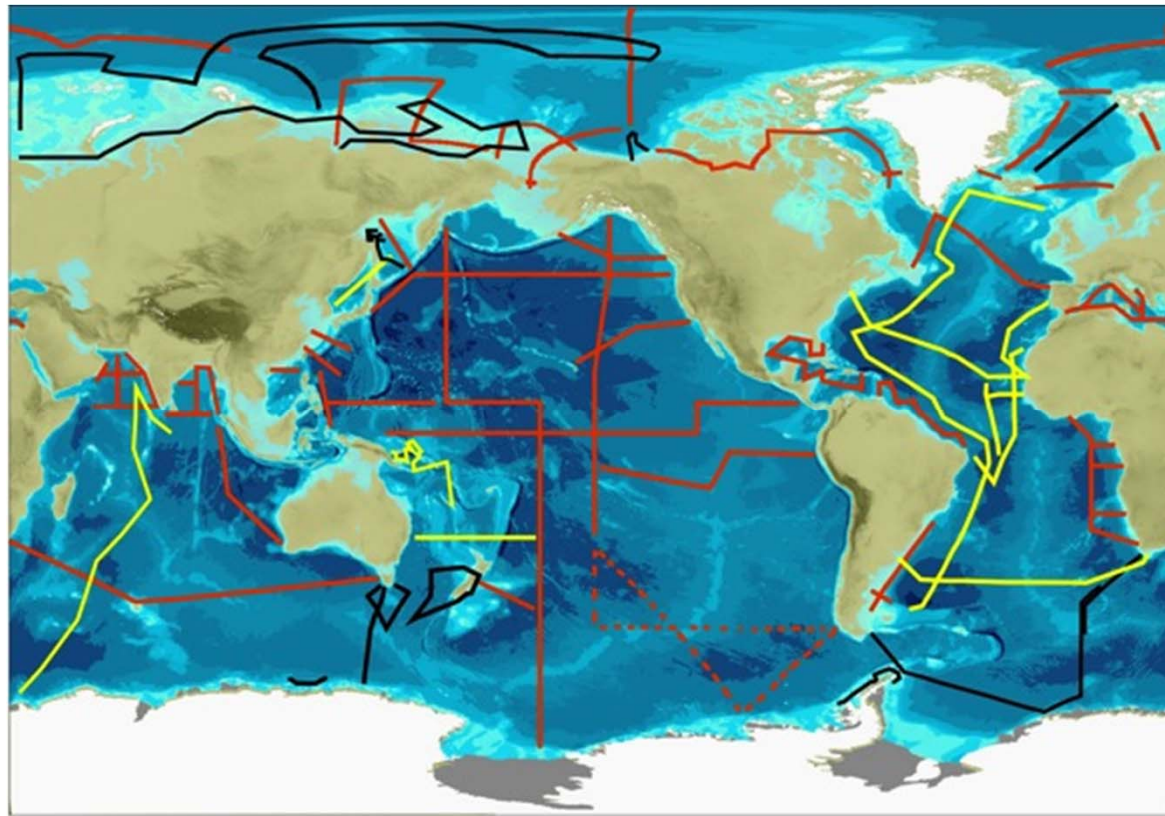


GEOTRACES

GEOTRACES is an international program for first-ever long ocean sections of biological important trace elements (iron, zinc, and many others) and their isotopes



