DMI's arktiske feltbaserede forskning, monitering og infrastruktur
2016-2017

Aktiviteter og infrastruktur

- Meteorologisk stationsnet og planlagt rejseaktivitet Claus Kern Hansen (ckh@dmi.dk) - Jens Quirin Hansen (jqh@dmi.dk)
- Istjenestekooridnator (Keld Qvistgaard kqh@dmi.dk)
- NDACC stationen ved Thule Air Base (Niels Larsen nl@dmi.dk)
- Qaanaaq stationen (CTBTO) og muligheder for videnskabelige aktiviteter (Svend Erik geobsthl@greennet.gl)

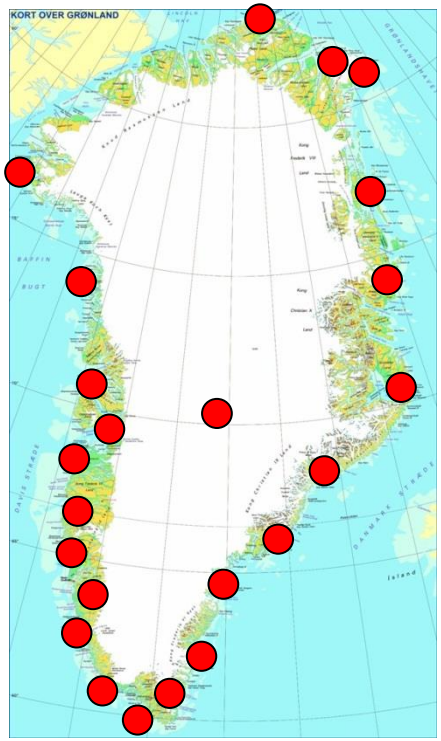
Forskningsprogram

- Feltprogram om ocean-kryosfære interaktioner i Inglefield Bredning (Steffen M. Olsen smo@dmi.dk)

Meteorologisk stationsnet og planlagt rejseaktivitet

Claus Kern Hansen (ckh@dmi.dk) - Jens Quirin Hansen (jqh@dmi.dk)

1 Vejrtjeneste Kangerlussuaq
7 Met stations bysamfund
18 Met stations ødelokaliteter
5 Radiosonde stationer



Meteorologisk stationsnet og planlagt rejseaktivitet

GIWS (Greenland Isolated Weather Station) - servicefrekvens 2. år

Der måles hver fulde time, dvs. 24 Synop meldinger i døgnet mod tidligere 8

Vinden måles (midles) i 10 min. før hver fulde time.

2 stk. Gill Windobserver

Ultrasonisk type

Hver sensor måler:

-Vindhastighed

-Vindretning

-Vindstød

Lufttryk:
2 stk. Vaisala PTB330, hver med 3 transducere
Monteret indvendigt i styreskab,

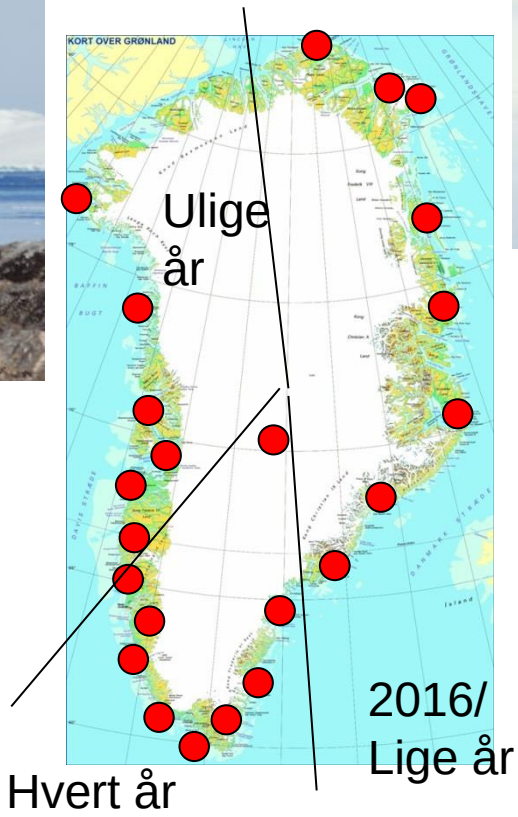
Temperatur/fugt:
4 stk. kombinerede følere monteret i hver sin strålingsskærm

