



(AC)³ General Assembly

February 3 – 5, 2025

Institute for Environmental Physics (IUP), University of Bremen,
Otto-Hahn-Allee 1, 28359 Bremen, Germany

Meeting link via Zoom: <https://uni-leipzig.zoom-x.de/j/69711532602?pwd=TABcEOHykstSB4q61EbGTOCknSfcnP.1>

Agenda

MONDAY, 3 February 2025

12:30 – 13:00 *Registration desk*

13:00 – 13:15 Welcome & Introduction – *Manfred Wendisch (Leipzig University)*

13:15 – 13:30 New (AC)³ Project **A04**: Effective representation of surface-atmosphere fluxes above heterogeneous sea-ice cover for use in climate models – *Nikki Vercauteren (University of Cologne)*

13:30 – 15:25 **Session I – Atmospheric Aerosol Particles**
Session chair: *Awadhesh Pant (University of Cologne)*

13:30 – 14:15 **Keynote talk:** “Cloud impacts on the surface energy budget and sea ice melt” – *Matthew Shupe (University of Boulder, Mercator Fellow)*

14:15 – 14:35 Marine Carbohydrates on Aerosol Particles at Low and High Altitudes in Ny-Ålesund, Svalbard – *Sebastian Zeppenfeld (TROPOS)*

14:35 – 14:55 Turbulent Aerosol Fluxes from Airborne Measurements over the Arctic Ocean – *David Simon (TROPOS)*



15:00 – 15:30	<i>Coffee break</i>
15:30 – 17:30	<u>Poster Session I</u>
15:30 – 16:00	Poster pitches – <i>2 Min per poster</i>
16:00 – 17:30	Poster session I – Poster list
19:00	<i>Dinner at Schüttinger Gasthausbrauerei (Hinter dem Schütting 12-13, 28195 Bremen) – (AC)³ covers the cost of a main course from the group menu and 2 soft drinks, binding registration required</i>

TUESDAY, 4 February 2025

09:00 – 10:00	<u>Introduction of new Associated Members</u>
09:00 – 09:30	"A possible contribution to (AC) ³ - From convection over sea ice leads to roll convection in cold air outbreaks - LES studies" – <i>Micha Gryschka (University of Hannover)</i>
09:30 – 10:00	"A possible contribution to (AC) ³ - tdb" – <i>Dmitri Moishev (University of Helsinki)</i>
10:00 – 12:35	<u>Session II – Ocean / Sea Ice Atmosphere Linkages</u> <i>Session chair: Linnu Bühler (University of Cologne)</i>
10:00 – 10:45	Keynote talk: "Understanding connections in the water cycle of Arctic weather systems from water isotopes and water vapour tracers" – <i>Harald Sodemann (University of Bergen, Mercator Fellow)</i>
10:45 – 11:15	<i>Coffee break</i>
11:15 – 11:35	Ocean-to-Ice Heat Flux in the Central Arctic: Results from the MOSAiC Expedition (2019-2020) – <i>Yeon Choi (AWI Bremerhaven, D03)</i>
11:35 – 11:55	Relative Contributions of Local Heat Storage and Ocean Heat Transport to Cold-season Arctic Ocean Surface Energy Fluxes in CMIP6 Models – <i>Khaled Al Hajjar (Leipzig University, D04)</i>



11:55 – 12:15	An Ocean full of Numbers: Arc2c Ocean Biogeochemistry in FESOM2-RECOM3 – <i>Moritz Zeising (AWI Bremerhaven, C03)</i>
12:15 – 12:35	VAMPIRE - Water Vapor, Mixed-Phase Clouds and Sea Ice in the Central Arctic Ocean – <i>Janna Rückert (University of Bremen, B05)</i>
12:35 – 13:30	<i>Lunch break</i>
13:30 – 15:30	Poster Session II
13:30 – 14:00	Poster pitches – <i>2 Min per poster</i>
14:00 – 15:30	Poster session II – Poster list
15:30 – 16:00	<i>Coffee break</i>
16:00 – 18:10	Session III – Arctic Mid-Latitude Linkages Session chairs: Fathima Cherichi Puranyil (Leipzig University) & Phillip Eisenhuth (AWI Potsdam)
16:00 – 16:20	Arctic Atmospheric Rivers and their Impact on the Surface Energy Budget – <i>Sofie Tiedeck (AWI Potsdam, E04)</i>
16:20 – 16:40	Representation of Arctic Mixed-phase Clouds in the ECMWF Integrated Forecasting System during MOSAiC – <i>Luise Schulte (ECMWF, associated)</i>
16:40 – 17:00	Investigation of Virga with Active Remote Sensing in Ny-Alesund – <i>Andreas Foth (Leipzig University, E05)</i>
17:00 – 17:10	<i>Short break</i>
17:10 – 17:30	Temporal Evolution of Cloud Properties in Arctic Cold air Outbreak Cloud Streets Derived from Repeated Airborne Observations – <i>Marcus Klingebiel (Leipzig University, B03)</i>
17:30 – 17:50	Impact of Mesoscale Subsidence on Cloud Transformation and Glaciation Modelled by Large-Eddy Simulations of a Marine Cold Air Outbreak observed during HALO-(AC) ³ – <i>Fiona Paulus (University of Cologne, associated/A01)</i>
17:50 – 18:10	High-resolution Maps of Arctic Surface Skin Temperature and Type Retrieved from Airborne Thermal Infrared Imagery collected during the HALO-(AC) ³ Campaign – <i>Joshua Müller (Leipzig University, A03)</i>



19:00 *Individual dinner*

WEDNESDAY, 5 February 2025

09:00 – 10:30 Cross-Cutting Activities I
Chairs: CCA leaders

- CCA1: Convection (lecture hall 1)
- CCA4: Air mass transport & transformation (lecture hall 2)

10:30 – 11:00 *Coffee break*

11:00 – 12:30 Cross-Cutting Activities II
Chairs: CCA leaders

- CCA2: Surface parameterizations (lecture hall 1)
- CCA3: Arctic mixed-phase clouds (lecture hall 2)

12:30 **Closing remarks & End of meeting**

(AC)³ is going to cover the dinner and non-alcoholic drinks on Monday, as well as all coffee and lunch breaks during the GA meeting via the central project Z01. Childcare is covered via the (AC)³ equal opportunity funds.



