



ALFRED-WEGENER-INSTITUT  
HELMHOLTZ-ZENTRUM FÜR POLAR-  
UND MEERESFORSCHUNG



# German Arctic Expeditions 2018 - 2019

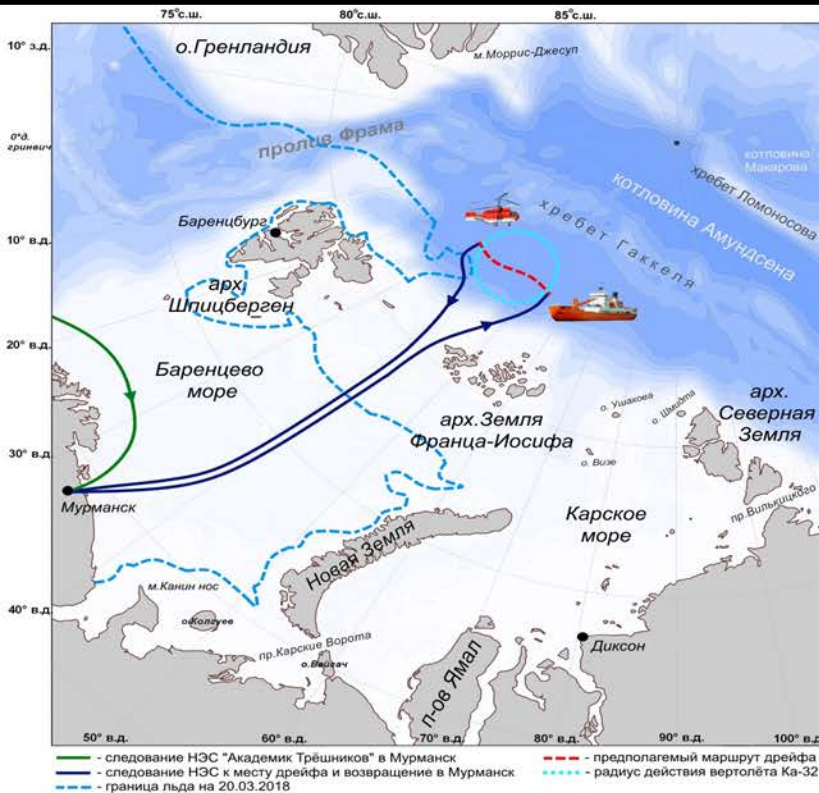
**FARO/ASSW, 2019, Archangelsk**

**Uwe Nixdorf, Dirk Mengedoht** (Alfred Wegener Institute, Germany)



# SEWERNIJ Poljus 2019 onboard FS АКАДЕМИК ТРЫОШНИКОВ

## 19.3. – 21.5.2019



© AARI

5.4.2019, NW of Franz Josef Land

# The Changing Arctic Transpolar System (CATS)



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

# 2018: 20th Anniversary of the LENA Expeditions

Successful Russian-German cooperation:

- Multiple third-party funded projects (RSF, RFBR, DFG, HGF, ESA, ERC, EU, etc.)
- > 150 joint scientific articles
- > 250 joint datasets archived in open access
- > 85 student theses finished

Lena-Delta  
20 Russisch-  
Jahre Deutsche  
Forschung



Дельта Лены  
20 Российско-  
Германских  
лет Исследований

International Symposium 17 to 19 October 2018  
AARI St. Petersburg



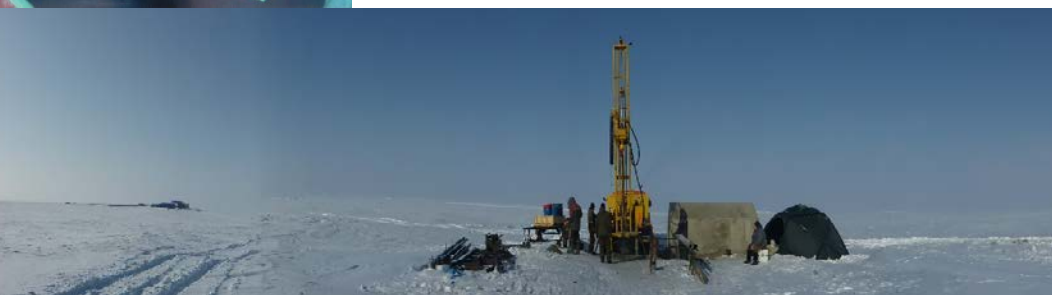
# Highlights LENA 2018



Implementation of a Lena River water monitoring with support of station



Drilling of a new 65 m deep permafrost borehole on Samoylov Island for environmental reconstruction and permafrost temperature monitoring