Strøm:
8 batterier samt solcellepaneler

Meteorologisk stationsnet og planlagt rejseaktivitet

Claus Kern Hansen (ckh@dmi.dk) - Jens Quirin Hansen (jqh@dmi.dk)

18 Met stations ødelokaliteter



Twinotter (samcharter hvis muligt)

Mange tak til AKO for sejlads

Helikopter (ad hoc) Sejlads

DMI Observatory Thule Air Base building 1971, South Mountain. Part of NDACC. Platform for atmospheric observations.

DMI Observatory Thule Air Base
International collaboration

DMI, (ozone, ozone -sondes, UV, radiation, aerosol)

NCAR: FTIR
ENEA and University of Rome, Italy (Lidar and radiation measurements)
INGV, Italy and University of Stony Brook (NY): mm-wave spectrometer
NASA (Aeronet): aerosols

DMI

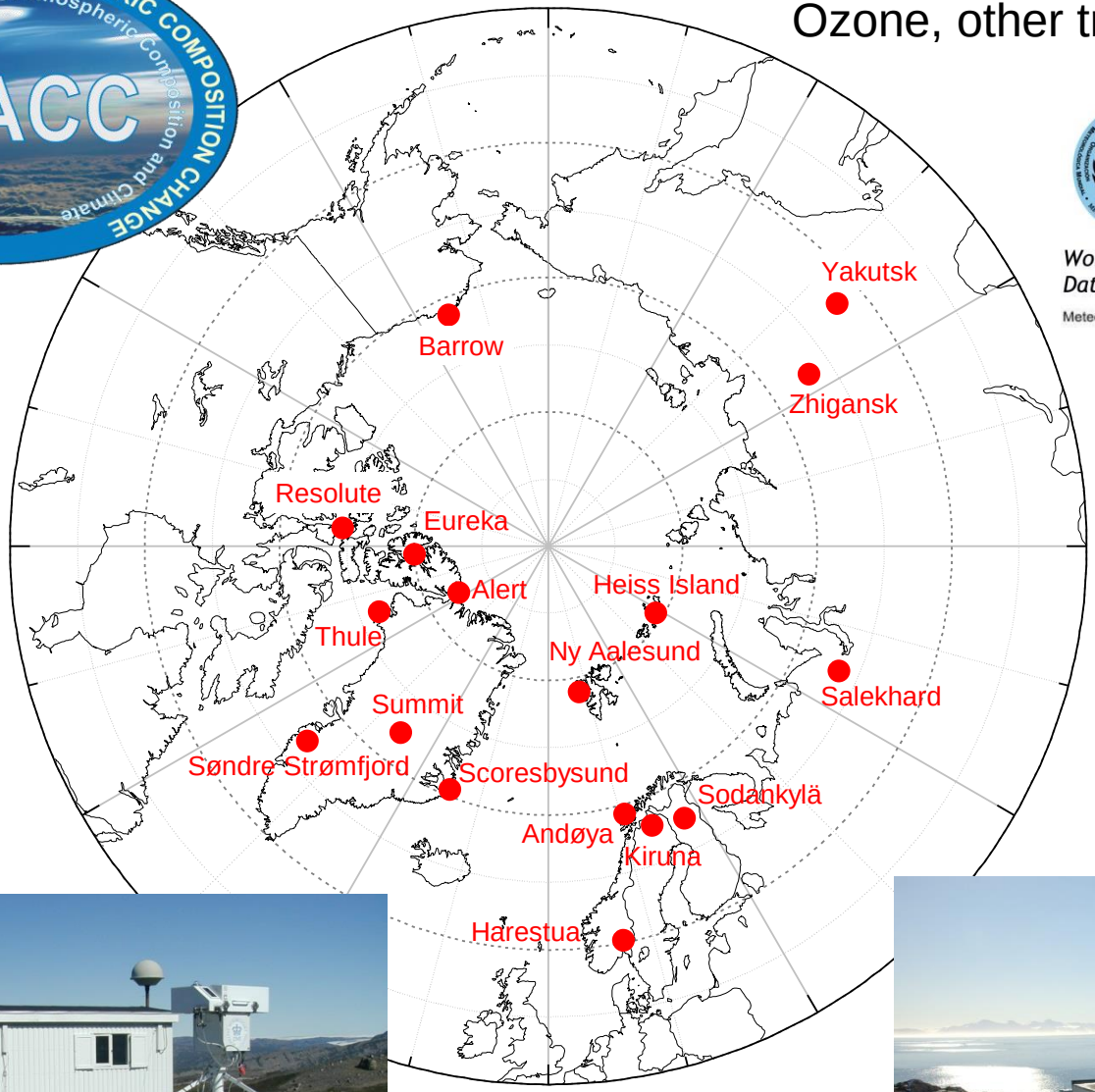
Ozone, other trace gases and aerosols

Service météorologique du Canada

Centre Mondial des Données sur l'Ozone et le Rayonnement Ultraviolet

World Ozone and Ultraviolet Radiation Data Centre

Meteorological Service of Canada



Dobson/Brewers
FTIR
Microwave
UV-Vis
O3-sondes
Lidar

Qaanaaq infralyds station (DMI/CTBTO)

Svend Erik Ascanius

DMI's nuværende station

Stationen

- Bemandet året rundt
- Værksted
- Lejlighed
- Ugentligt rutefly
- Skibsfragt om sommeren

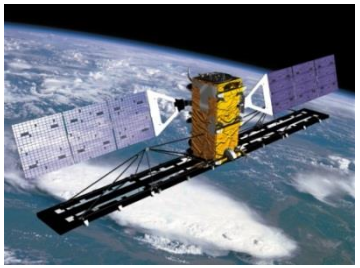
DMI's oprindelige ionosfære station

CTBTO preparatory commission for the comprehensive nuclear-test-ban treaty organization
PREPARATORY COMMISSION

