

I'm new here...



- Based at the Scottish Association for Marine Science in Oban, Scotland
- I've been working with gliders since 2010 (officially since 2012)
- Previously using gliders to look at sustained observations of cross slope exchange, particularly in areas of rough topography on the European slope.
- Now work in the Barents Sea, looking at the impacts of sea ice loss on stratification and mixing and the role of this in primary productivity as part of the Arctic PRIZE project, led by Finlo Cottier



An Atlantic distributed biological observatory initiative

*Marit Reigstad, UiT the Arctic University of Norway
& the Atlantic DBO group*

Great ideas inspire and spread
like the Distributed Biological Observatory in the Pacific Arctic

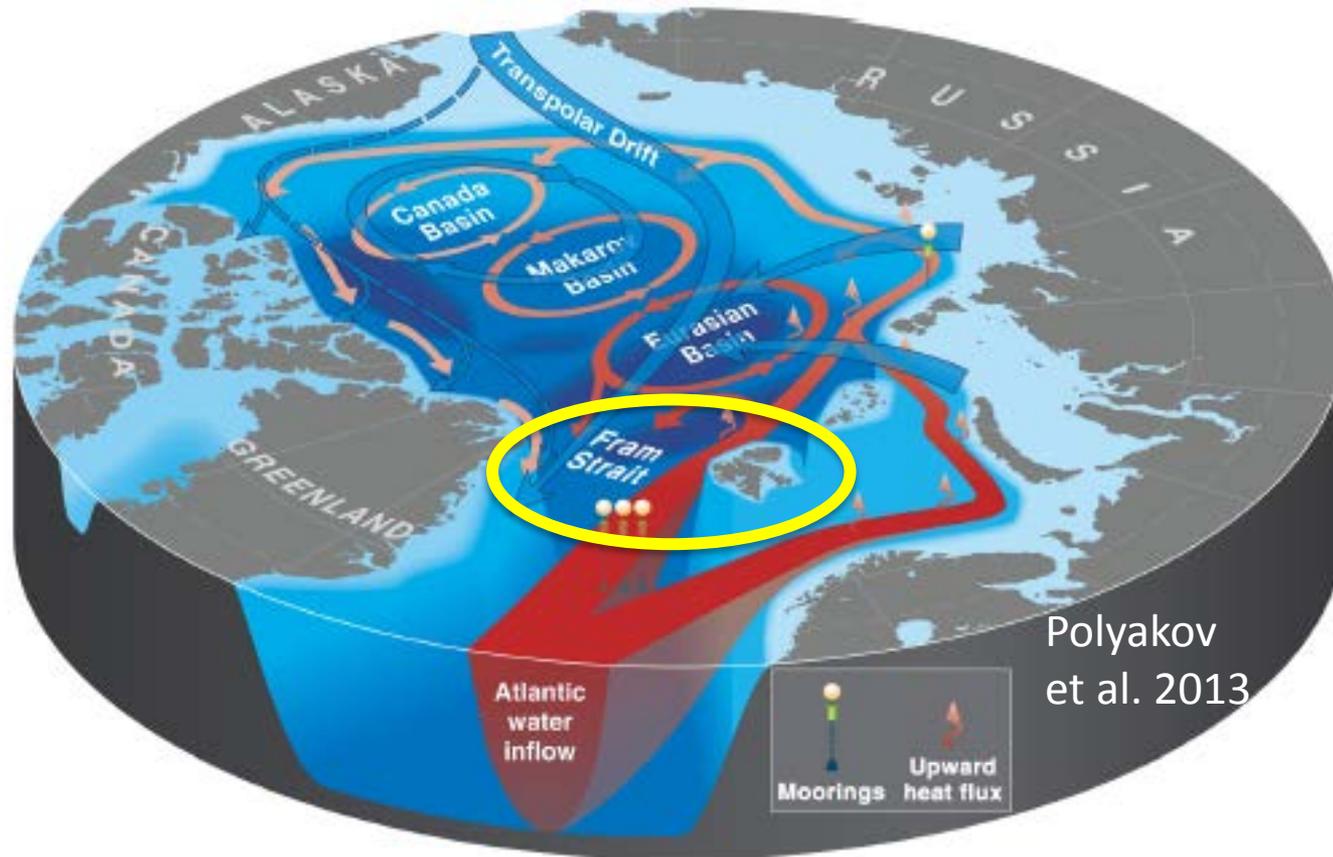
...Special focus will be given to comparing and contrasting the seasonal sea ice zones of various Arctic Seas and pan-Arctic integration...