Poster Session I

(Lobby of IUP building)

- #1 Investigating Arctic Clouds over Sea Ice: Airborne Passive Microwave Observations during HALO-(AC)³ - *Nils Risse et al.*
- #2 Building a Digital Legacy for (AC)³ – *Johannes Röttenbacher et al.*
- #3 ICON sensitivity to different values of surface roughness over sea ice in the Arctic – *Florian Gebhardt et al.*
- #4 Understanding Aerosol Transport to the Arctic and Its Impact on Clouds – *Fathima Cherichi Purayi et al.*
- #5 The effective heat transfer coefficient over the Marginal Sea Ice Zone – *Christof Lüpkes et al.*
- #6 Comparison of the Thermal-Infrared Radiative Energy Budget over the Arctic Ocean from Airborne Measurements and Satellite-Imagery-Based Simulations during ARCSIX – *Sebastian Becker et al.*
- #7 Adaptation of a satellite nighttime retrieval for cloud top height to airborne observations of Arctic low-level clouds – *Sophie Rosenburg et al.*
- #8 Non-zonal forcing of the Northern Hemisphere winter circulation and effects on the stratospheric polar vortex – *Sina Mehrdad et al.*
- #9 Melt Pond Fractions in Climate Modelling – *Patrizia Schoch et al.*
- #10 Exploring Aerosol Cloud Interactions in Arctic Mixed-Phase Clouds Using ICONLEM – *Lena Bruder et al.*
- #11 Precipitation during coldair outbreaks as observed by airborne radar observations over the Fram Strait – *Lars van Gelder et al.*
- #12 Offline evaluation of ICON sea ice albedo parameterisation – *Josien Rompelburg et al.*
- #13 Serial clustering of Arctic cyclones drives extreme sea-ice changes – *Lars Aue et al.*
- #14 Comparison of satellite tropospheric BrO observations with model simulations in the Arctic – *Bianca Zilker et al.*
- #15 AOT Retrieval over Snow Surfaces using Satellite data – *Linus Andrea et al.*
- #16 Poleward transport of smoke aerosol from Wildfires – *Swetlana Paul et al.*
- #17 Confronting resolved turbulence in Large-Eddy Simulations of Arctic mixed-phase clouds with aerial system data collected during the MOSAiC drift – *Xinyuan Zhou et al.*
- #18 What are the most important contributors to Arctic precipitation: When, where and how? – *Melanie Lauer et al.*



Poster Session II

(Lobby of IUP building)

#19 Systematic Assessemnt of Characteristic CWTs Affecting the NYA Column – *Phillip Eisenhuth et al.*

#20 Optical Properties of Sea Ice: Towards energy surface budgets bridging spatial Scales – *Florian Zimmer et al.*

#21 Regional Variability and Changes of Sea Ice Deformation in the Arctic from 2009-2024 – *Linxin Zhang et al.*

#22 Abstract – ClimStoryline: A Python-based package to compute climate storylines – *Richard Alawode et al.*

#23 Water vapour in the central Arctic: How well do remote sensing observations and models perform? – *Andreas Walbröl et al.*

#24 Investigation of water vapor transport processes into the Arctic using Satellite water vapor isotope retrievals – *Angel Ignatius et al.*

#25 Assessing the water vapor variability in Ny-Ålesund from long-term microwave radiometer measurements – *Christian Buhren et al.*

#26 Emission patterns and trends of Arc2c Primary Marine Organic Aerosols (1990–2019) – *Anisbel Leon et al.*

#27 Quantifying the influence of Barents-Kara Sea ice loss on Ural blocking – *Ernest Agyemang-Oko et al.*

#28 Diagnosing moisture sources, transport and transformation with water vapor isotopes from satellites and in atmospheric modeling – *Hanna Marie Eichholz et al.*

#29 Comparing airborne and satellite observations of clouds in Arctic marine cold air outbreaks – *Hannah Sundermann et al.*

#30 The presence of mixed-phase clouds observed during VAMPIRE using GRaWAC- and W-radar – *Linnu Bühler et al.*

#31 The Pan-Arctic Spatiotemporal Analysis of Top of the Atmosphere Reflectance Using The GOME-2 Scanning Spectrometer – *Alexander Mchedlishvili et al.*

#32 Transitional phases in the wintertime Arctic boundary layer as observed by tethered balloons at Station Nord (North-East Greenland) – *Fan Wu et al.*

#33 Pan-Arctic Melt Pond Fractions and sea ice albedo retrieved from 18 years of optical satellite observations using a constrained physical forward model – *Maximilian Ringel et al.*

#34 Ice Nucleating Particles (INP) in the Arctic Free Troposphere: first results from 4 airborne campaigns – *Jonas Schäfer et al.*

#35 CCN-enhanced Ice Sublimation Process: A possible mechanism in mixed phase clouds – *Denghui Ji et al.*

#36 Contrasts of sea-ice regimes in the Arctic Ocean during melt season – *Marcel Nicolaus et al.*