DMI

DMI's Grønlandske istjeneste

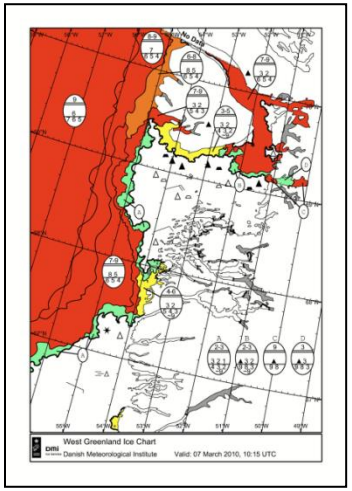
Iskort baseret på satellitbilleder

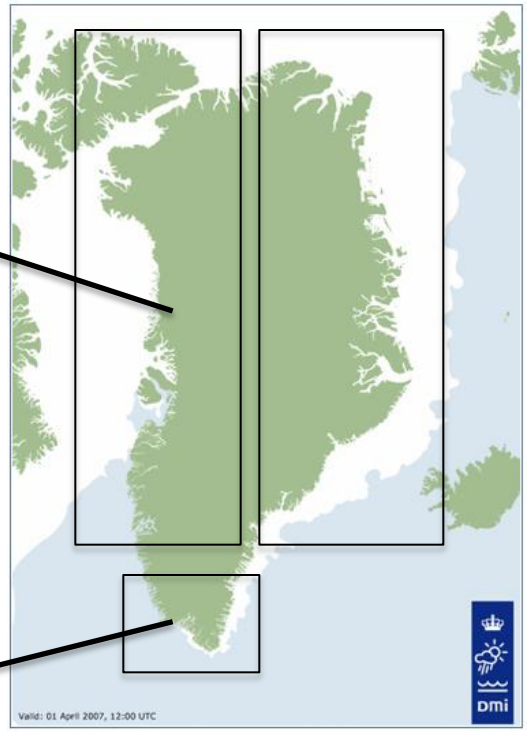


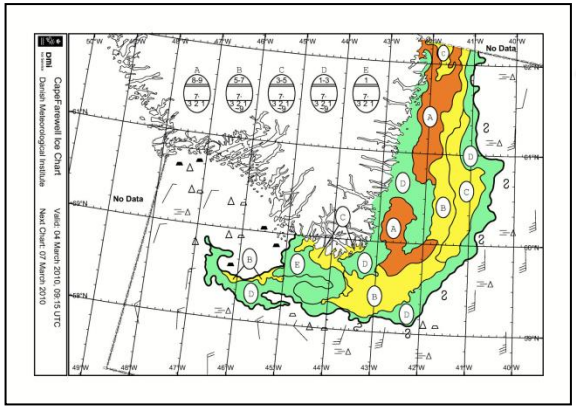
Radarsat-2

Regionale iskort

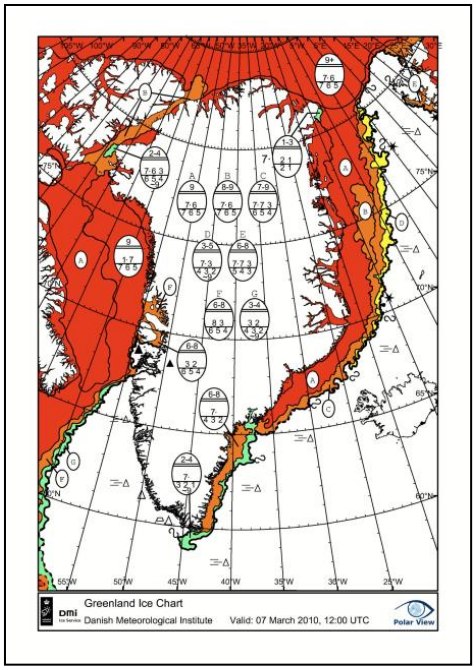
Ad hoc produktion







Kap Farvel ~190 iskort per år



Oversigtskort 2 gange om ugen

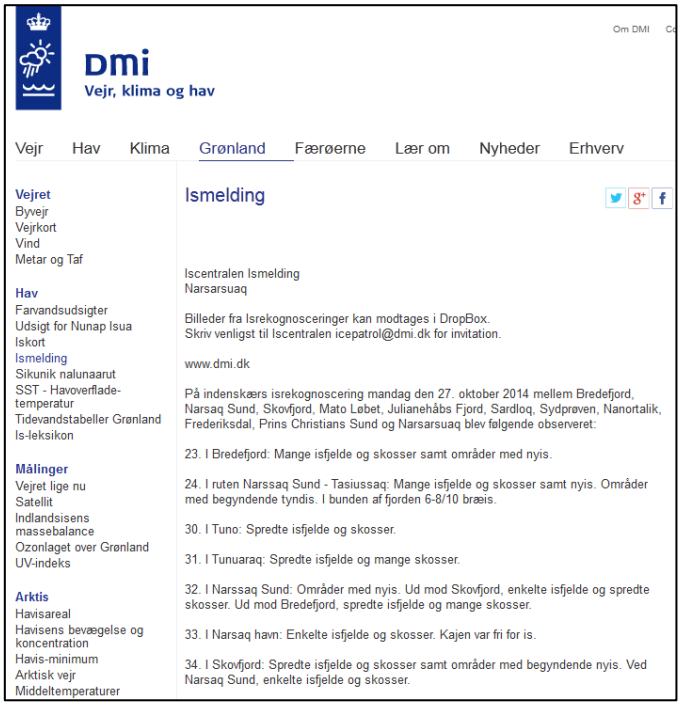
Iscentralen i Narsarsuaq

Isovervågning fra helikopter

Indenfjords isobservationer 2-4 gange om ugen. Distribution af is-information i Grønland og rådgivning for skibene. 2+2 navigatører fra Royal Arctic Line (5-uges rotationer).