A challenge to get good biological time series in the Arctic, and a challenge to get good data from the upper water column



DBO: A great plan to learn from...

The Atlantic inflow is a prominent feature of the eastern Arctic



Several countries run time series including biology in the region
BUT – generally sampled $1 \times \text{yr}^{-1}$
– not coordinated

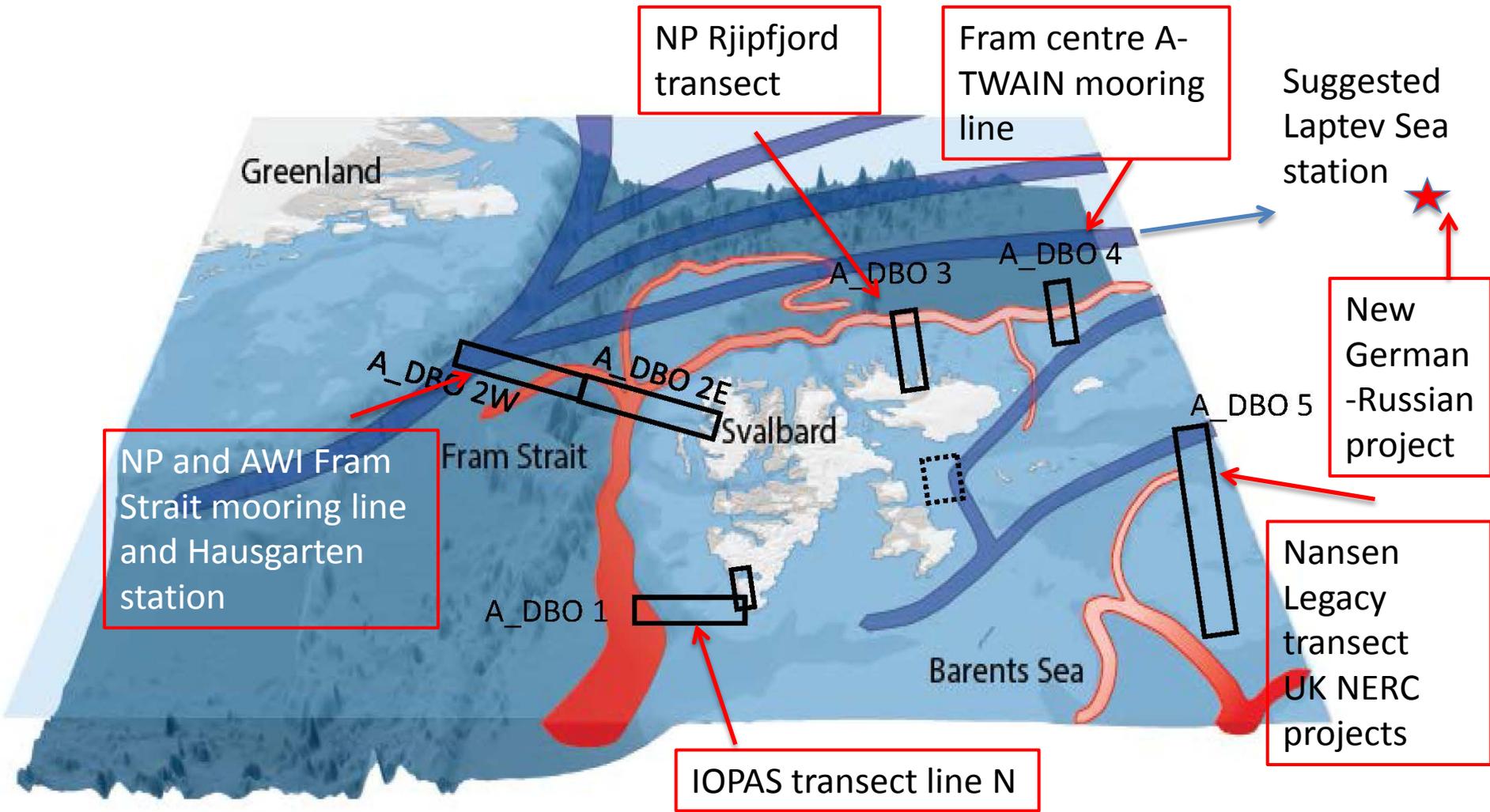
Achievements at the workshop

- **Project leader team established:**
 - Randi Ingvaldsen (IMR), Marit Reigstad (UiT), Maria Włodarska-Kowalczyk (IOPAS), Thomas Soltwedel (AWI), Janne Søreide UNIS/PRIS, Finlo Cottier (SAMS/UK), contact person in DBO
- **Core parameters identified** as well as a list of optional parameters
- **Relevant process studies identified**
- **Sampling strategies** (moorings, ship based, ferry boxes, benthic observatories, satellites, gliders, other) **BUT basic program kept simple**