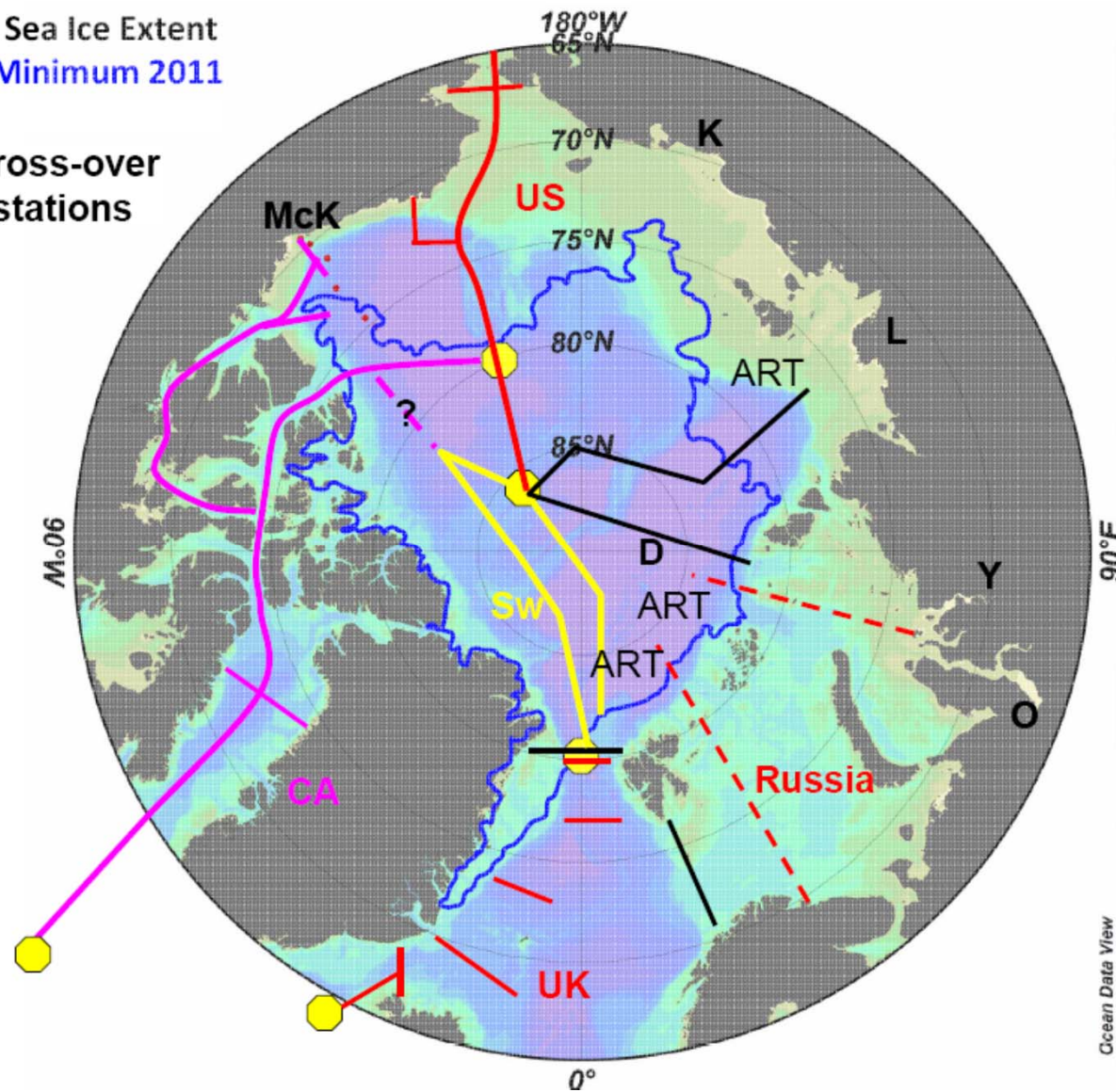
black lines: completed sections International Polar Year 2007-2008
yellow lines: completed sections 2010-2012 mostly Atlantic Ocean
red lines: future sections 2013 onwards

Status
18 March
2013

Result of Coordination meeting May 2012, Vancouver

AMSR-E Sea Ice Extent
-- Sept Minimum 2011

● Cross-over stations



A multi-ship operation in 2015

James Clark Ross (UK)



Polarstern (Germany)



CCG Amundsen
(Canada)



CCG Louis Saint Laurent
(Canada)



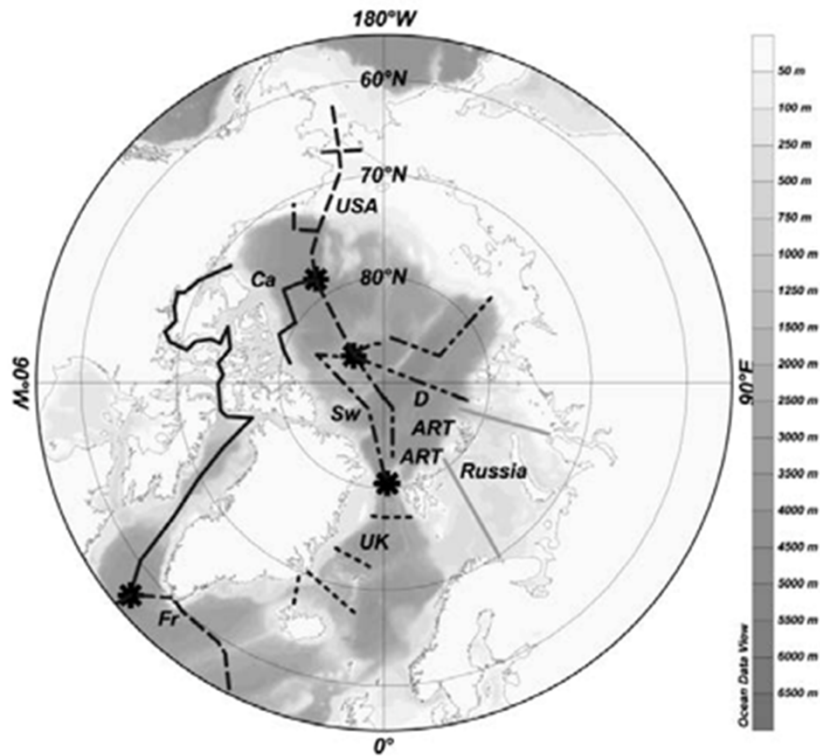
CGC Healy (US)



Oden (Sweden)

