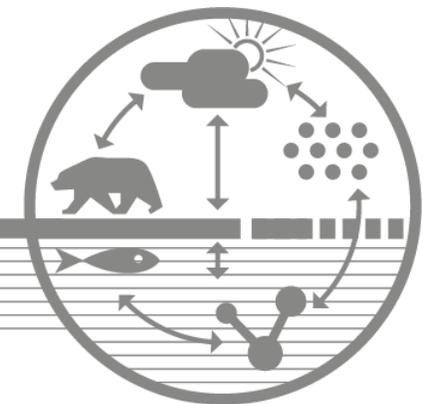


MOSAIC

International
Arctic Drift
Expedition



A Year in the Arctic Ice





Dr. Anja Sommerfeld (AWI)

Project manager MOSAIC

Atmospheric and modelling scientist

Participant in MOSAIC

International Drift – Experiment with POLARSTERN

MOSAiC Traylor:

<https://www.youtube.com/watch?v=69OsRXEO7y4&t=2s>

International Drift – Experiment with POLARSTERN

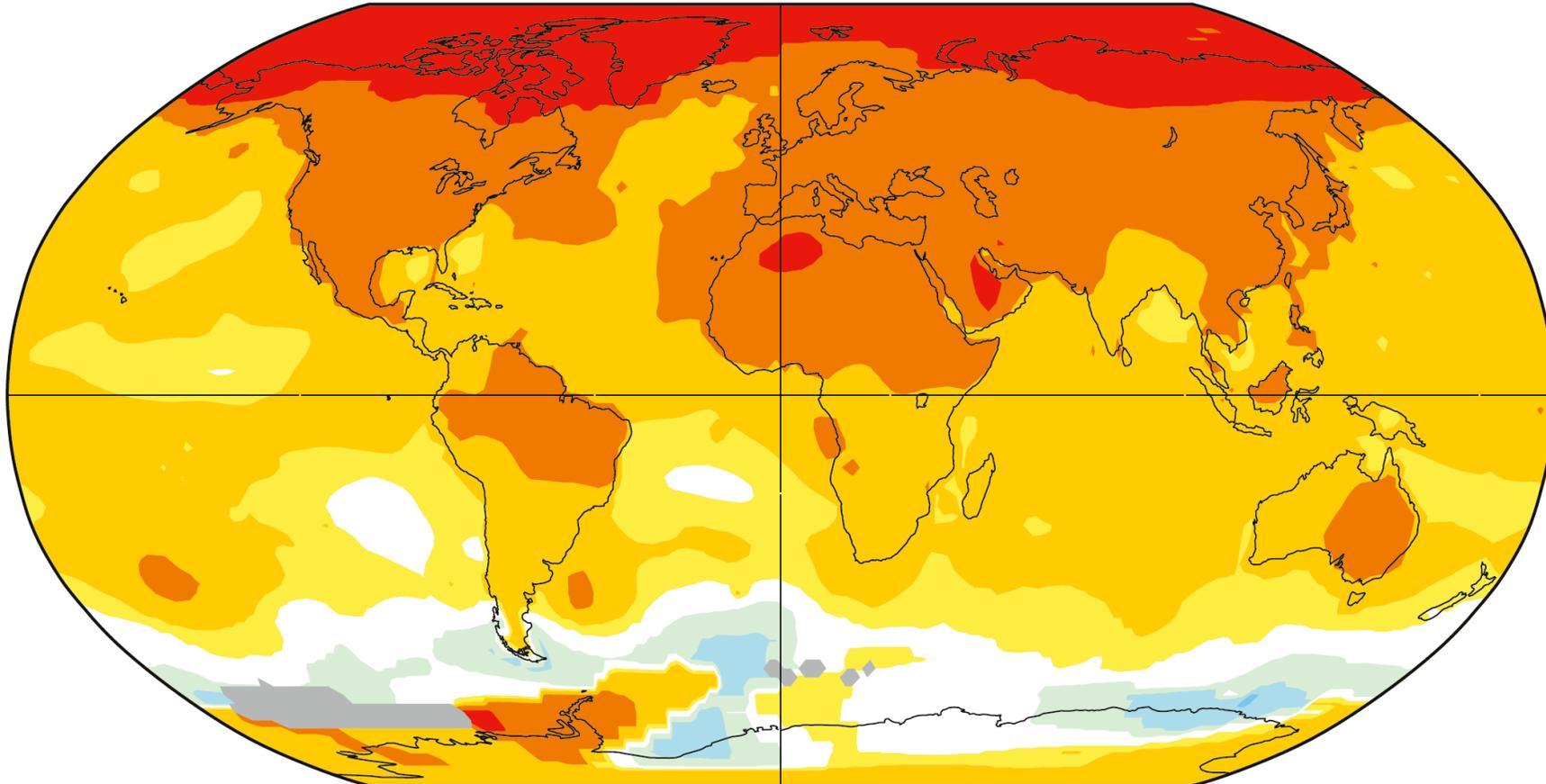
- September 2019 – October 2020
- Largest Arctic research expedition ever
- 5 icebreakers
- More than 70 institutes
- 19 nations (16 on board)
- ~ 300 scientists in the central Arctic



Multidisciplinary Drifting Observatory for the Study of Arctic Climate

A major international research initiative under IASC to improve the representation of Arctic processes in weather forecast and climate models

