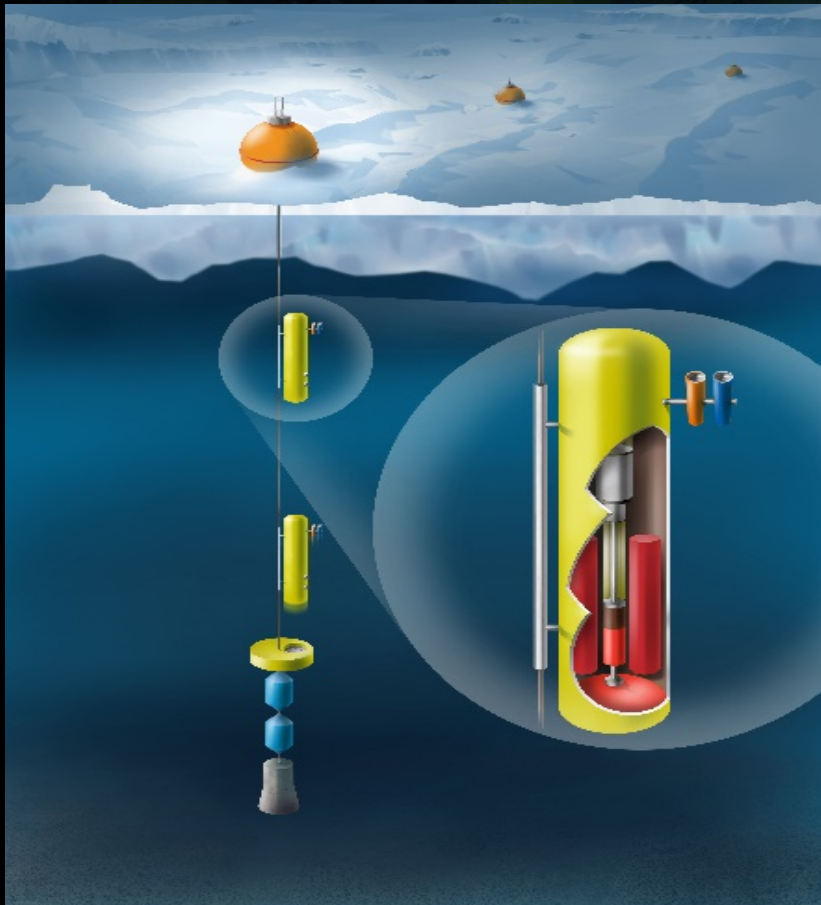


Arctic Ocean ecosystems - Applied technology, Biological interactions and Consequences in an era of abrupt climate change (Arctic ABC)

Project leader: J Berge (UiT and UNIS), project period 2015-2019

National institutions: APN, UNIS, UiT, NTNU, FNI and IMR

International institutions: **UK** (SAMS), **Canada** (Univ. Manitoba and ArcticNet), **USA** (Univ. of Delaware, Univ. of Alaska, WHOI, Univ. of Washington), **Japan** (WMU), **Russia** (AARI), **Germany** (IASS), **Korea** (KOPRI).



- Ice tethered observatory with AZFPs and UHIs
- Two successful deployments in the Arctic Ocean
- Data transmission through either sat link or drones
- Provide acoustic and optical data from the Arctic Ocean during the winter and polar night
- Recruitment positions: 3x PhD and 4x postdocs

Arctic ABC

Technology module:

Develop autonomous under-ice tethered observatories (ITO) that will provide optical and acoustic data from the Arctic Ocean drift ice ecosystem, including during the polar night. The observatories will be able to operate in ice and open water, and will have real-time satellite-communication ability.

Biology module:

- A) To assess direct and indirect impacts of continued reduction of the Arctic sea ice cover on the Arctic ecosystem. The focus is on exploring biological coupling processes between sea ice and the ocean, faunal migration patterns, degree of dependence on multiyear sea ice, and adaptations to the Arctic sea ice habitat.
- B) Provide essential input to the *Consequence* module.