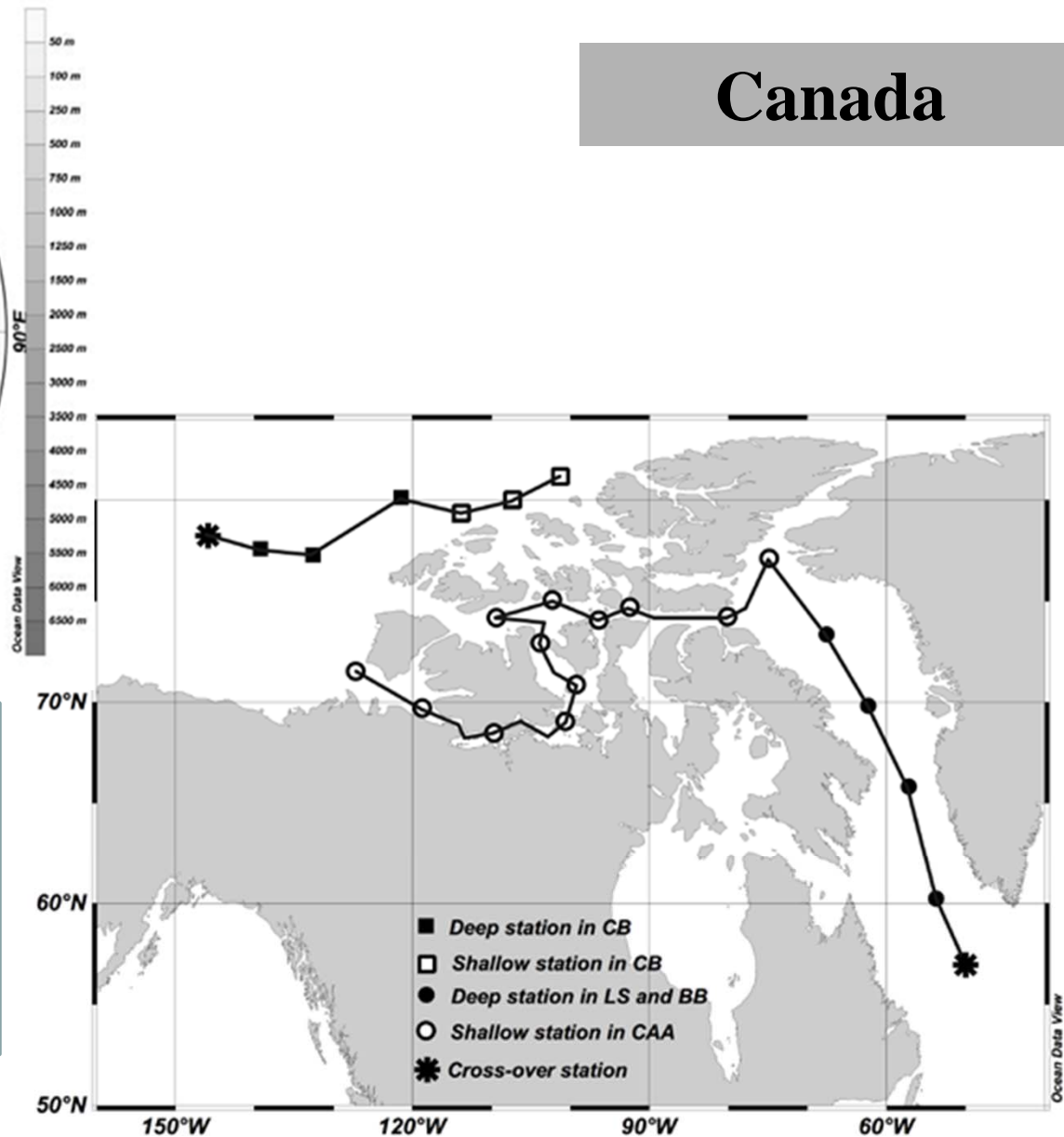


Proposed Canadian GEOTRACES cruises 2014-2016



Canada

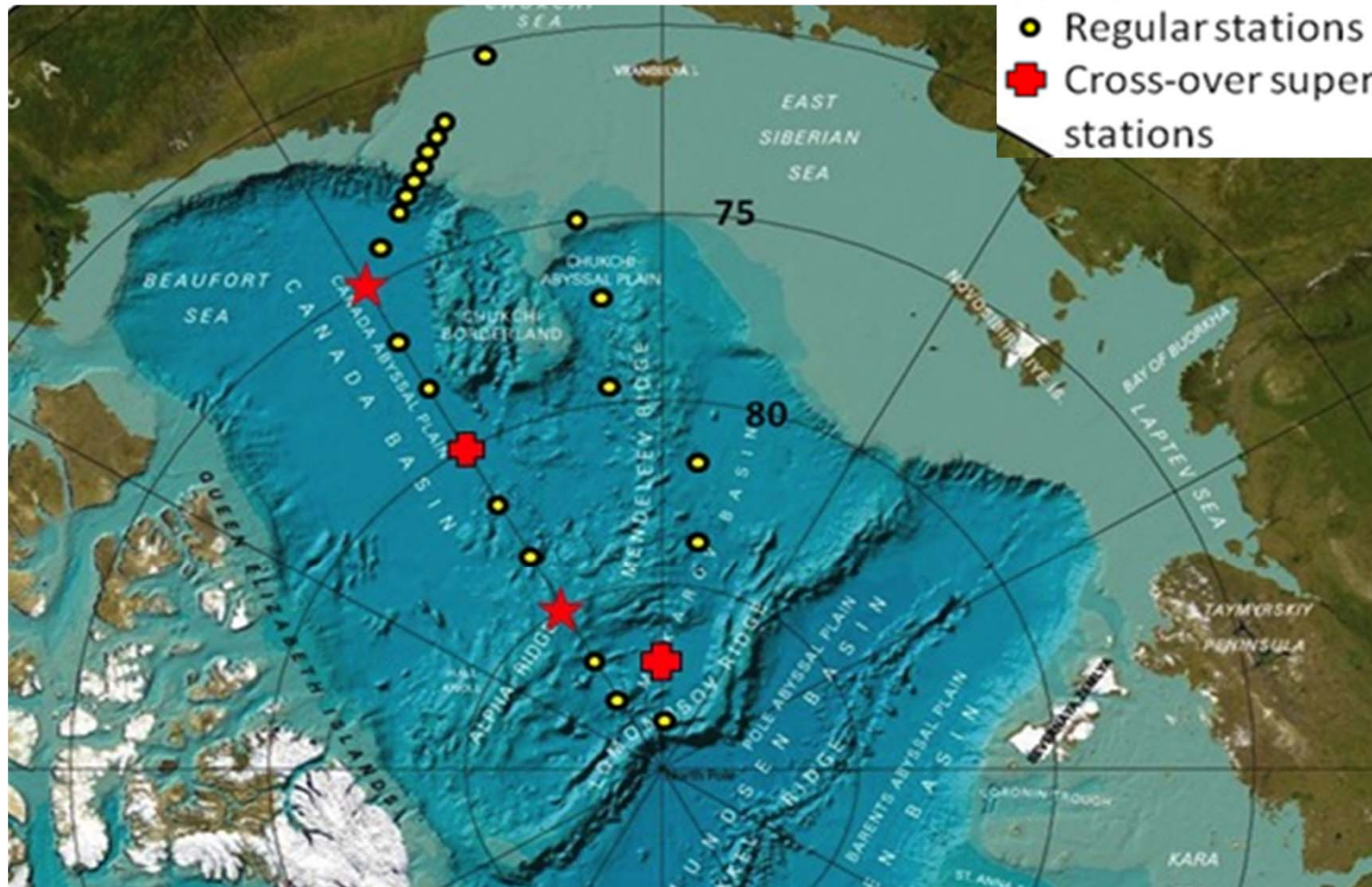
