



German Arctic Expeditions 2019 - 2020

FARO/ASSW, 2020, Reykjavik

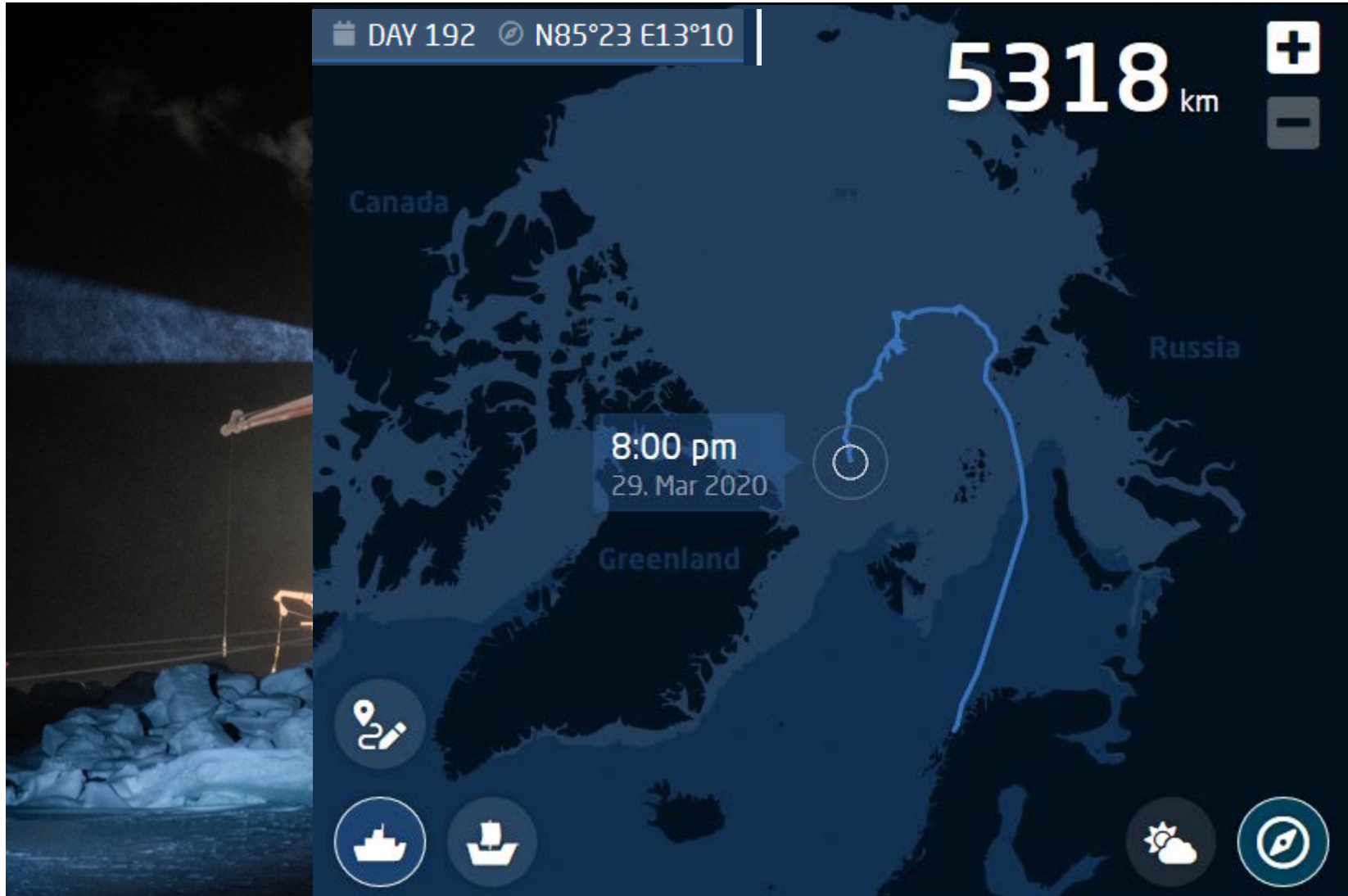
Dirk Mengedoht (Alfred Wegener Institute, Germany)

