



(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-join/69711532602?pwd=TABcEOHykstSB4q61EbGTOcknSfcnP.1>

Agenda

MONDAY, 3 February 2025

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|---------------|---|
| 12:30 – 13:00 | <i>Registration desk</i> |
| 13:00 – 13:15 | Welcome & Introduction – <i>Manfred Wendisch (Leipzig University)</i> |
| 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 – <i>Nikki Vercauteren (University of Cologne)</i> |
| 13:30 – 15:25 | <u>Session I – Atmospheric Aerosol Particles</u>
Session chair: <i>Awadhesh Pant (University of Cologne)</i> |
| 13:30 – 14:15 | Keynote talk: "Cloud impacts on the surface energy budget and sea ice melt" – <i>Matthew Shupe (University of Boulder, Mercator Fellow)</i> |
| 14:15 – 14:35 | Marine Carbohydrates on Aerosol Particles at Low and High Altitudes in Ny-Ålesund, Svalbard – <i>Sebastian Zeppenfeld (TROPOS)</i> |
| 14:35 – 14:55 | Turbulent Aerosol Fluxes from Airborne Measurements over the Arctic Ocean – <i>David Simon (TROPOS)</i> |





- 15:00 – 15:30** *Coffee break*
- 15:30 – 17:30** **Poster Session I**
- 15:30 – 16:00 Poster pitches – *2 Min per poster*
- 16:00 – 17:30 Poster session I – Poster list
- 19:00** *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*

TUESDAY, 4 February 2025

- 09:00 – 10:00** **Introduction of new Associated Members**
- 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" – *Micha Gryschka (University of Hannover)*
- 09:30 – 10:00 "A possible contribution to (AC)³ - tdb" – *Dmitri Moisev (University of Helsinki)*
- 10:00 – 12:35** **Session II – Ocean / Sea Ice Atmosphere Linkages**
Session chair: *Linnu Bühler (University of Cologne)*
- 10:00 – 10:45 **Keynote talk:** "Understanding connections in the water cycle of Arctic weather systems from water isotopes and water vapour tracers" – *Harald Sodemann (University of Bergen, Mercator Fellow)*
- 10:45 – 11:15** *Coffee break*
- 11:15 – 11:35 Ocean-to-Ice Heat Flux in the Central Arctic: Results from the MOSAiC Expedition (2019-2020) – *Yeon Choi (AWI Bremerhaven, C03)*
- 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 – *Khaled Al Hajjar (Leipzig University, D04)*



- 11:55 – 12:15 An Ocean full of Numbers: Arc2c Ocean Biogeochemistry in FESOM2-REcoM3 – *Moritz Zeising (AWI Bremerhaven, C03)*
- 12:15 – 12:35 VAMPIRE - Water Vapor, Mixed-Phase Clouds and Sea Ice in the Central Arctic Ocean – *Janna Rückert (University of Bremen, B05)*
- 12:35 – 13:30** *Lunch break*
- 13:30 – 15:30** **Poster Session II**
- 13:30 – 14:00 Poster pitches – *2 Min per poster*
- 14:00 – 15:30 Poster session II – Poster list
- 15:30 – 16:00** *Coffee break*
- 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 – *Sofie Tiedeck (AWI Potsdam, E04)*
- 16:20 – 16:40 Representation of Arctic Mixed-phase Clouds in the ECMWF Integrated Forecasting System during MOSAiC – *Luise Schulte (ECWMF, associated)*
- 16:40 – 17:00 Investigation of Virga with Active Remote Sensing in Ny-Alesund – *Andreas Foth (Leipzig University, E05)*
- 17:00 – 17:10** *Short break*
- 17:10 – 17:30 Temporal Evolution of Cloud Properties in Arctic Cold air Outbreak Cloud Streets Derived from Repeated Airborne Observations – *Marcus Klingebiel (Leipzig University, B03)*
- 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 – *Fiona Paulus (University of Cologne, associated/A01)*
- 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 – *Joshua Müller (Leipzig University, A03)*



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 Rosenberg 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 Assessment 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.*