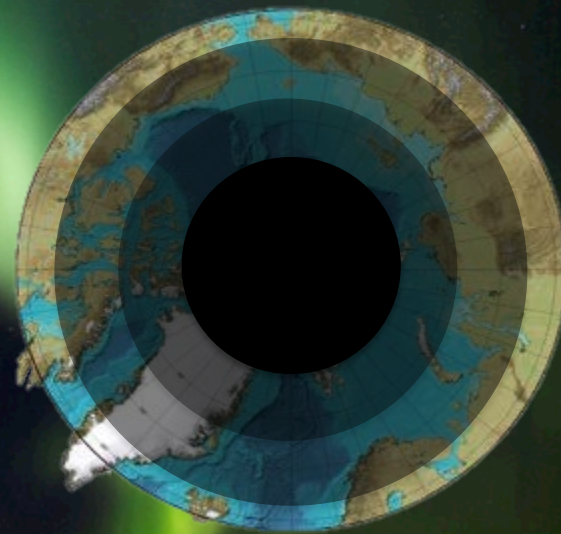
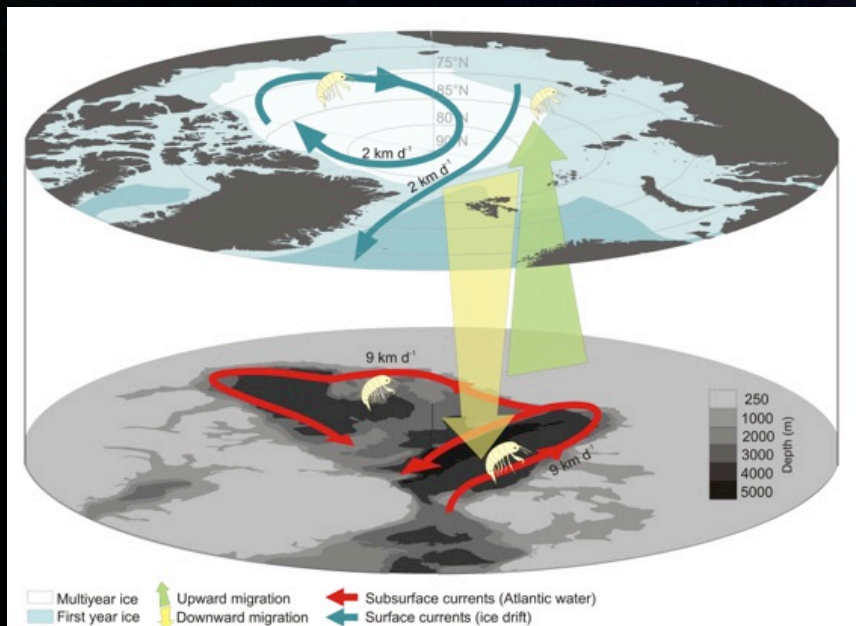
Consequence module:

- A) To develop a model framework integrated into existing models (ROMS and SINMOD) aimed specifically to simulate ice-associated communities and primary productivity in ice covered regions.
- B) Analyse and assess the political implications of a warmer Arctic Ocean, with a focus on changes in resources distribution, developments in management regimes and mechanisms concerning political influence over such processes.

End-user forum:

Integration of three very different, yet highly interlinked modules

Arctic ABC – expected results



Arctic ABC – Communication and outreach

POLARMUSEET I TROMSØ – FRA 18. JANUAR 2015
POLARNATT
Liv og lys i mulm og mørke
POLAR NIGHT Life and light in the dead of night



Mare incognitum

Unraveling the mysteries of Arctic marine systems

Mare news | Mare - at a glance | Cleopatra II | Circa | MicroFUN | Marine Night | ArcticABC | GrenBille | SpitsEco | Big Black Box | COPPY

Login



CLEOPATRA II

ette trodde forskerne ald
Marine life in the polar night
It was not fully on the
It was not fully on the
Marine Night in the Media
TV, radio, newspapers, online - also in 2015 you could hardly avoid to hear about
Marine Night! Click for a list of media coverage.

POLAR NIGHT
Life and light in the dead of night

Marine Night in the Media
The Marine Night campaign 2015 in audio, video and print media

Consequences of sea ice retreat
Atlantification - challenge or opportunity?

Marine Night 2015 - new blog!
The Marine Night project is on the 2nd field campaign

Mare Incognitum in Ottawa
Mare Incognitum researchers of ARCTOS well represented

Polar Night exhibition
Now in Tromsø! Life and light in the dead of night...