No. 1 operational challenge



Picture: Esther Horvath

<https://follow.mosaic-expedition.org/>



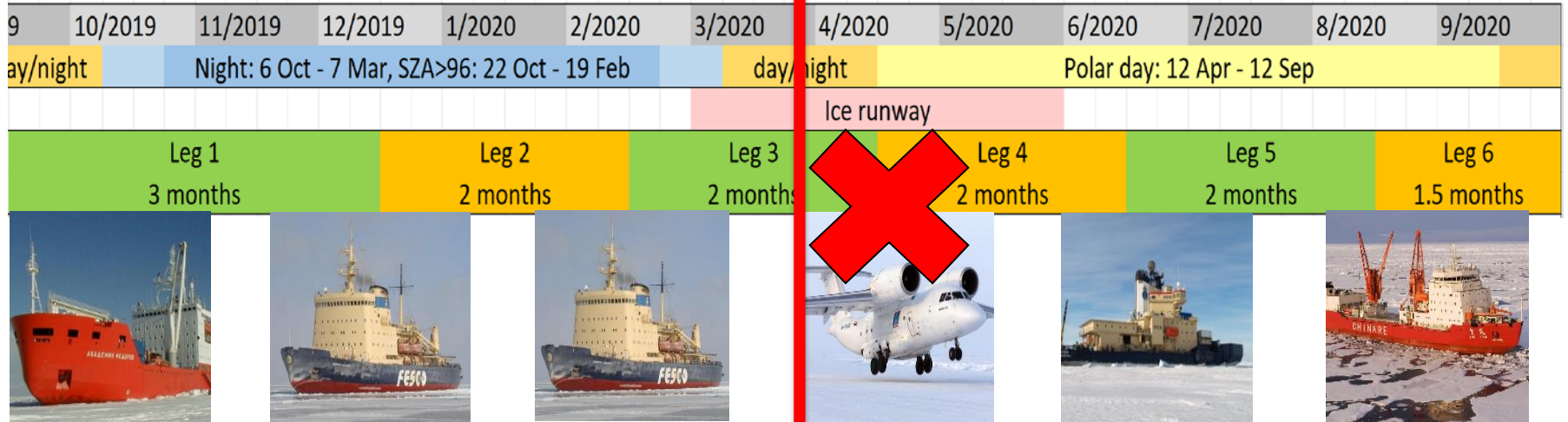


Expedition timeline

Start: 20 September 2019

End: 14 October 2020

all Aircraft campaigns cancelled



Until end of
Oct
Akademik
Fedorov

Mid
December
Kapitan
Dranitsyn

Mid February
Kapitan
Dranitsyn

Mid April
Antonov AN-
74
=> Ice
runway

~20 May
Oden
+ 2nd
vessel?

Begin August
MV Xue Long II

RV Polarstern, replacement New schedule → 2027



The Changing Arctic Transpolar System (CATS, 2017 - 2021)

Heidemarie Kassens (GEOMAR) & Vladimir Ivanov (AARI)