- Introduction -



-4,0 -2,0 -1,0 -0,5 -0,2 0,2 0,5 1,0 2,0 4,0

Observed change of temperature 1970 – 2017 [°C]

- Introduction -

"What used to be skidoo or skiing trips are boat trips now"

1992



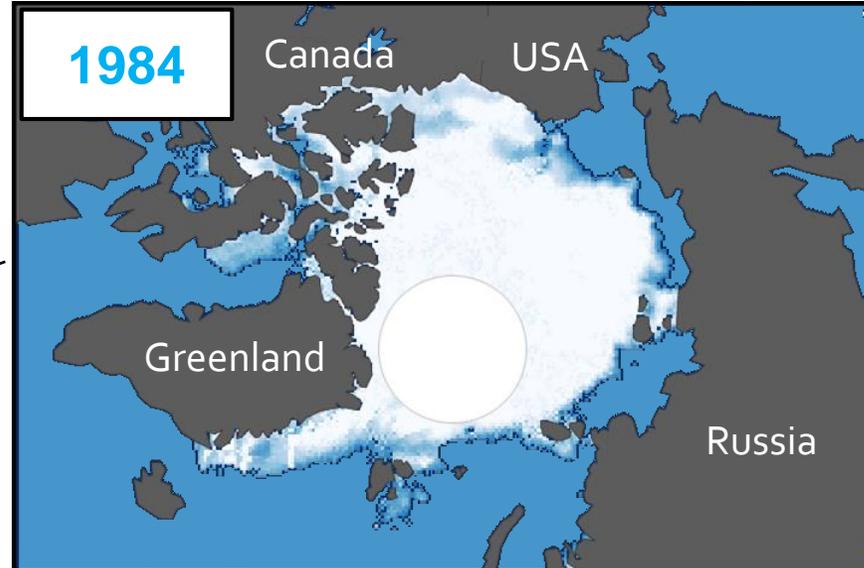
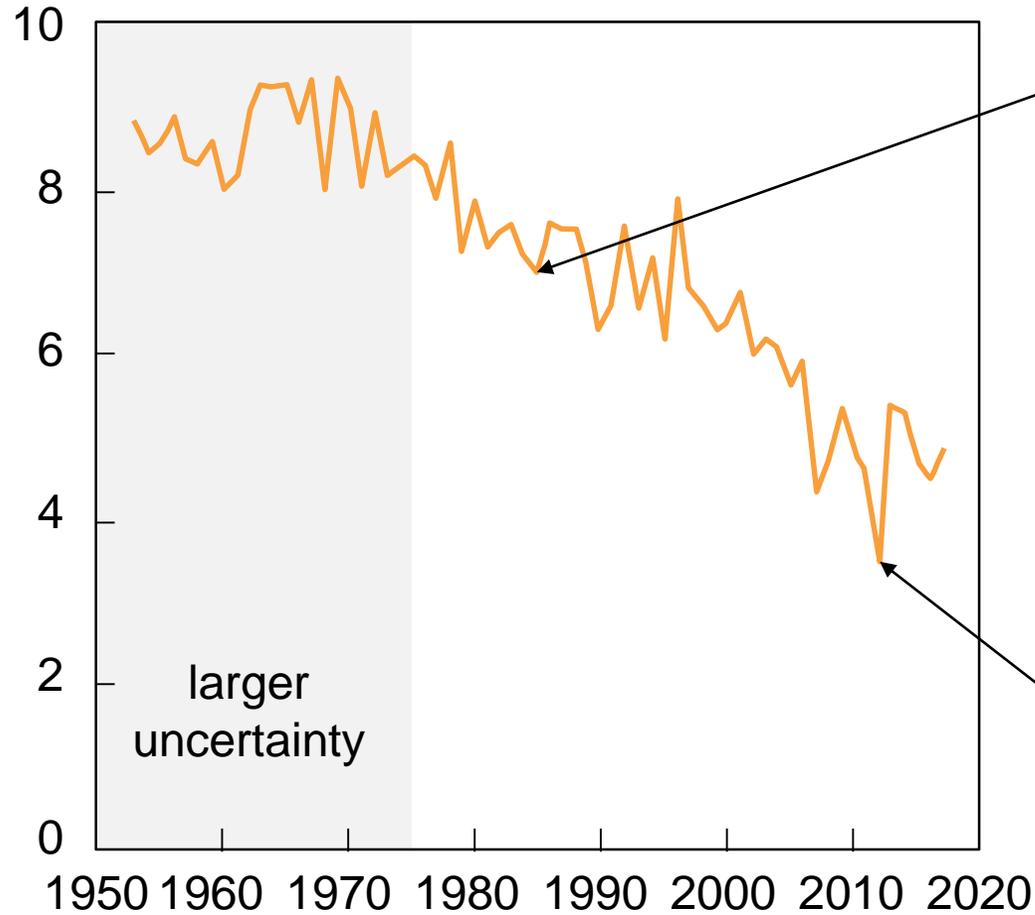
2018