APPROVED and GRANTED CANADIAN GEOTRACES CRUISES 2014-2016



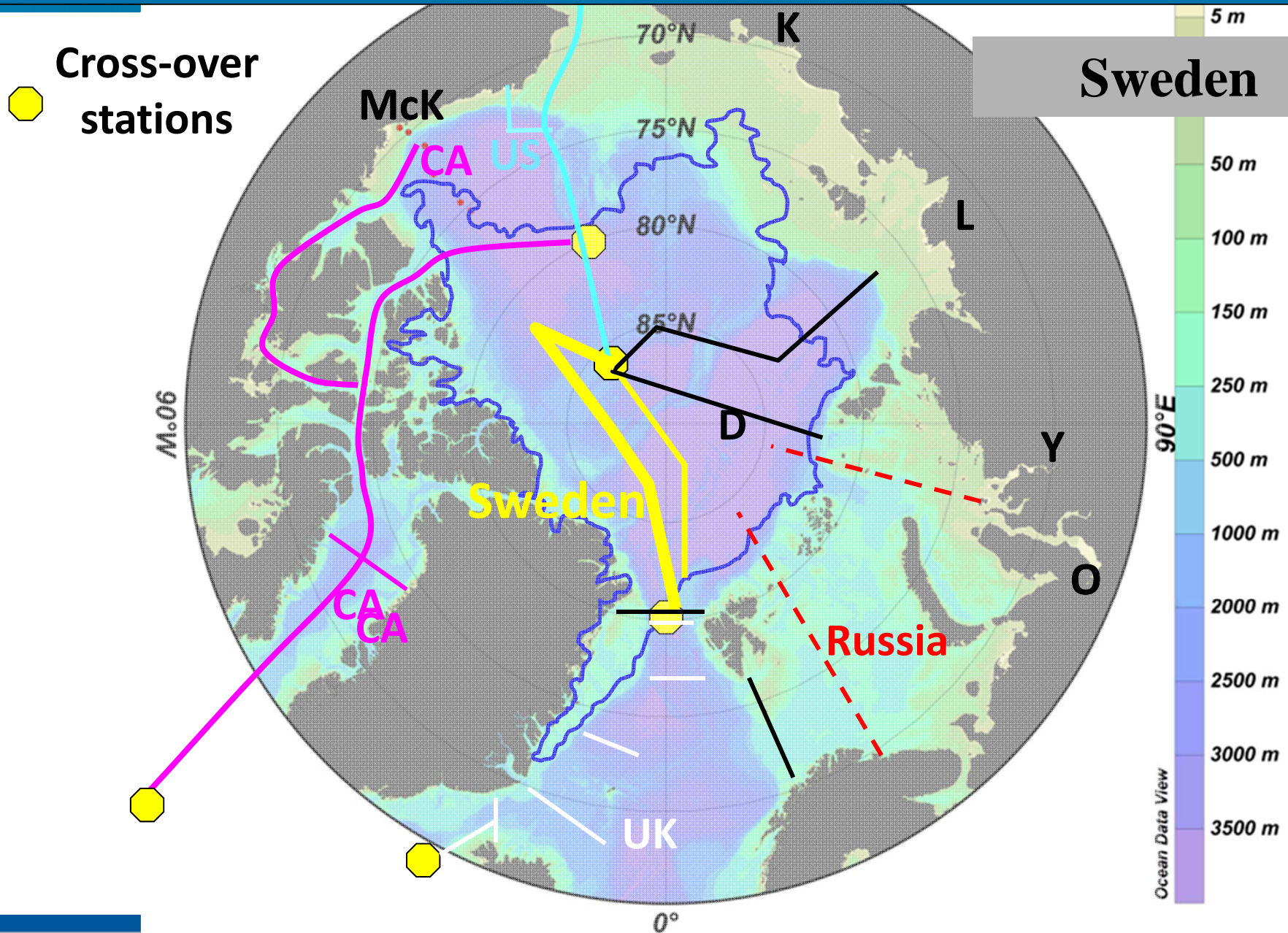
Proposed US ARCTIC GEOTRACES cruise 2015