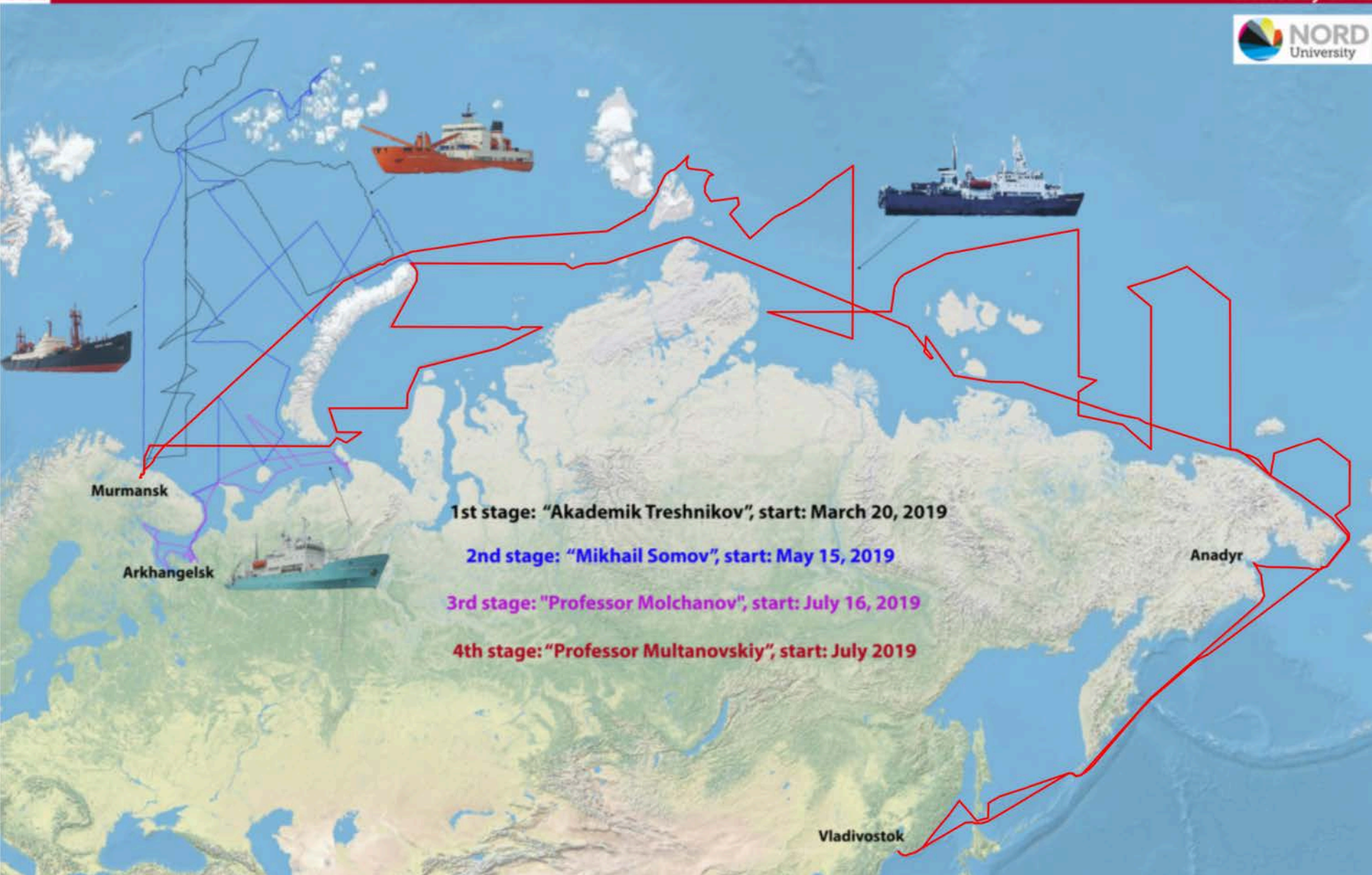
- CATS aims to assess how climate change will affect the highly sensitive Arctic Environment and to what extent these changes may impact the climate in Europe
- Kara Sea, Laptev Sea, East Siberian Sea and Chukchi Sea
- Severnaya Zemlya (Cape Baranova)



CHNL

TRANSARKTIKA-2019: RESEARCH PROJECT BY ARCTIC AND ANTARCTIC RESEARCH INSTITUTE

Created by CHNL



Terrestrial Permafrost Thaw Dynamics and Disturbances on the Alaska North Slope

ThawTrend-Air 2019



- Platform: AWI Polar-6
- Core Sensors: DLR MACS, Riegl Q680 LiDAR, Los Gatos
- Planned Duration: 2019/07/10 – 2019/07/31 (actual: 19 days)
- Total flight time: 46h
- Base: Barrow/Utkiagvik, Alaska, USA
- Scientific Participants: AWI (Grosse, Nitze), GFZ (Sachs)
- Technical Participants: AWI (Gehrmann, Stöhr), DLR (Gessner)
- Collaborations: DLR (Brauchle, Bucher, Hauber), UAF (Jones), NASA ABoVE (Miller)