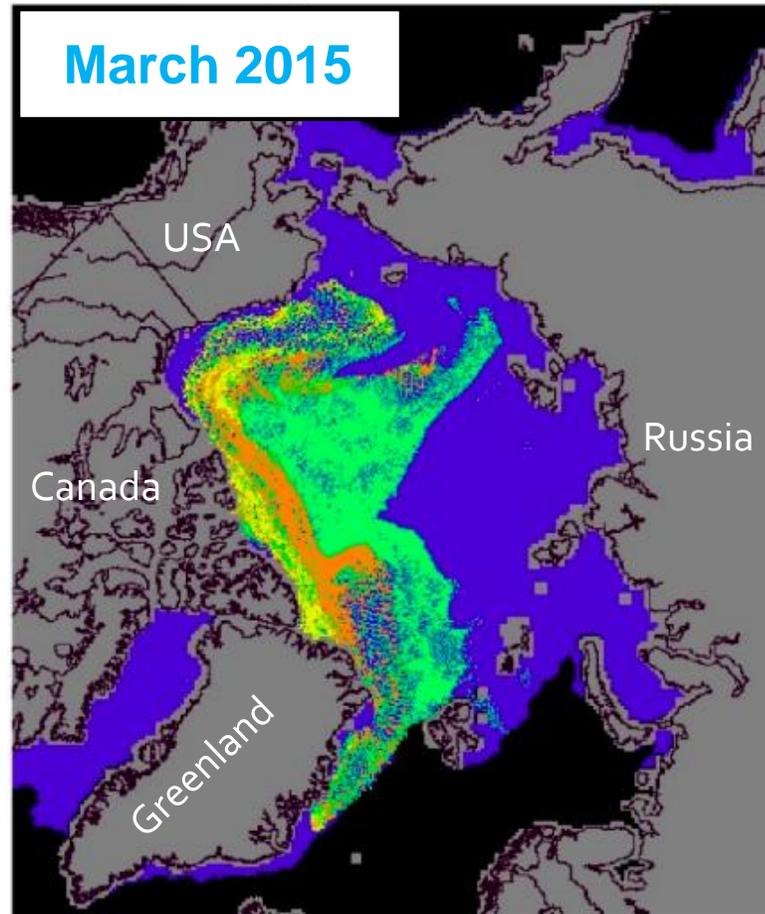
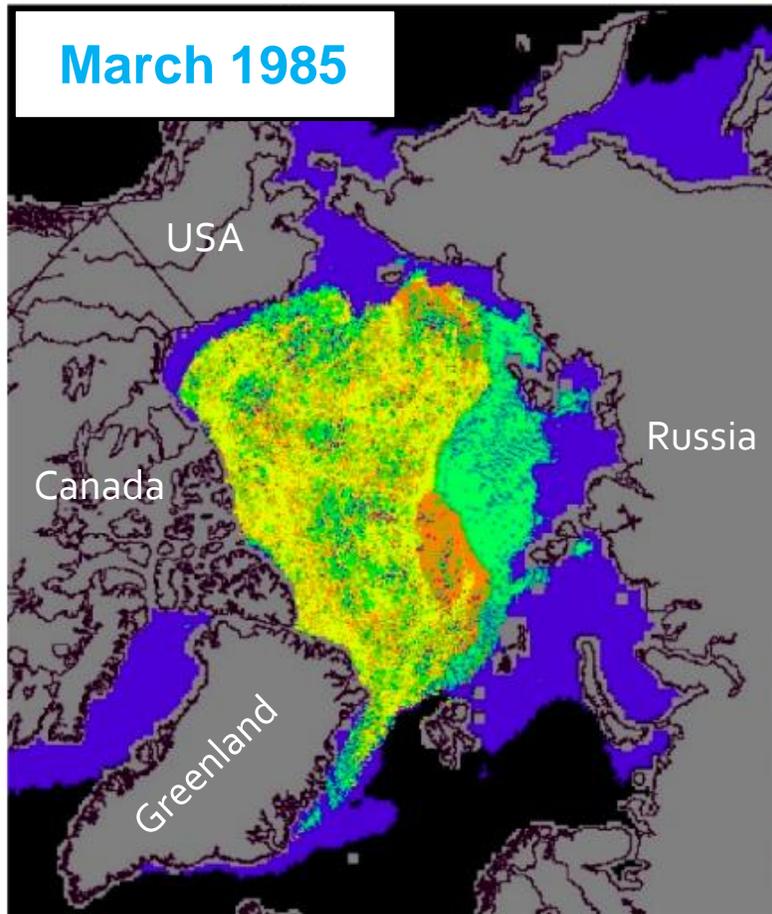
March / April, Kongsfjord, Svalbard

- Introduction -

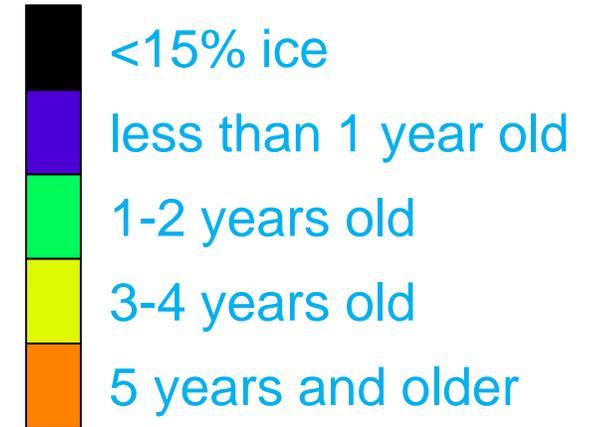
Observed September sea ice extent
(10^6 km^2)



