



Towards a New Arctic Climate System

Scientific Workshop (CATS / QUARCCS)



Venue: Arctic and Antarctic Research Institute (AARI), Middle Hall / OSL

Monday, 2 December 2019 : Arrival

Tuesday, 3 December 2019

09:30-10:00 Registration (Middle Hall)

Opening

10:00-10:30 Opening:
A. Makarov (Director of AARI)
Representatives of the Russian and German Ministries

Session I: The changing transpolar system: oceanographic and sea-ice processes

10:30-11:00 Keynote: The changing Arctic transpolar system – an overview
Ivanov, V., Kassens, H., CATS Team

11:00-11:15 The warming Laptev Sea shelf under climate change in the Arctic
Hölemann, J., Janout, M., Kusse-Tuz, N., Kanzow, A. Smirnov, T., Makhotin, M., Ivanov, V., Kassens, H.

11:15-11:30 On the Atlantic water heat in the Arctic Boundary Current along the Eurasian slope (Part 1): Seasonal and interannual variability
Reeve, K., Hölemann, J., Janout, M., Kanzow, T., Körtke, W., Ivanov, V., Kassens, H.

11:30-11:45 On the Atlantic water heat in the Arctic Boundary Current along the Eurasian slope (Part 2): AW heat loss processes around Vilkitsky Strait
Schulz, K., Janout, M., Hölemann, J., Reeve, K., Tippenhauer, S., Polyakov, I.

11:45-12:00 Surface waters properties in the Laptev and East-Siberian seas in summer 2018 from in situ, satellite and model data
Kusse-Tuz, N., Tarasenko, N.

12:00-13:30 **Lunch (Middle Hall)**

13:30-14:00	Project-related expeditions (2019) <ul style="list-style-type: none">• TRANSARKTIKA Leg 1 (Ivanov, V., Frolov, I.)• TRANSARKTIKA Leg 4 (Kassens, H., Sebastianov, A., Kusse-Tuz, N., Gangnus, I., Povazhnyy, V.)• The Distributed Network: Joint AARI/AWI activities during the setting up phase of MOSAiC (Krumpfen, T., Smolyanitsky, V.)
14:00-14:15	Results of oceanographic observations in the Russian Arctic seas in 2019 <i>Makhotin, M., Ivanov, V., Frolov, I., Filchuk, K., Merkulov, V., Kusse-Tuz, N., Hölemann, J., Chen, V., Reus, K., Evers, F., Tarasenko, A., Malinovskiy, S., Tuzov, F., Harlamov, P., Kuzmin, S., Karpov, M., Ipatov, A.</i>
14:15-14:30	13 years of sea-ice-draft observations in the Laptev Sea from moored ADCPs and upward-looking sonar: changes, variability and comparison to Earth Observation data <i>Belter, J., et al.</i>
14:30-14:45	Spatial and temporal patterns of Arctic sea-ice leads <i>Willmes, S., Heinemann, G.</i>
14:45-15:00	Sea ice drift and deformation from SAR data in Russian Arctic seas <i>Demchev, D., Klyachkin, S.</i>
15:00-15:15	Special sea ice ship observations and their application in comparison with satellite microwave radiometry data <i>Alekseeva, T., Sokolova, J.</i>
15:15-15:30	NEMO modelling in CATS project <i>Ivanov, V., Danshina, A.</i>
15:30-16:00	Coffee break
Poster session	
16:00-16:30	Poster session: short talks
16:30-17:30	Poster session
17:30-18:30	Icebreaker (OSL)

Wednesday, 4 December 2019

Session II: Atmosphere-Ice-Ocean

- 09:30-10:00 Keynote: Quantifying rapid climate change in the Arctic: regional feedbacks and large-scale impacts
Rinke, A., Semenov, V., Mokhov, I., QUARCCS Team
- 10:00-10:15 The joint QUARCCS Ny-Ålesund-Barentsburg flux comparison campaign: What did we learn?
Schulz, A.
- 10:15-10:30 The observed recent surface air temperature development across Svalbard and concurring footprints in local sea ice cover
Dahlke, S., Hughes, N.E., Penelope, M., Wagner, P.M., Gerland, S., Wawrzyniak, T., Ivanov, B., Maturilli, M.
- 10:30-10:45 Boundary layer measurements at Cape Baranov
Heinemann, G., Drüe, C., Makshtas, A., Kustov, V.
- 10:45-11:00 Characteristics of the interaction between the atmosphere and the underlying surface on Bolshevik island (Severnaya Zemlya Archipelago)
Makshtas, A., Makhotina, I.
- 11:00-11:15 High-resolution CCLM simulations around Cape Baranov
Kohnemann, S., Heinemann, G.
- 11:15-11:30 Coupled regional modeling for studying atmosphere/sea ice interactions in the Arctic
Rinke, A., Dorn, W., Yu, X., et al.
- 11:30-11:45 Atlantic water inflow and its impact on winter cyclone activity over the Barents-Kara seas: results from coupled regional climate model simulations
Akperov, M., Semenov, V.A., Mokhov, I.I., Dorn, W., Rinke, A.
- 11:45-12:00 Atmosphere circulation response to the Arctic sea-ice decline in a regional climate model
Semenov, V.A., Varentsov, M.I., Kurgansky, M.V.
- 12:00-13:30 **Lunch**
- 13:30-13:45 Arctic warming interrupts the Transpolar Drift and affects long-range transport of sea ice
Kruppen, T., et al.