Фамилия:	<i>Александров</i>		Отметьте место отбора воды
Дата:	Дата	Время (местное)	
Номер образца:	<i>002-24.09.18</i>	<i>10.30</i>	
Температура воды ГС:	<i>-0.2</i>		Другие примечания: <i>Вода из скважины 15 м</i>
Электропроводность воды:	<i>450</i>		
Состояние реки при отборе:	<input type="checkbox"/> вода в реке особенно мутная (весна, половодье) <input type="checkbox"/> особенно ветрено, волны, в воде много осадка (лето) <input type="checkbox"/> обычный поток (лето) <input type="checkbox"/> другие (отметить): <i>Вода мутная</i>		

# Russian-German Expeditions

## LENA

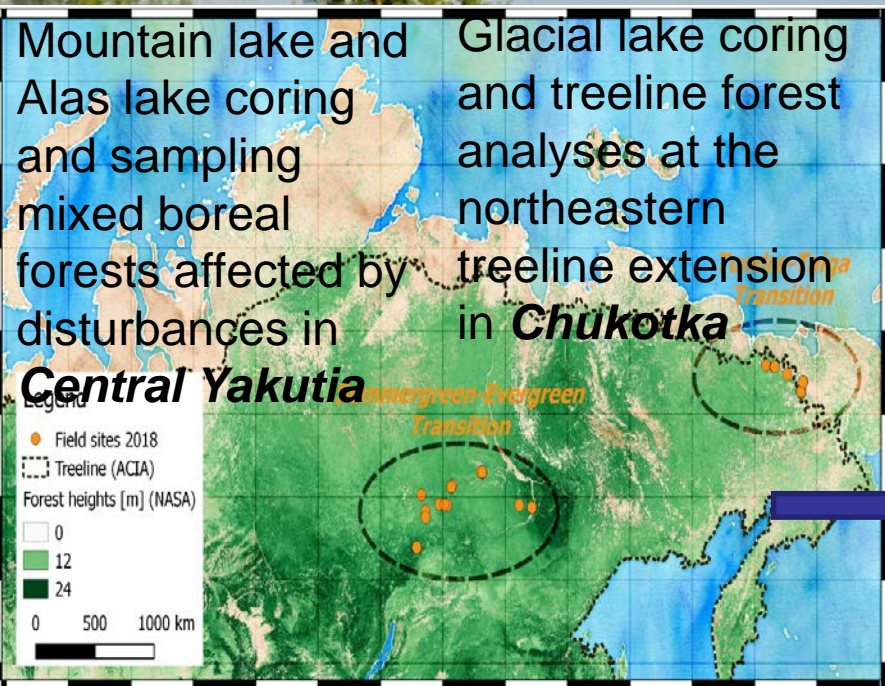
### Responsible institutions:

- 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)



# Expedition „Chukotka 2018“

Modern vegetation studies and lake sediment coring at the Tundra-Taiga-Transition zone in Chukotka and Yakutia



## Intensive landscape analyses

Alas agriculture      Spruce recruitment      Larch-dominated forests      Thermokarst lake formation



ACIA: Walker DA, Rayville MK, Doolin TA et al. (2005) The circumpolar Arctic vegetation map. Journal of Vegetation Science, 16, 207-209.  
 NASA: Seward M, N. Pinto, J. B. Fisher, and A. Becker (2011) Mapping forest canopy height globally with spaceborne lidar. J. Geophys. Res., 116, 004021, doi:10.1029/2011J016008.  
 Background data by OpenStreetMap, under CC BY SA <https://creativecommons.org/licenses/by-sa/3.0/>  
 map created by Stefan Kluge

# Expedition Magadan 2019

*June/July 2019*

## ***Polar Terrestrial Environmental Systems***

*Boris Biskaborn*

Freshwater biotic and abiotic system reactions to past and recent climate changes:  
Seismic transects and sediment coring in lake Kisi, Magadan, Far-East Russia.