Fotos i drobbox

Ismeldinger på dmi.dk på grønlandsk og dansk



Om DMI

DMI
Vejr, klima og hav

Vejr | Hav | Klima | Grønland | Færøerne | Lær om | Nyheder | Erhverv

Vejret
Byvejr
Vejrkort
Vind
Metar og Taf

Hav
Farvandsudsigter
Udsigt for Nunap Isua
Iskort
Ismelding
Sikunik nalunaarut
SST - Havoverflade-temperatur
Tidevandstabeller Grønland
Is-leksikon

Målinger
Vejret lige nu
Satellit
Indlandsisens massebalance
Ozonlaget over Grønland
UV-indeks

Arktis
Havisareal
Havisens bevægelse og koncentration
Havis-minimum
Arktisk vejr
Middeltemperaturer

Ismelding

Iscentralen Ismelding
Narsarsuaq

Billeder fra Isrekognosceringer kan modtages i DropBox.
Skriv venligst til Iscentralen icepatrol@dmi.dk for invitation.

www.dmi.dk

På indenskærs isrekognoscering mandag den 27. oktober 2014 mellem Bredefjord, Narsaq Sund, Skovfjord, Mato Løbet, Julianehåbs Fjord, Sardloq, Sydprøven, Nanortalik, Frederiksdal, Prins Christians Sund og Narsarsuaq blev følgende observeret:

23. I Bredefjord: Mange isfjelde og skosser samt områder med nyis.

24. I ruten Narssaq Sund - Tasiussaq: Mange isfjelde og skosser samt nyis. Områder med begyndende tyndis. I bunden af fjorden 6-8/10 bræis.

30. I Tuno: Spredte isfjelde og skosser.

31. I Tunuaraq: Spredte isfjelde og mange skosser.

32. I Narssaq Sund: Områder med nyis. Ud mod Skovfjord, enkelte isfjelde og spredte skosser. Ud mod Bredefjord, spredte isfjelde og mange skosser.

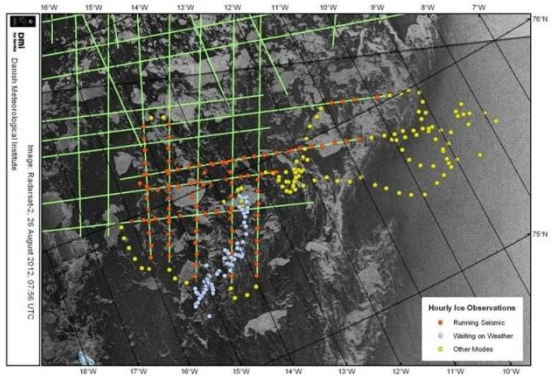
33. I Narsaq havn: Enkelte isfjelde og skosser. Kajen var fri for is.

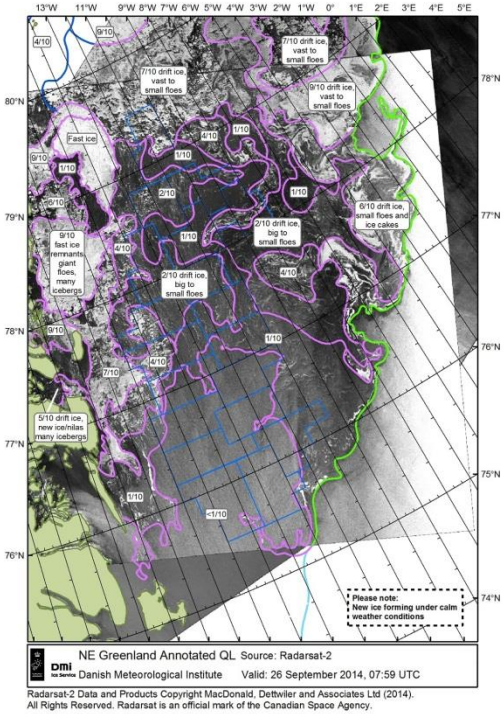
34. I Skovfjord: Spredte isfjelde og skosser samt områder med begyndende nyis. Ved Narsaq Sund, enkelte isfjelde og skosser.