- 13:45-14:00 Variability and trends of polynya ice production in the Arctic
Preußner, A., Ohshima, K., Willmes, S., Heinemann, G.
- 14:00-14:15 Arctic sea ice lead fractions derived from AMSR-E and AMSR-2 brightness temperatures
Tian-Kunze, X., Kaleschke, L., Willmes, S., Pohlmann, T.
- 14:15-14:30 The role of atmospheric forcing in Laptev Sea sea-ice production in the Finite Element Sea-ice Ocean Model (FESOM)
Schnaase, F., Kohnemann, S., Heinemann, G.
- 14:30-14:45 Atmospheric circulation regimes related to sea ice and sea surface temperature changes
Handorf, D., Jaiser, R., Akperov, M., Timazhev, A., Mokhov, I.
- 14:45-15:00 Connections between sea-ice conditions in Arctic and blockings in the Northern Hemisphere
Timazhev, A.V., Mokhov, I.I.
- 15:00-15:15 Separating the impact of sea ice and sea surface temperature changes on Arctic mid-latitude climate linkages
Jaiser, R., Handorf, D., Akperov, M., Timazhev, A., Mokhov, I.
- 15:15-15:30 CCLM simulations for the Arctic using AWI-CM sea ice data for recent and future climate
Heinemann, G., Schefczyk, L.
- 15:30-16:00 **Coffee break**
- 16:00-17:30 Scientific workshops (OSL)
 - Perspectives of cooperation in the QUARCCS project
 - Future of oceanographic observations in the Russian Arctic
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- 19:00-22:00 **Conference Dinner (SOKOS Hotel Vasilievsky)**

Thursday, 5 December 2019

09:30-09:45 Keynote: POMOR and OSL
Kakhro, N., Povazhnyy, V.

Session III: Arctic ecosystems and biodiversity

09:45-10:00 Biogeochemical silicon cycling in the Laptev Sea
Laukert, G., Grasse, P., Doering, K., Novikhin, A., Povazhnyy, V., Frank, M., Kassens, H.

10:00-10:15 Changes in nutrient regime of the Laptev Sea during last two decades
Novikhin, A.

10:15-10:30 Hydrochemical observations in the 1st and 4th legs of TRANSARCTICA 2019 expedition
Gangnus, I., et al.

10:30-10:45 Water mass mixing north of Severnaya Zemlya based on neodymium isotopes
Kirichenko, Ya., Laukert, G., Frank, M.

10:45-11:00 Major parameters of pelagic communities changes in the Laptev Sea
Povazhnyy, V.

11:00-11:15 Distribution of sinking particles from the Laptev and East Siberian seas towards the Arctic basins: preliminary results from Underwater Vision Profiling at ARCTICA 2018
Rogge, A., Piepenburg, D., Waite, A.M.

11:15-11:30 Sea ice decline drives biogeographical shifts of *Calanus glacialis* in the central Arctic Ocean
Ershova, E., Kosobokova, Ks., Niehoff, B., Hildebrandt, N.

11:30-11:45 Inhabitants of sea ice and sub-ice water in different regions of the Arctic
Sazhin, A., Romanova, N.

11:45-12:00 The influence of ice conditions on the zooplankton community composition: a case study from the Fram Strait
Niehoff, B., et al.

12:00-13:30 **Lunch**

13:30-13:45 Keynote: Data management
Schirnack, C.

Session IV: Sediment dynamics and climate of the past

- 13:45-14:00 Holocene environmental changes in the Laptev Sea and the western Fram Strait – the sea level-sea ice connection
Spielhagen, R.F., Zehnich, M., Syring, N., Taldenkova E., Ovsepyan Ya., Bauch H.A., Stein R.
- 14:00-14:15 Scenarios of decadal changes in the Arctic Transpolar System: precomputation experience
Timokhov, L., Ivanov, V.
- 14:15-14:30 Sediment dynamics in the Vilkitzky Canyon region
Büttner, S., Hölemann, J., Janout, M., Novikhin, A.
- 14:30-14:45 The effect of fast ice growth on freezing of bottom sediments
Bogorodski, P.
- 14:45-15:00 Postglacial to Holocene sea-level history and environmental variability in the western Laptev Sea – evidence for trans-Arctic teleconnections
Taldenkova, E., Spielhagen, R.F., Ovsepyan, Ya., Kassens, H., Bauch, H.A., Stein, R., Averkina, N.
- 15:00-15:15 The ecological study of modern benthic foraminifera from the Laptev Sea as the basis for paleoenvironmental reconstructions
Ovsepyan, Ya., Taldenkova, E., Averkina, N., Bauch, H.A., Spielhagen, R.F.
- 15:15-15:30 Chronology of the Holocene sea-level rise in the Arctic: evidence from the western Laptev Sea
Bauch, H.A., Taldenkova, E., Novichkova, E., Ovsepyan, Ya.
- 15:30-16:00 **Coffee break**
- 16:00-16:30 Concluding remarks
- 19:00-22:00 **Classical concert (optional)**

Friday, 6 December 2019

Departure