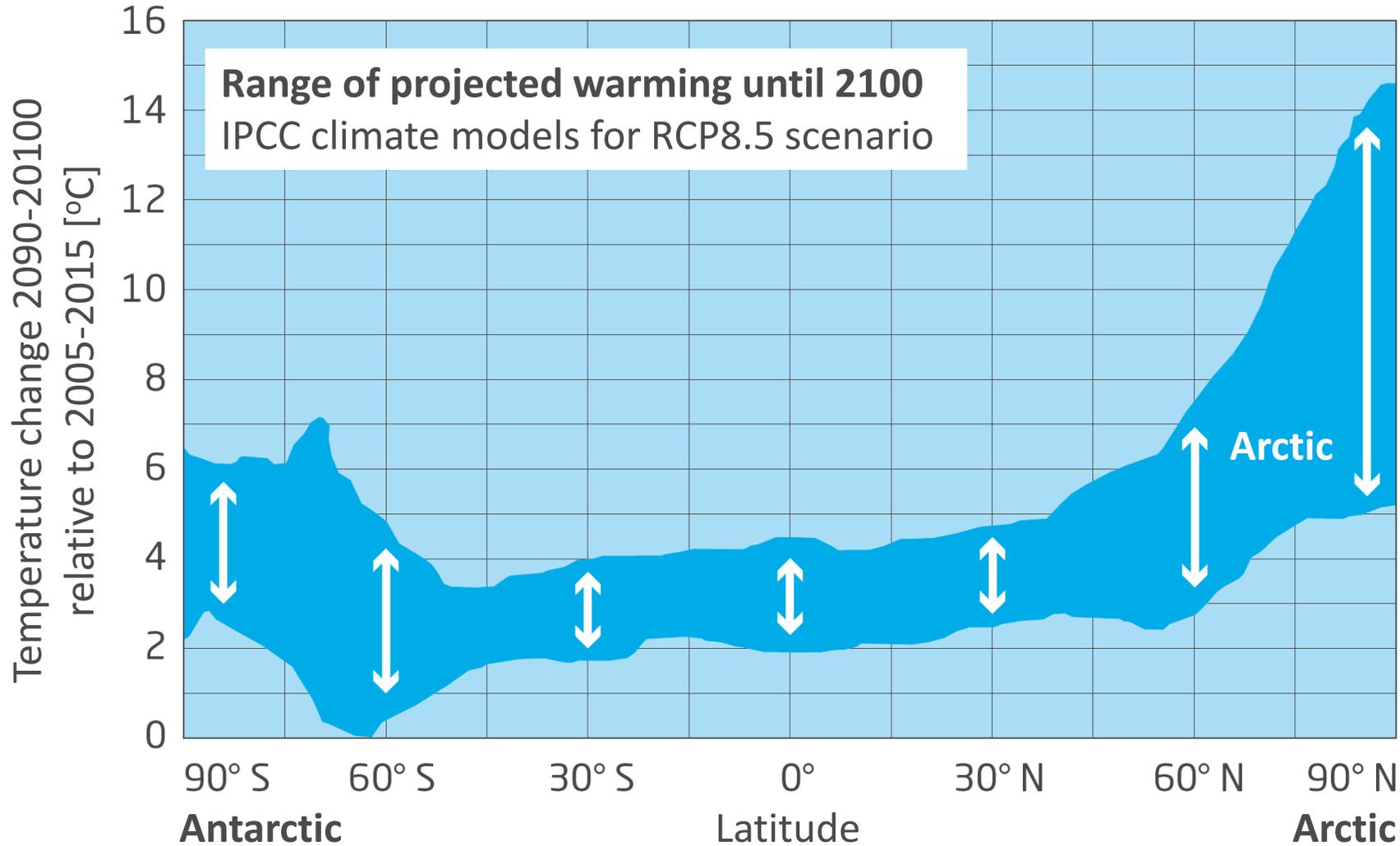
- Introduction -



Sea ice age



- Introduction -



Many processes in the Arctic climate system only roughly represented in Climate Models

Understanding of key climate processes in the Arctic is limited by lack of observations!

- Overarching Goal -

Overarching goal:

To improve the understanding and model representation of coupled atmosphere-ice-ocean-ecosystem-biogeochemistry processes in the Central Arctic to support improved sea ice forecasting, regional weather forecasting, and climate predictions.