Identified tasks:

- **Metadata overview** of existing data
- **Establish protocols (coordinate with DBO)**
- **Find an Organizational home– not clear**
- **MAKE AN IMPLEMENTATION PLAN**
- **Identify pilot cruise to initiate the project**

Suggest five A-DBO transect lines



In addition to moorings in Kongsfjord and Rjipfjord operated by SAMS/UiT

PRIZE – how does more light and a change in momentum flux in an ice-free Arctic Ocean affect productivity?

ARISE – Using changes in isotopes to detect and attribute changes to Arctic food webs during periods of decadal change

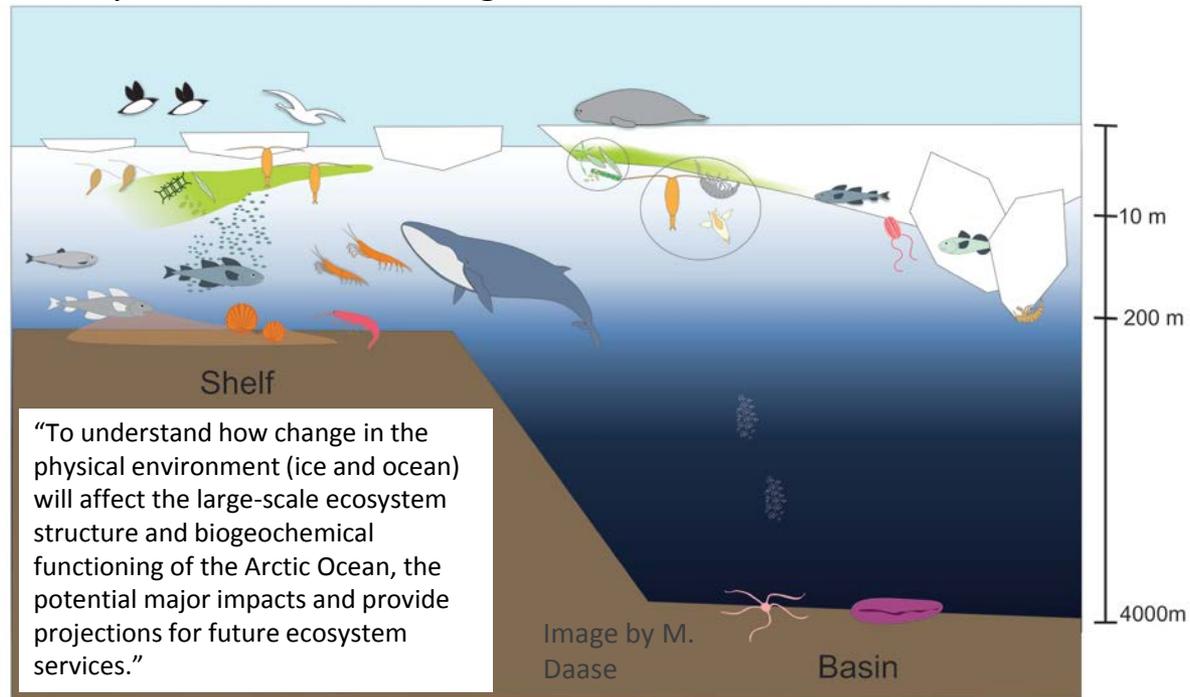
ChAOS - Quantifying the effect of changing sea ice cover on organic matter quality, benthic biodiversity, biological transformations of carbon and nutrient pools, and resulting ecosystem functioning at the Arctic Ocean seafloor.