DMI

Isrådgivning

Om-bord rådgivning ved seismiske aktiviteter

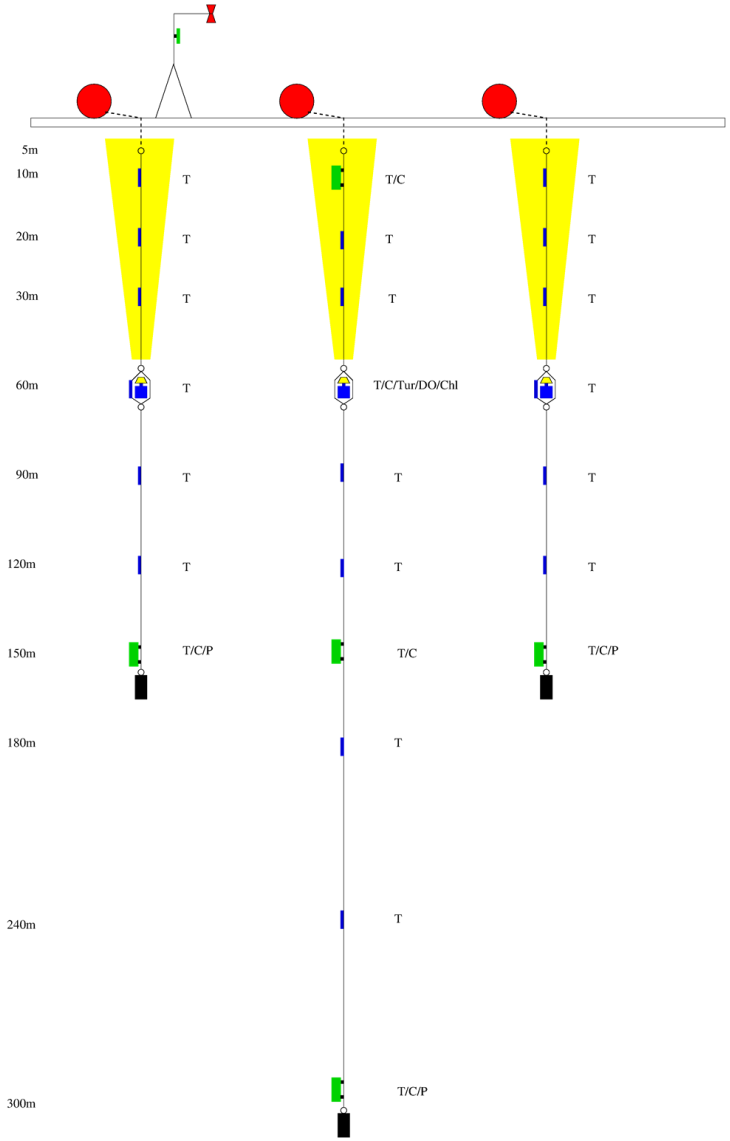




Inglefield Bredning - Qaanaaq
Ocean-cryosphere interactions in a high-arctic fjord system
2011-2017

S. M. Olsen, L. T. Pedersen, R. T. Tonboe, G. Dybkjær, J. L. Høyer & Ida Ringaard

Winter program



Marts/April 2015-17

Completed 2015

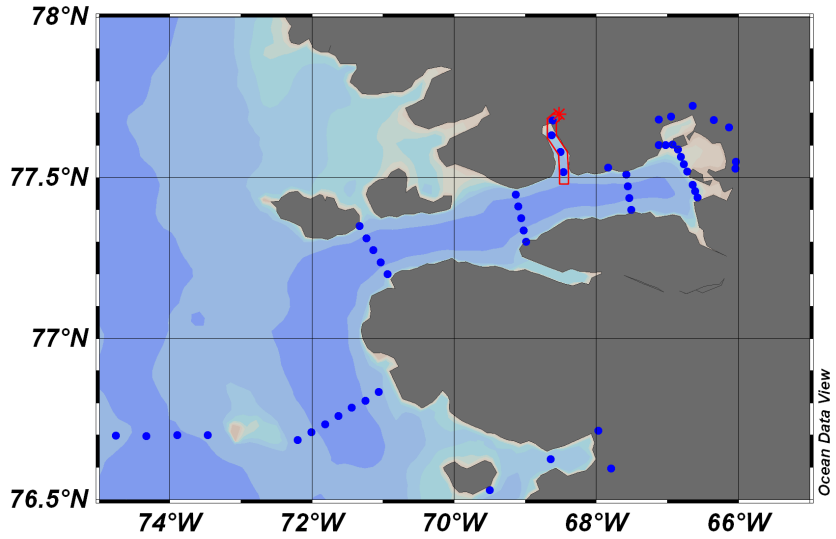
- Near synoptic oceanographic surveys.
- Ice and snow measurements