- Realizing MOSAiC -



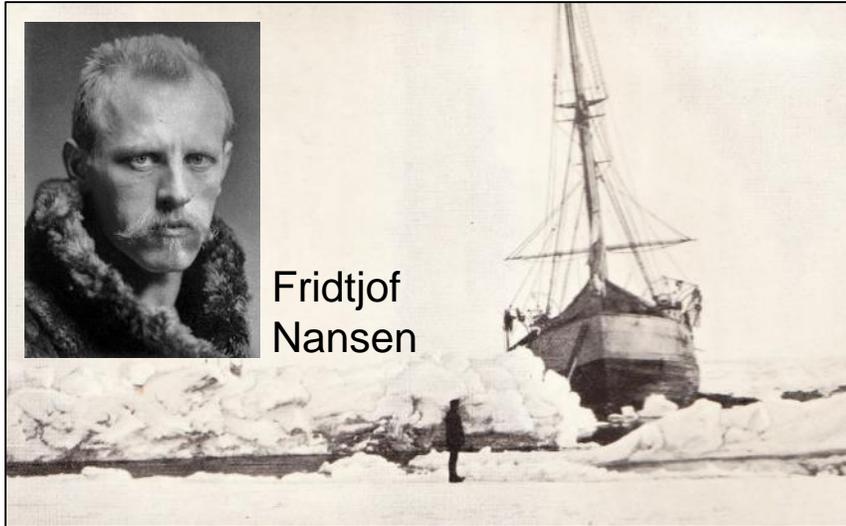
Reliable Arctic climate projections are needed!

To achieve this:

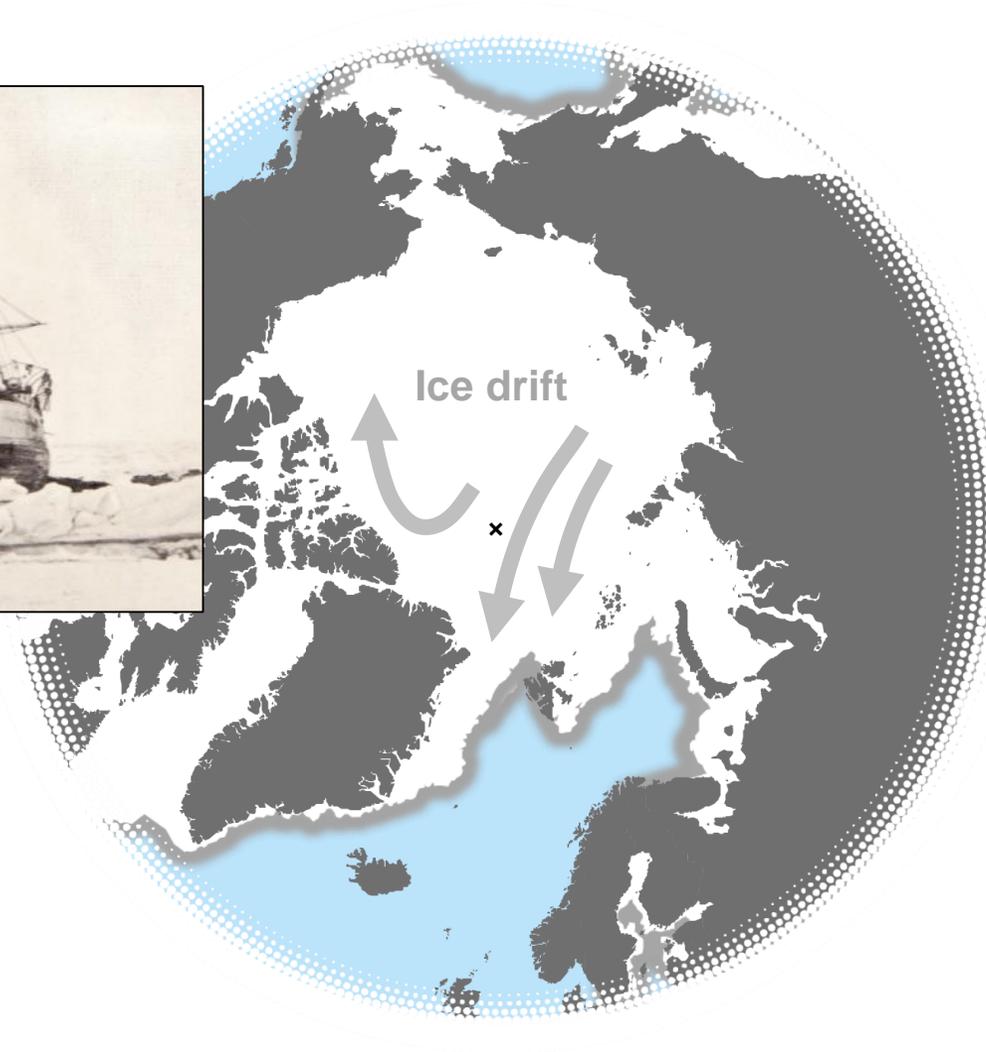
- **AWI initiated** MOSAiC in 2011,
- **teamed up** with strategic international partners under IASC,
- **developed** the **science plan**, **logistical setup** and **funding strategy**,
- official start of the project in June 2018