Follow @MareIncog

Mare upcoming events

MAY 3	08:00 08.05.2015 - 16:00 10.05.2015	Polar Night exhibition at Smithsonian
MAY 26	26.05.2015 08:00 - 18:00	Polar Night exhibition opening in Anchorage
JUN 1	08:00 01.06.2015 - 20:00 05.06.2015	Marine Night/Circa/ArcticABC meeting Oban
SEP 10	10.09.2015 08:00 - 18:00	Deadline S & T

Further plans and proposals of relevance for ABC:

I. Arctic ABCD (D=development) under evaluation in the *Infrastruktur program*

Development and operation of 10 units

Project period 2015-2024

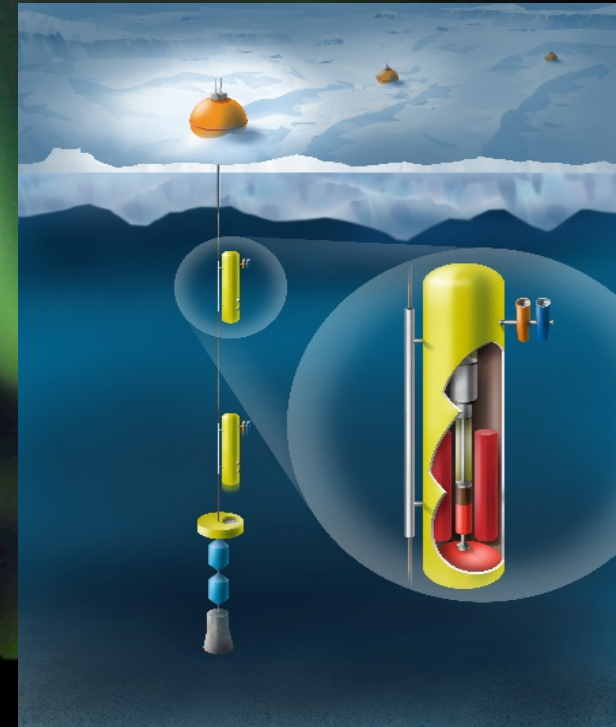
Decision expected June 25th

II. UiT strategic priority call

Development of communications using drones

Partnership with Cirfa and Nokut in Tromsø

Decision expected early autumn 2015

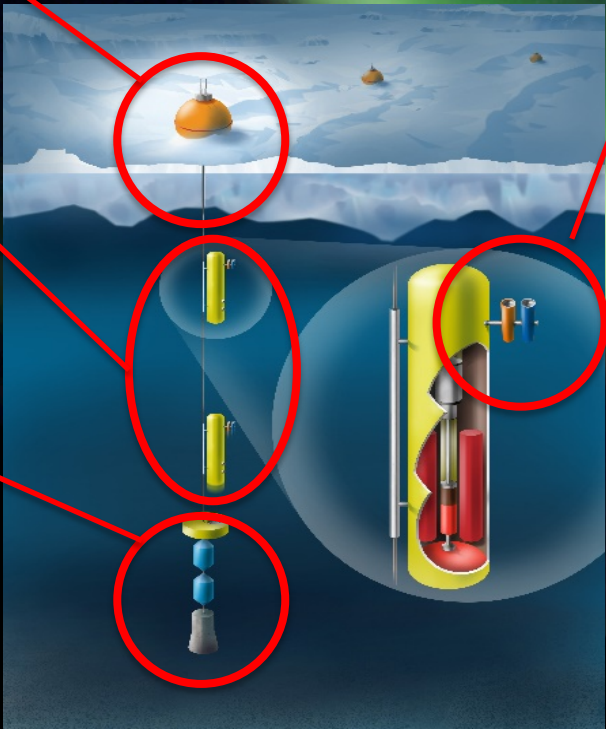


Surface unit connected with SIMBA bouys the provide real-time transmission of data

UHI – underwater hyperspectral imager
HD camera

Undulating unit (0-100m) with a CTD

AZFPs (up and down)
Docking station
Battery pack



Research questions
I: Composition, abundance and movement of pelagic community under sea ice
II: Characterization of light fields under sea ice (linked with sea ice mass balance measurements)
III: Characterization of blooms in the central Arctic Ocean

SAMS: SIMBA, data transmissions
NTNU: Sensors and technical implementation / integration
UiT: Deployment and operation