USA national proposal is now under review

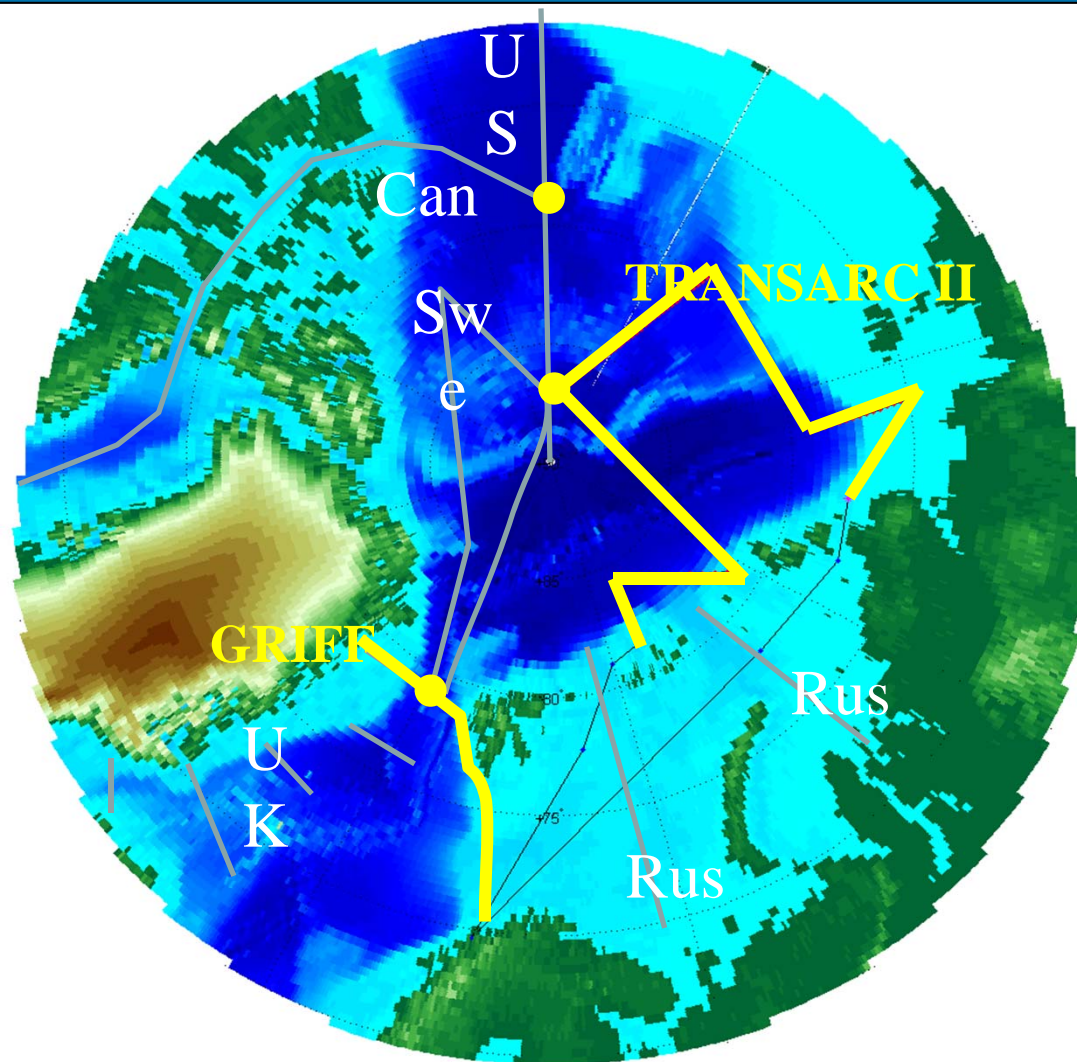
USA



Proposed Swedish GEOTRACES cruise 2015



Proposed German (Polarstern) GEOTRACES cruises 2015, 2016



Germany
Netherlands
Spain

In cooperation with