And now it is only 10 days until the MOSAiC expedition starts

- General Approach -



1893-1896: Fram-Expedition



- General Approach -

September 2019  October 2020

Central observatory:
RV Polarstern



Network of camps on the ice



Operations of research
aircraft and helicopters

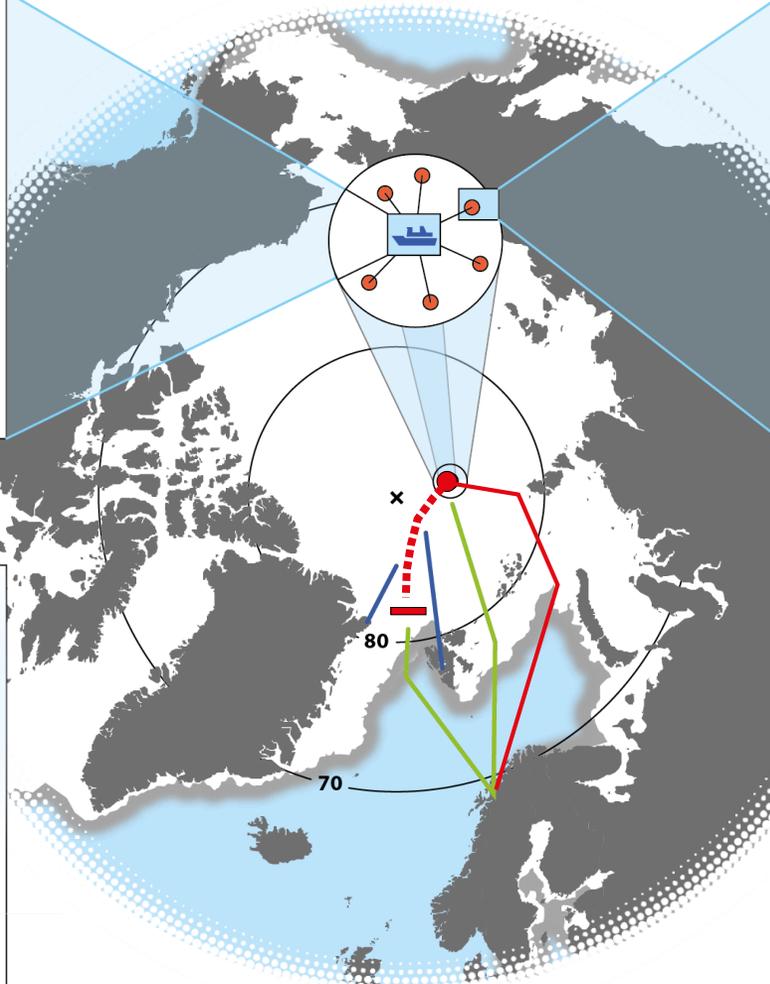


▶ Extended vertical and geo-
graphical coverage

Visits by four icebreakers from
MOSAIC partners



▶ Broader geographic coverage
and supply



- Implementation -

Start: 20. September 2019 in Tromsø
Together with Fedorov

End: 14. October 2020 in Bremerhaven

2019			2020				
15. Sep - 15. Dez		15. Dez - 15. Feb	15. Feb - 15. Apr	15. Apr - 15. Jun	15. Jun - 15. Aug	15. Aug - 14. Okt	
Day/Night		Polar Night		Day/Night	Polar Day		Day/Night
Leg 1 3 Months		Leg 2 2 Months	Leg 3 2 Months	Leg 4 2 Months	Leg 5 2 Months	Leg 6 2 Months	



Until ~Mid Oct
Fedorov



Mid-December
Makarov



Mid-February
Makarov



Mid-April
Antonov AN-74
=> Runway on Ice !