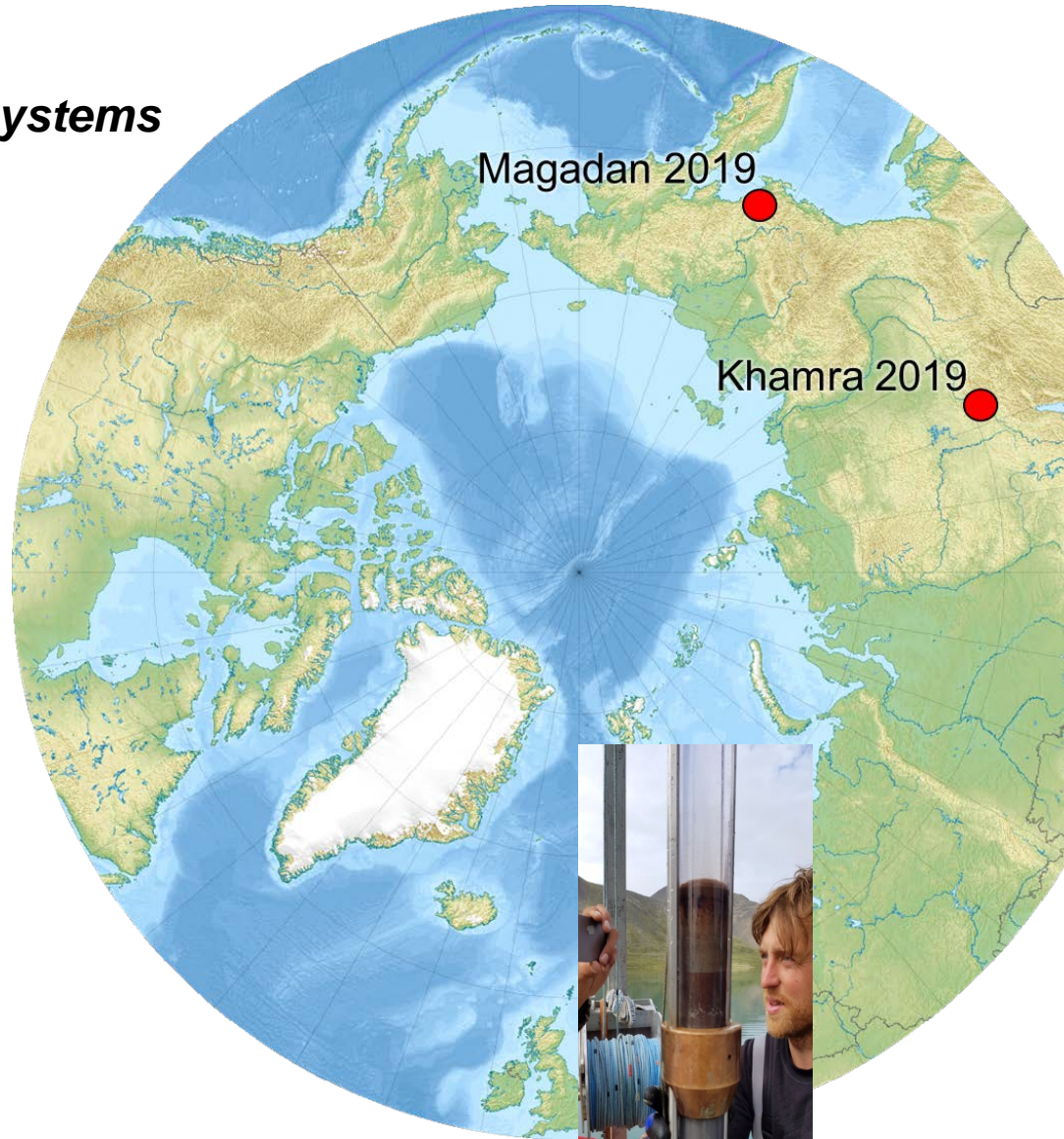
# Exped. Lake Khamra 2019

*November/December 2019*

## ***Polar Terrestrial Environmental Systems***

*Boris Biskaborn*

Freshwater biotic and abiotic system reactions to past and recent climate changes:  
Sediment coring in lake Khamra, Yakutia, Central Siberia.