DIAPOD – Developing a predictive understanding of how the biomass dominant marine zooplankton taxon

Calanus will be affected by future climate change in the Arctic.



Changing Arctic Ocean: Implications for marine biology & biogeochemistry (2017-2022) £16 million



Summer 2017 field work – James Clark Ross and the Lance

Pelagic

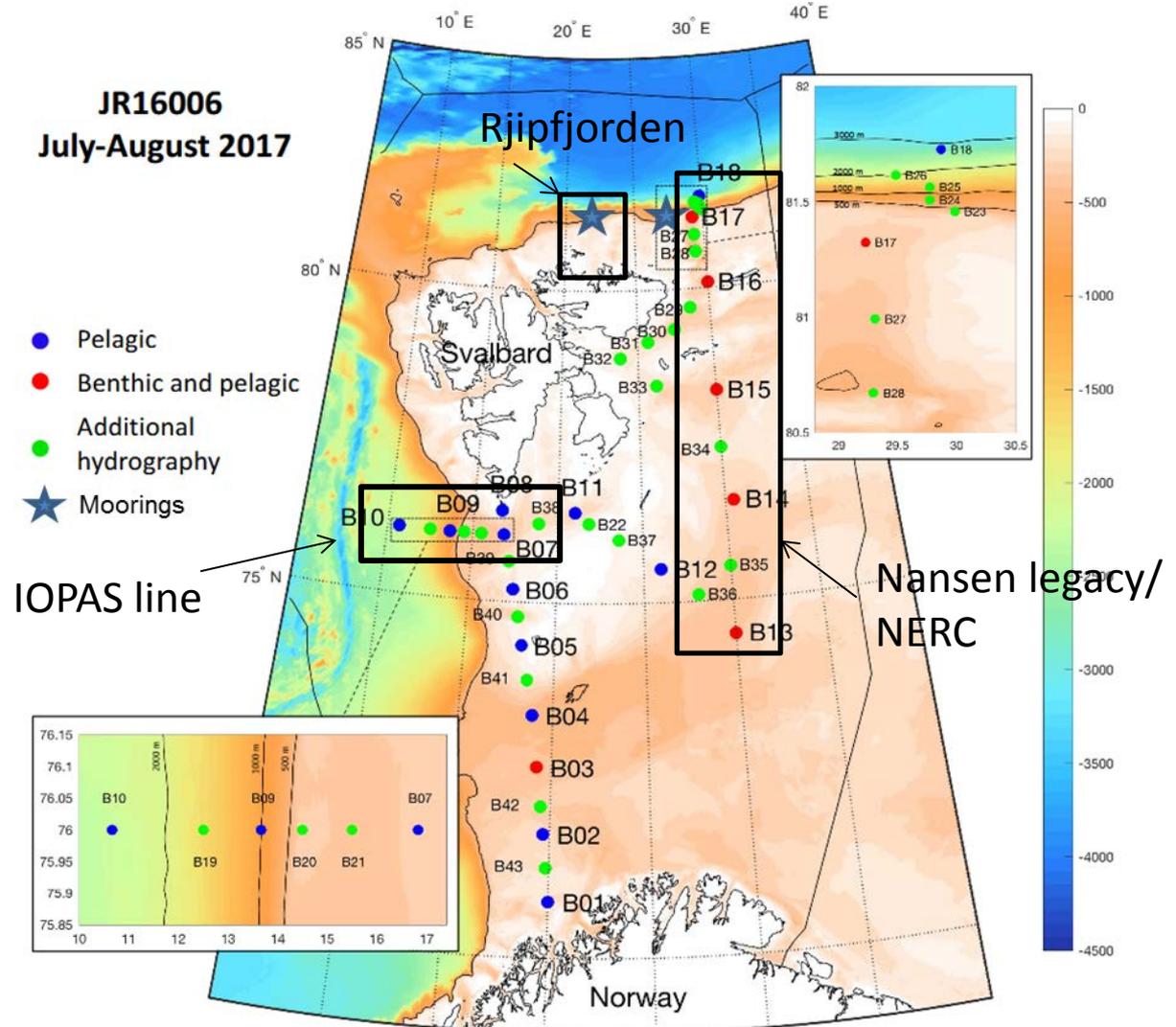
Nutrients
Phytoplankton
Zooplankton
Isotopes
Hydrography