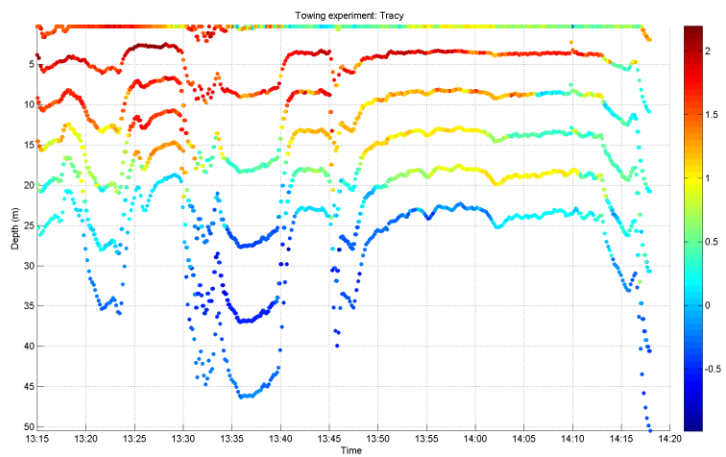
January-July 2015-17

Completed 2015

- Oceanographic, ice tethered moorings
- On-ice automated weather station (radiation balance).
- Sea-ice, mass balance strings (2016-17)

Summer program





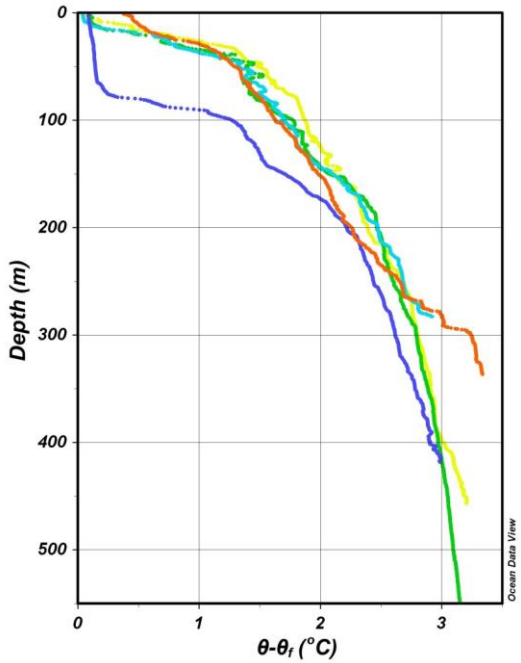
August/September 2015-17

Completed August 2015

- Simple CTD program, limited water sampling.
- Towed t-string experiments in front of the prominent glaciers

- Rely on support from the Danish Arctic Command
- Focus on the late summer heat content and stratification (preconditioning)
- Possibility to expand to cover glacier systems in the Nares Strait (Humboldt and Petermann)

Results and open questions



Data document a persistent Atlantic Warm core centered at 250-300m depth.

Temperatures in the Atlantic Layer has shown an increase from 2011 to 2014.

The upper stratification is characterized by strong interannual variability.

The total melt potential is dominated by variations in the upper stratification.

Water mass properties above the Atlantic layer are strongly modified by subglacial melting.

Unresolved what controls the very different evolution of winter stratification.

Unresolved how to interpret the pronounced signal of sub-glacial runoff: Can we rule out a winter-time sub-glacial liquid freshwater source?

1 af 4 Automatisk zoom

World Meteorological Organization
Weather · Climate · Water

Concept Note

Scoping Workshop

GFCS
GLOBAL FRAMEWORK FOR CLIMATE SERVICES

Climate Services for Polar Regions: Establishing Polar Regional Climate Centres

Towards Implementing an Arctic PRCC-Network

17–19 November 2015, Geneva, Switzerland

DA