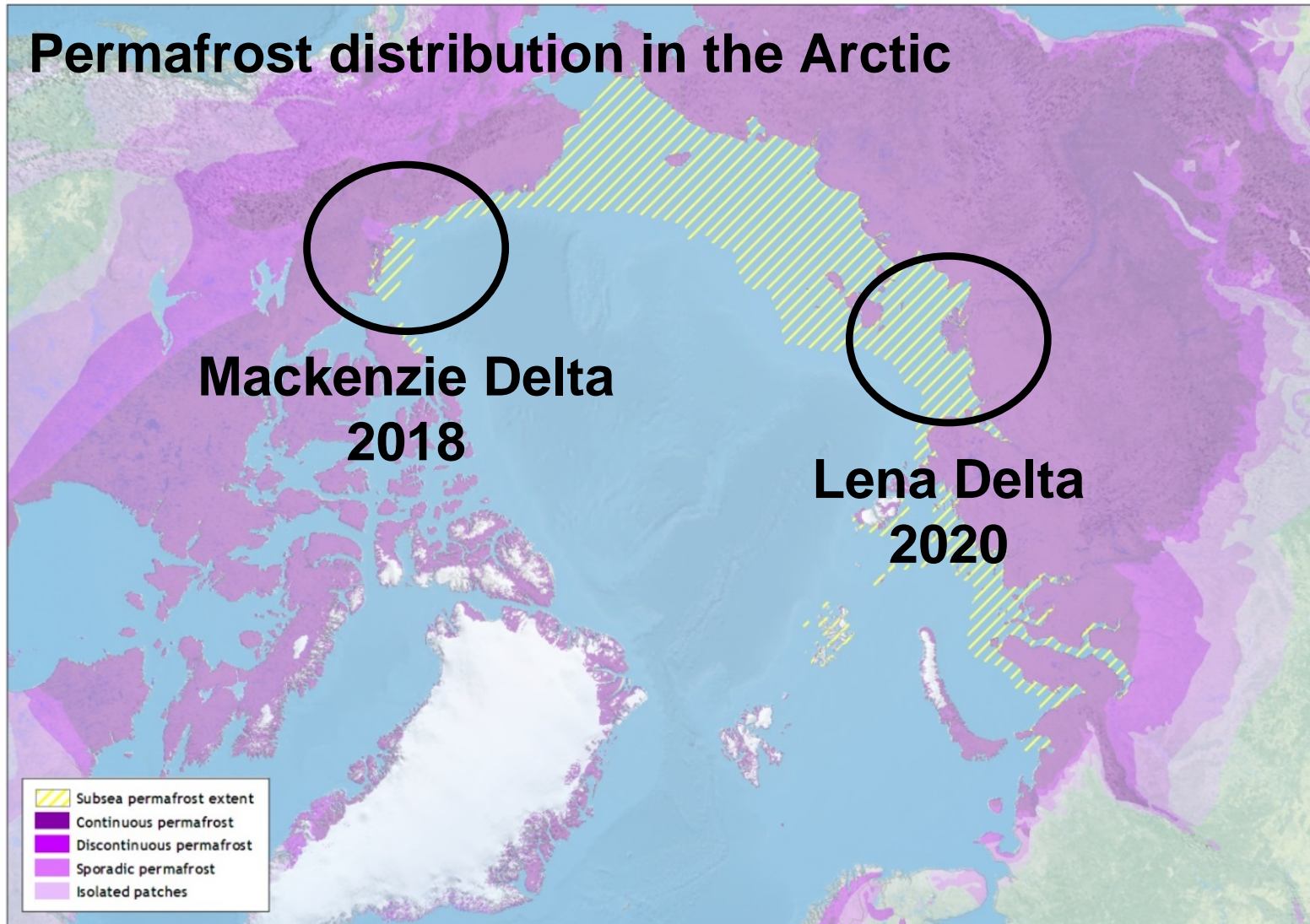
## Outlook 2020:

# MODULAR OBSERVATION SOLUTIONS FOR EARTH SYSTEMS

- designed to investigate the interactions of short-term **events** and long-term **trends** across Earth compartments
- new observing system for detecting rapid permafrost thaw events (terrestrial, aquatic and aerial methods)
- next test campaign: april –october 2020, Lena River Delta
- coordinated with T-MOSAiC
- focus on thermokarst lakes and degrading permafrost processes



# Outlook 2020:





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Спасі́бо!

Thank you!