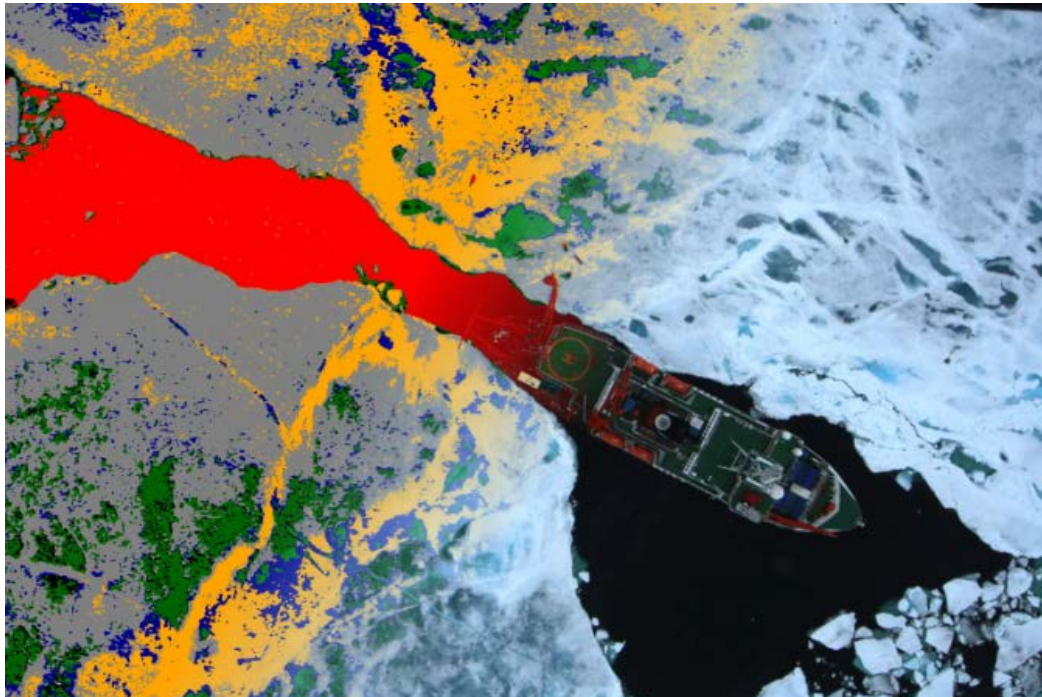


IceBird continues in 2020 and 2021

Continuation of sea ice thickness time series in late summer

Additional focus:

Studies on melt pond characteristics of different Arctic sea ice regimes



Sea ice surface
classification (green: melt
ponds)



Gregory Tran, Raphaëlle Ugé, Gwendal Hénaff
(Station Leader, Logistic Engineer, Observatory Engineer)

- **4379 person-days**

Scientific guests: 2737

Support staff: 423

Media & VIP: 25

Station personnel: 1194

- **38 projects visiting**

(27 GER, 10 French, 1 Dutch)

- **5 projects without guests**

(3 GER, 1 French, / 1 Dutch)

- **43 projects** (30 GER, 11 French, 2 Dutch)

(28 projects run continuously by station personnel)

- **< 3900 person-days ?**

Who knows

- **36 projects visiting**
(27 GER, 13 French, 3 Dutch)
- **8 projects without guests**
(6 GER, 1 French, 1 Dutch)
- **44 projects** (33 GER, 9 French, 2 Dutch)
(28 projects run continuously by station personnel)

Dutch Note:

From 3-12 August 2020, Multidisciplinary expedition to Edgeöya, Svalbard.
50 scientists + 50 tourists :

“Climate change in an uninhabited terrestrial ecosystem” <http://www.sees.nl>

Russian-German Expeditions LENA

Operational challenge

Responsible institutions:

- Arctic and Antarctic Research Institute of Roshydromet (AARI), St. Petersburg, Russia
- Melnikov Permafrost Institute, Siberian Branch of the Russian Academy of Sciences (MPI SB RAS), Yakutsk, Russia
- Alfred Wegener Institute Helmholtz Centre for Polar and Marine Research (AWI), Bremerhaven and Potsdam, Germany
- Trofimuk Institute for Petroleum for Petroleum Geology and Geophysics, Siberian Branch of the Russian Academy of Sciences, Novosibirsk, Russia (IPGG SB RAS)