Hydrography
Ice physics
biology

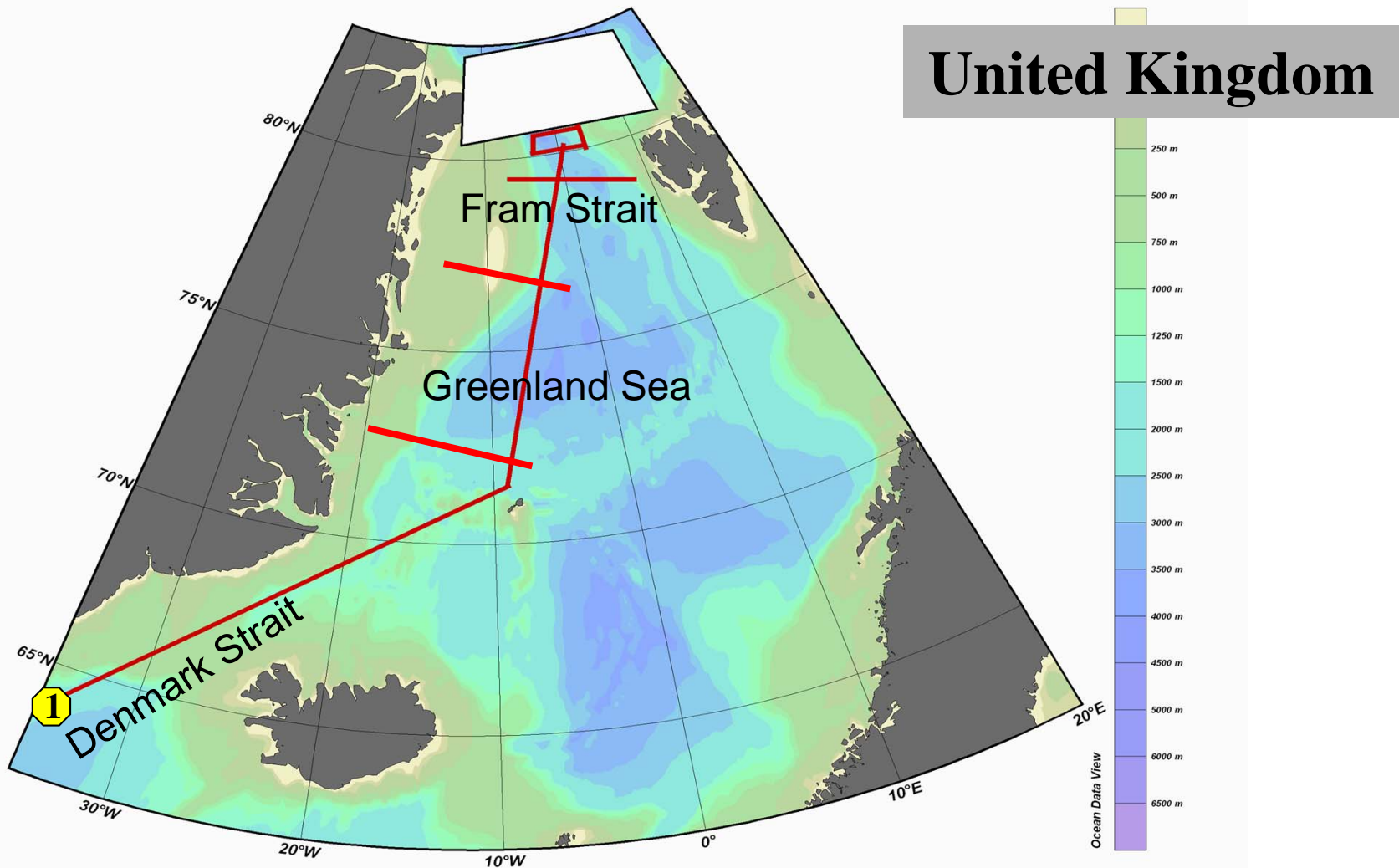
— proposed cruise tracks for
TRANSARC II 2015
GRIFF 2016

— tracks of other suggested
2015 GEOTRACES
expeditions as discussed
in Vancouver, May 2012.