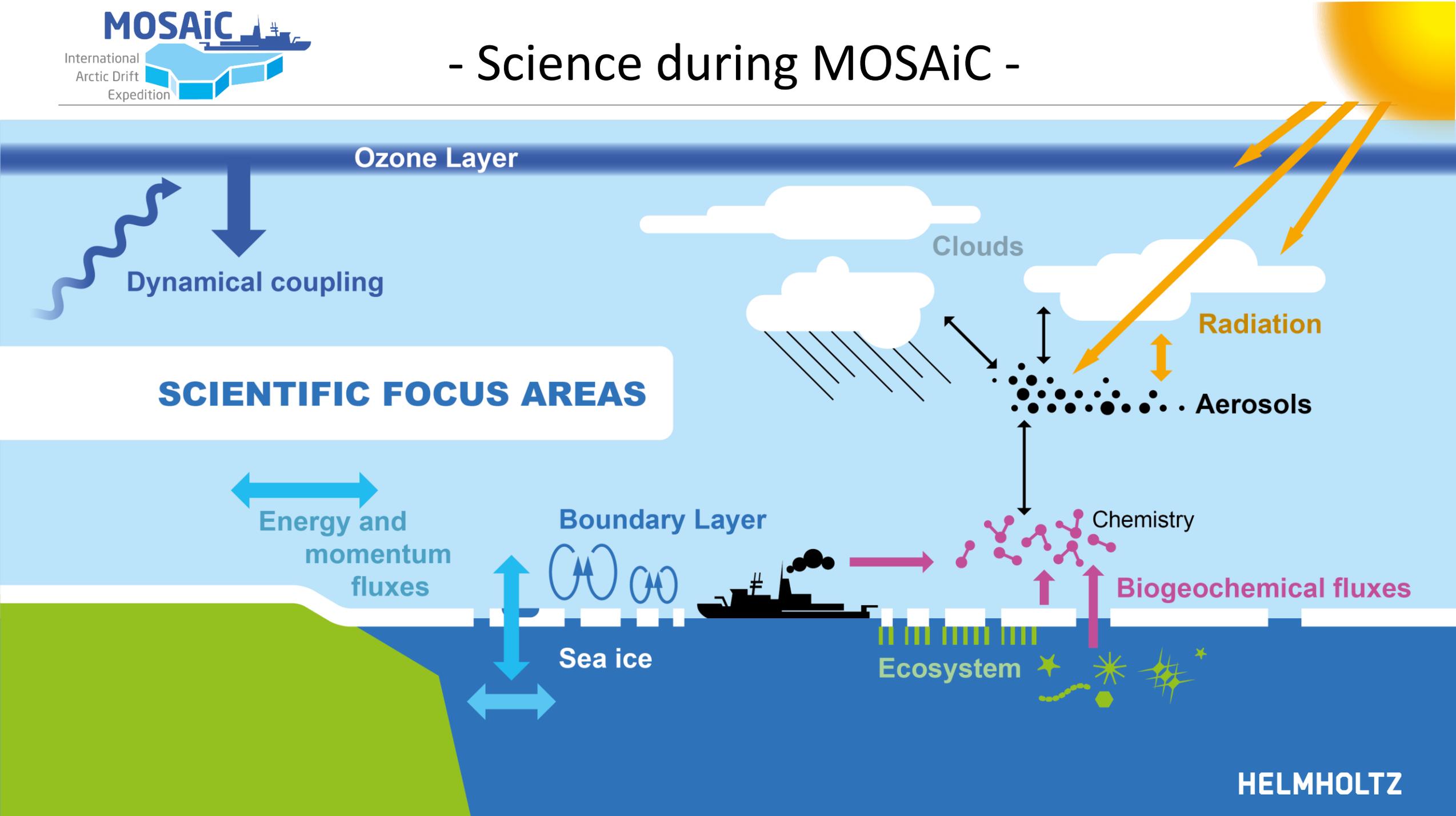


Mid-June
Oden

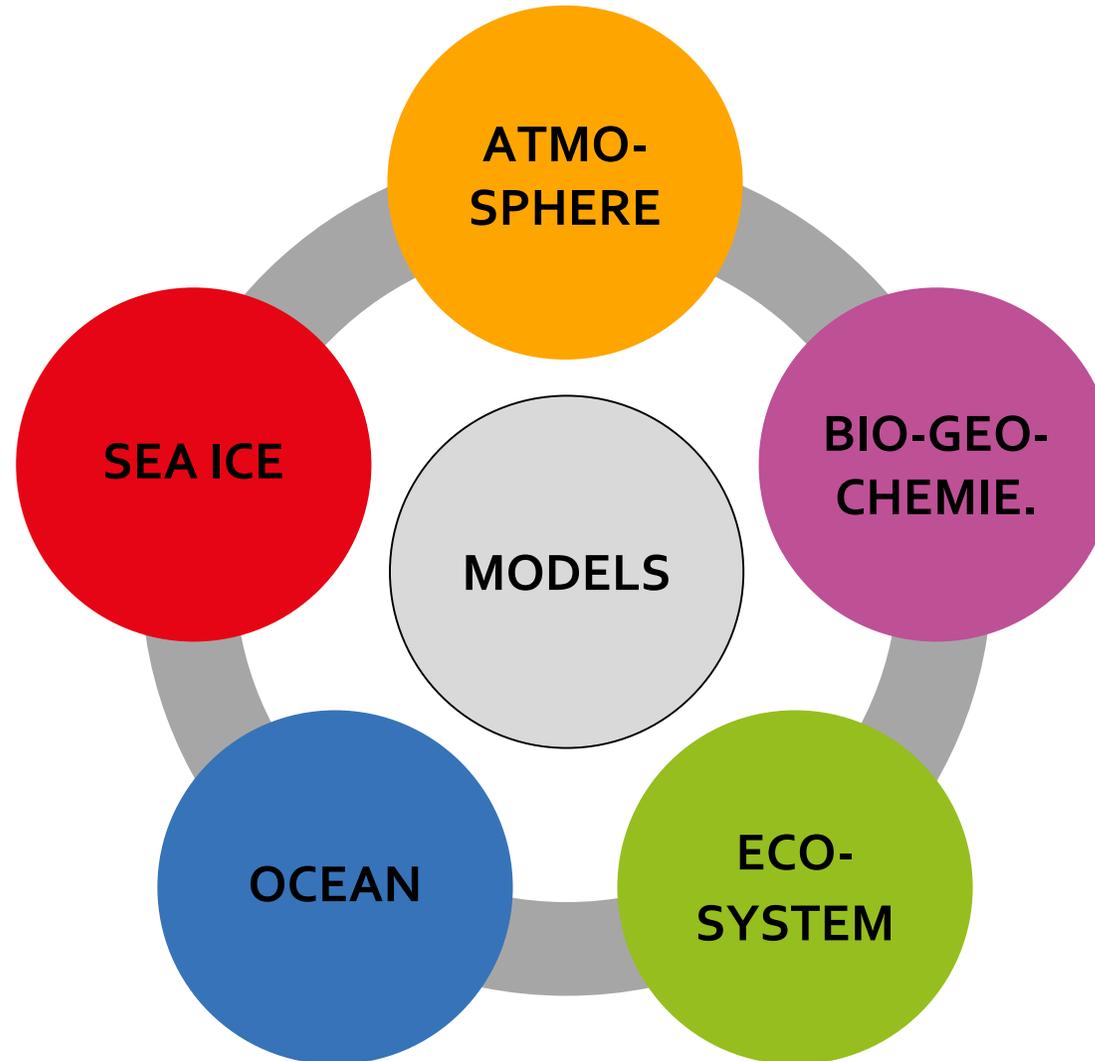


Mid-August
Xuelong

- Science during MOSAiC -



- Science during MOSAiC -



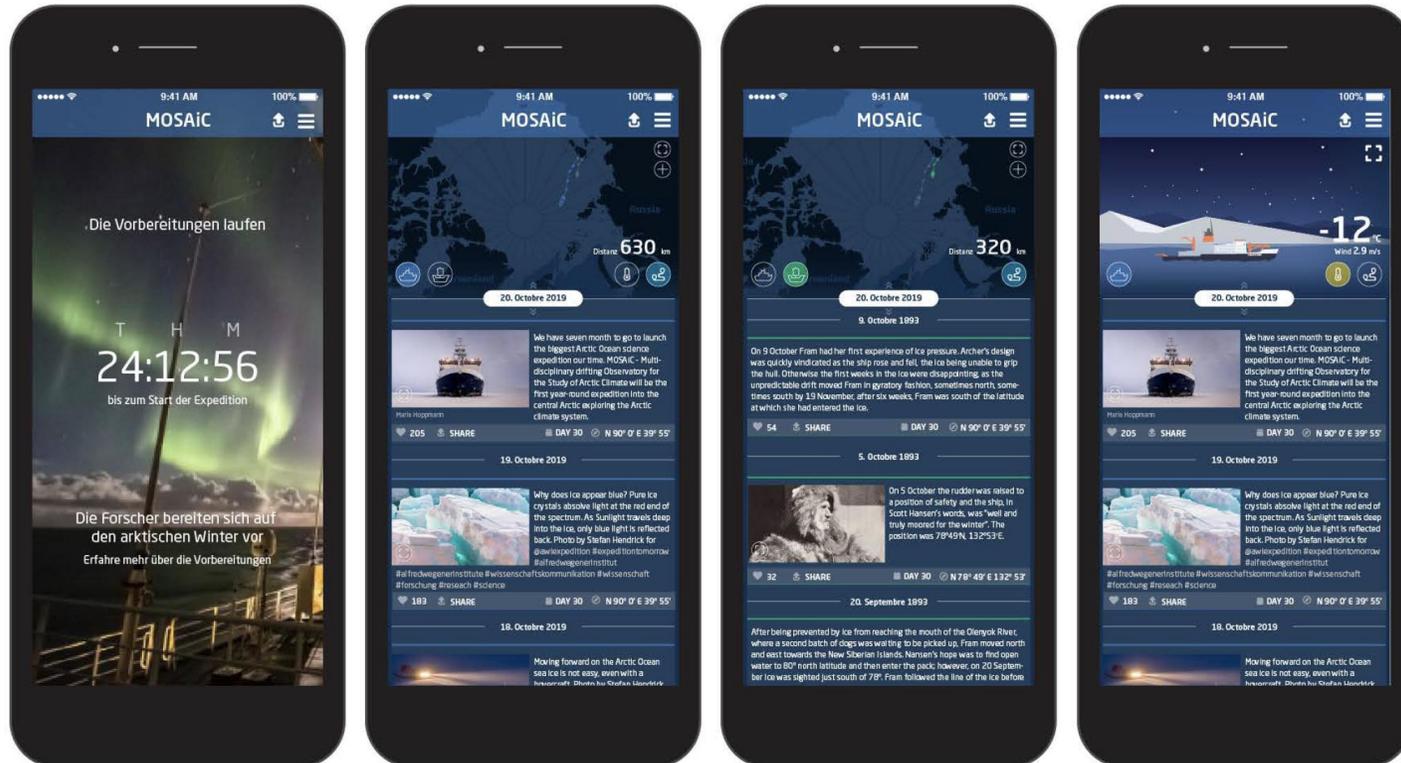
- Follow MOSAIC -

MOSAIC

Embark on the largest polar expedition in history: in September 2019, the German research icebreaker Polarstern will set sail from Tromsø, Norway, to spend a year drifting through the Arctic Ocean - trapped in ice. The goal of the MOSAIC expedition is to take the closest look ever at the Arctic as the epicenter of global warming and to gain fundamental insights that are key to a better understanding of global climate change. Hundreds of researchers



- Webpage: mosaic-expedition.org



- Progressive WebApp:
 - follow.mosaic-expedition.org
 - Position of Polarstern
 - Ice and Weather conditions
 - Picture of the day
 - Compare track of Polarstern with *Fram* (1893 – 1896)

- Follow MOSAiC -

Startseite Über uns

Twitter durchsuchen

Hast du einen Account? Anmelden



• Twitter: [mosaicarctic](#)

Instagram

Suchen

Anmelden

Registrieren

• Instagram: [mosaic_expedition](#)



mosaic_expedition

Folgen

28 Beiträge

906 Abonnenten

53 abonniert

MOSAiC Expedition

As of SEP 2019, the icebreaker #Polarstern will drift through the Arctic for an entire year. The #MOSAiCexpedition is led by Alfred Wegener Institute.

www.mosaic-expedition.org

BEITRÄGE

IGTV

MARKIERT

Atmospheric & survival training
Ny-Ålesund - Spring 2019



Questions ?