Benthic

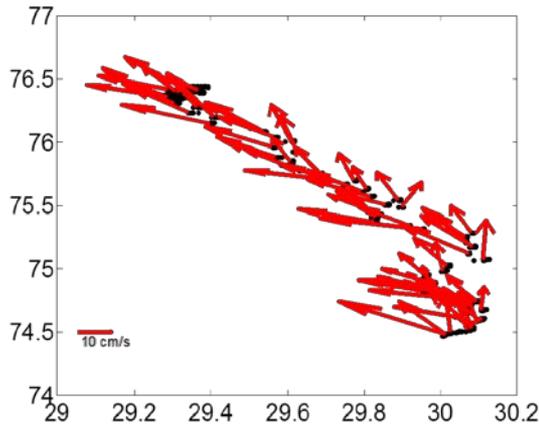
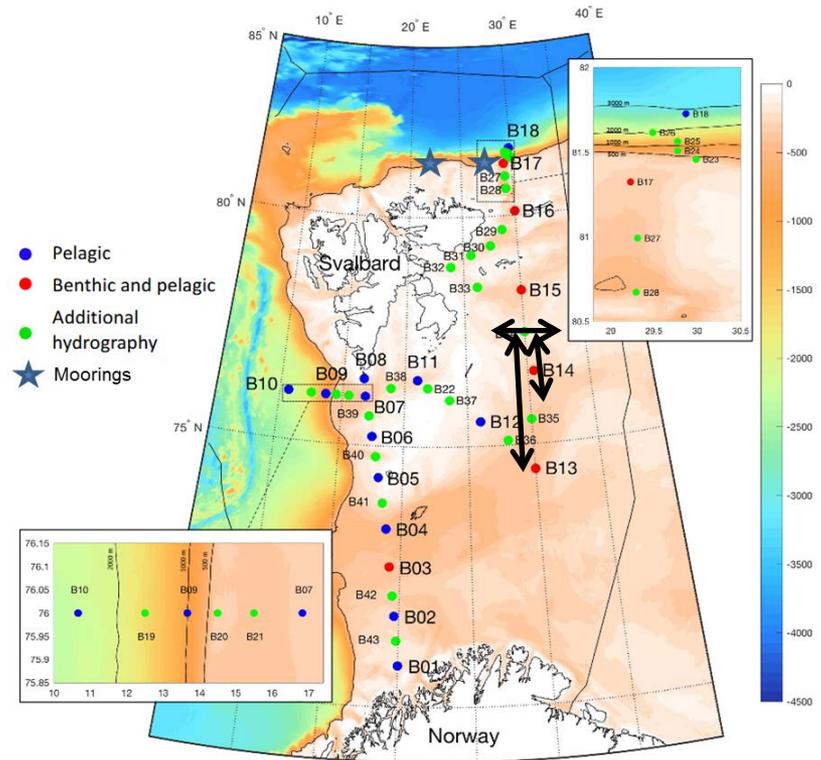
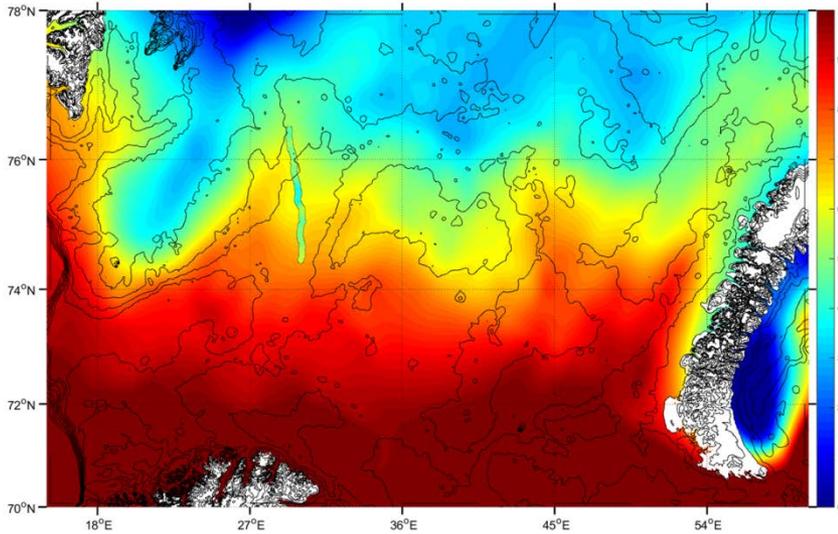
As above plus
benthic
photography, grabs
and trawls