● cross-over stations

Excellent reviews of TRANSARC II and GRIFF
Final approval of cruises is due in May 2013

Proposed UK GEOTRACES cruise 2015



Track to include cross over station (1) with 2010 Dutch GEOTRACES, and transects away from sea ice melt and river influence in Greenland Sea and Fram Strait





International plans for coordinated GEOTRACES expeditions to the Arctic Ocean 2015-2016

Michiel Rutgers van der Loeff
Alfred-Wegener Institute for Polar and Marine Research, Bremerhaven



Hein de Baar
Royal Netherlands Institute for Sea Research



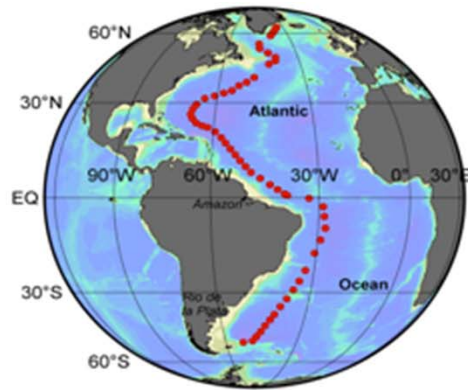
18 March 2013

www.geotraces.org

European Union – North America collaboration in Arctic Science

- Scientists of many EU nations are keen to take part in the Arctic 2015 GEOTRACES program
- During cruises combination of GEOTRACES with major ocean physics, sea-ice, biology, and other projects
- Excellent contacts and coordination exists with the Canada and USA colleagues
- International GEOTRACES program office in Toulouse (France) (www.geotraces.org)
- International GEOTRACES data centre in Liverpool (UK)

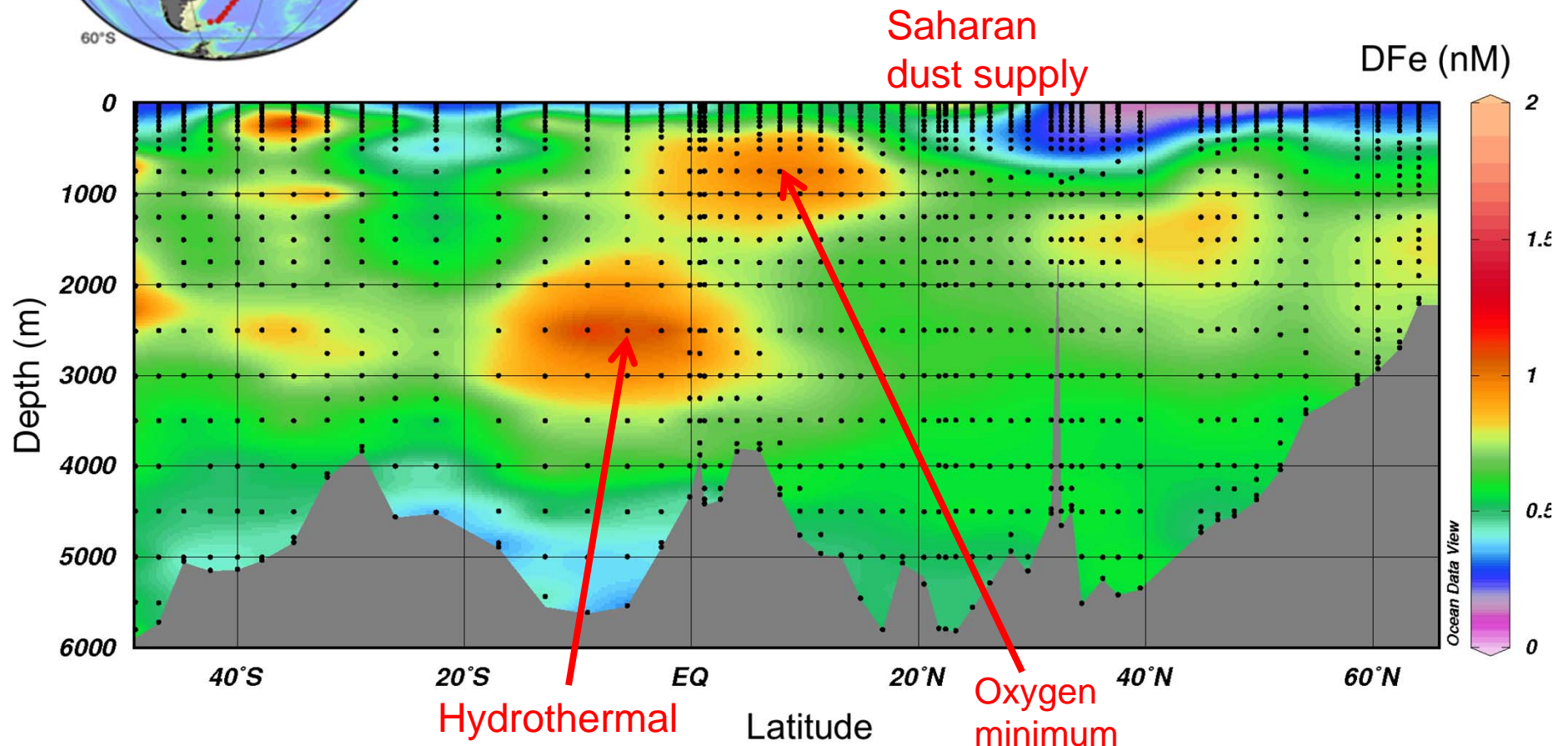
GEOTRACES



For example:

The longest ever section of dissolved Fe with over 17500 km and 1300 sample points

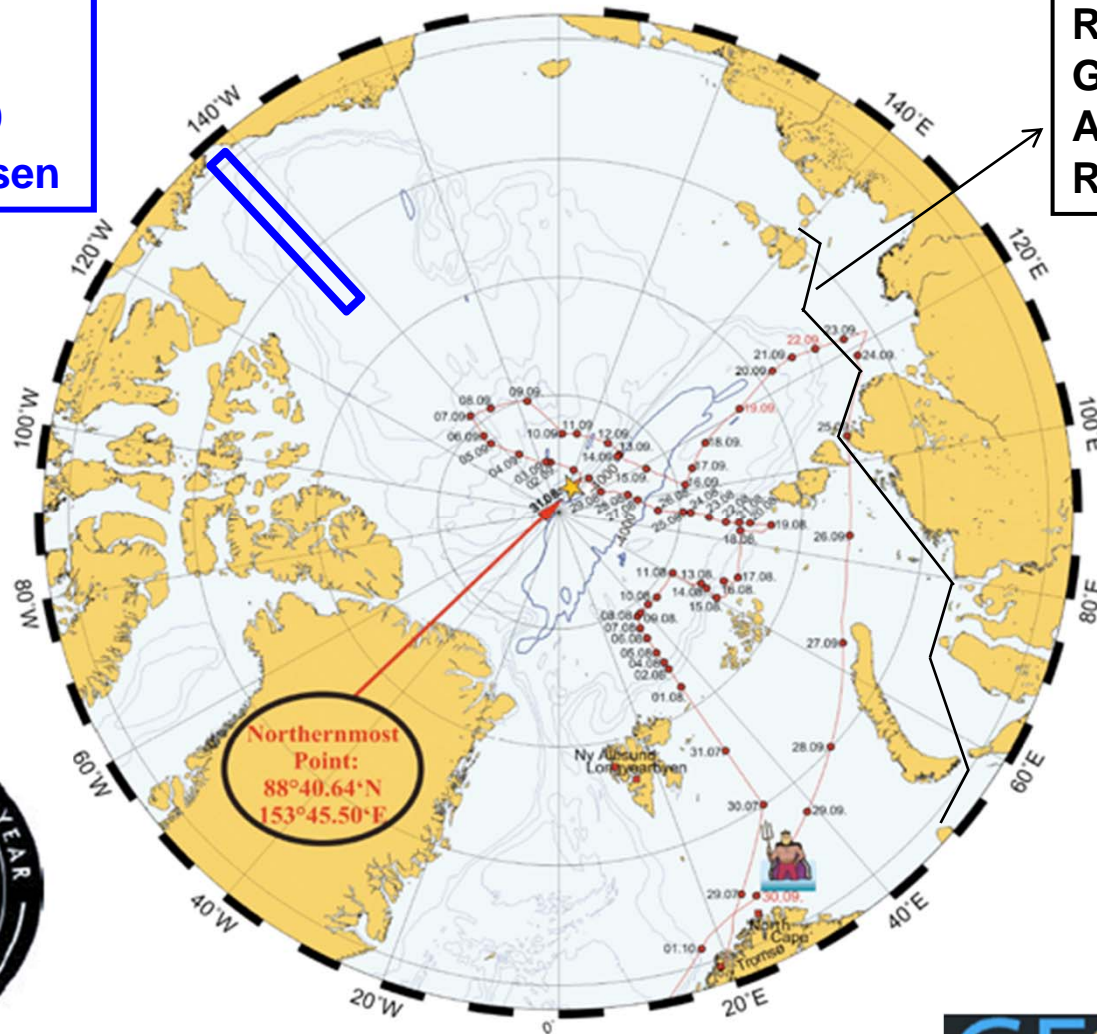
Rijkenberg et al. submitted to Science



Arctic GEOTRACES in the International Polar Year

Canada
GEOTRACES
Aug-Sept 2009
CCGS Amundsen

Russia-Sweden
GEOTRACES
Aug-Sept 2008
R/V Yakov Smirnitsky



Germany-
Netherlands-Spain
GEOTRACES
Aug-Sept 2007
R/V Polarstern
ARK XXII/2



Plans for synoptic Arctic study 2015

increasing concern about global warming and reduction of ice cover in the Arctic Ocean

2015: GEOTRACES Arctic Ocean

- International
- Coordinated
- Synoptic
- Pan-arctic