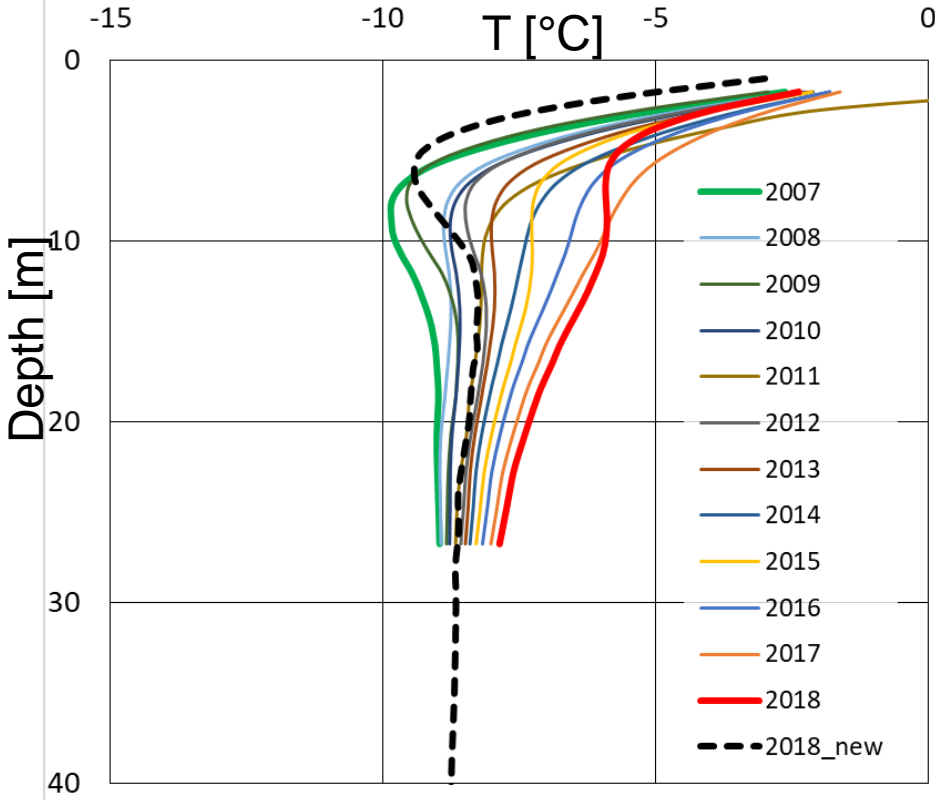
Scientific and logistical base: Research Station Samoylov Island



Long-term observations and int. networks

Samoylov / Lena Delta

Borehole 27m (2006) vs. 60m (2018)
12. Aug. 2007-2018



borehole 60+ m (2018)
borehole 27 m (2006)

Boike et al. 2019 Earth
System Science Data



Meteorological, remote sensing,
trace gas measurements and field
lab:



Transnational and virtual access
to Research Station Samoylov
Island through:



Land based Arctic activities 2019 (extract)



Leg	Start	End	Pers. Days	Nations	Mission
LENA 2019 (Samoylov- Station) incl. CACOON	April	Septem ber	ca. 1700	Russia, Germany, Switzerland, Netherlands, Finland, Sweden	Long-term studies of energy and water balance, carbon turnover, greenhouse gas emissions in permafrost ; - hydrological, geomorphological and biological
Batagay, Russia	March 15	April 10	130	Germany Russia	
EGRIP Greenland	May 05	August 19	601	Germany Switzerland Denmark Netherlands	
Yukon Summer Canada	July 01	August 15	184	Germany	

Land based Arctic activities 2019 (extract)



Leg	Start	End	Pers. Days	Nations	
Chersky, Kolyma Russia	July02	July 24		Germany	
Herschel Island Canada	July 20	August 20	217	Germany	
Nyurba Russia	August 17	Septemb er 01	30	Germany	

Land based Arctic activities 2020



Operational challenge



The AWI in brief

- 1980** Institute is created in Bremerhaven as a foundation under public law
- 1175** Employees (2018)

Financing

- 175** Mio. € Budget (2018)
 - 90%** Federal Ministry of Education and Research (BMBF)
 - 8%** Federal State of Bremen
 - 1%** Federal State of Brandenburg
 - 1%** Federal State of Schleswig-Holstein
- 25** Mio. € Third-party funding

Member of the Helmholtz Association:

18 research centers throughout Germany

Combining resources to explore complex questions of social, scientific and technological relevance