Additional

Hydrography
Nutrients



Glider use in the Barents Sea



All gliders will have CTD, PAR, CDOM, Chla, backscatter and DO

3 Slocum gliders January – April

3 Slocum gliders April - July

Cruise program

2017 summer – Barents Sea (Arise, PRIZE & Chaos)

2017 – autumn – Rijpfjorden (PRIZE)

2018 – winter – Barents Sea (PRIZE + UiT)

2018 – spring – Barents Sea (PRIZE + UiT)

2018 summer – Fram Strait x1 (Arise & DIAPOD), Barents Sea x2 (PRIZE & Chaos)

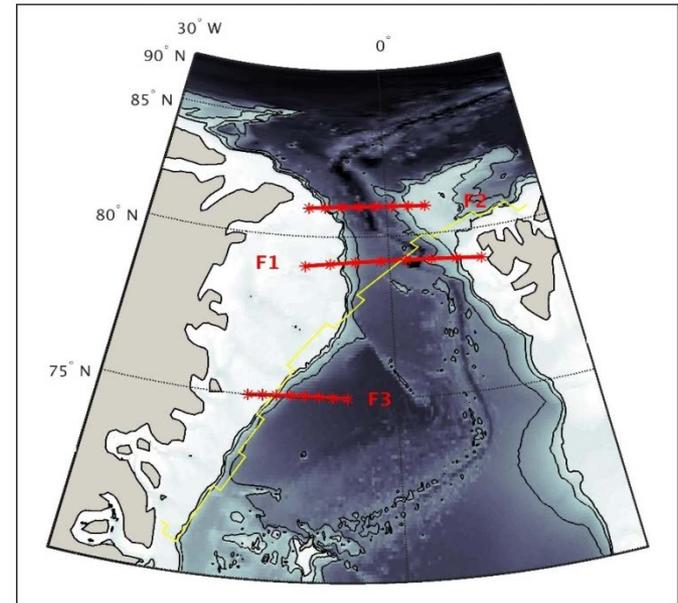
2019 – Barents Sea (Chaos)

Cross project agreements on core measurements

Nutrients and Chl-a analysis by SAMS

Nansen/NERC line will also have glider occupation January-June 2018 and is visited IMR at least once a year

Fram Strait–Greenland Shelf 2018



Barents Sea 2017

