

Annual Highlights

Center for Chemistry of Clouds (C3) opened at the Department of Chemistry, Aarhus University in April 2023. Clouds present one of the largest challenges in understanding our climate system and C3 aims to contribute fundamental, molecular-level insight into atmospheric interfaces and the key processes leading to clouds.

The center brings together five research groups with complementary techniques and competencies. The center is home to unique experimental facilities as well as computational and theoretical resources. The C3 scientists are part of international infrastructure and research consortia in the field.



Reception after the official opening of Center for Chemistry of Clouds. Photo: AU Foto, Martin Gravgaard.

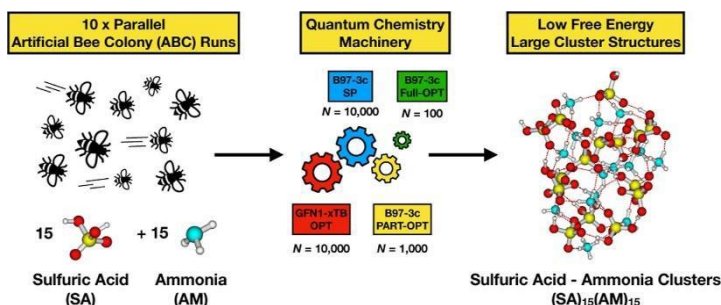
In 2023, C3 hosted several internationally leading scientists as seminar speakers. Center leader Professor Merete Bilde was featured as Researcher of the Month by the Carlsberg Foundation. Associate Professor Marianne Glasius was awarded an infrastructure grant from the Carlsberg Foundation for acquiring an advanced mass spectrometer. Assistant Professor Jonas Elm was appointed president of the Nordic Society for Aerosol Research. Associate Professor Tobias Weidner established a transient absorption spectroscopy facility.

In the autumn, we held the first annual C3 retreat for students, postdocs, technical staff and scientists from all the five C3 groups. The two-day retreat took place in beautiful surroundings in Mols Bjerge National Park, where participants from C3 came together to discuss the key research questions of C3. An important part of the annual retreat is to stimulate discussions and collaboration. This was done through scientific talks, group discussions, a cloud quiz, and walk and talks in the hilly landscape under beautiful cumulus clouds.



The participants of C3's first annual retreat, which was held in Mols Bjerge National Park.

The group of Assistant Professor Jonas Elm developed freely available computational tools for easy automatization of atmospheric molecular cluster studies.^{1,2} It allows for studies of cluster sizes much larger than previously possible.



Graphical abstract of the scientific publication 'Improved Configurational Sampling Protocol for Large Atmospheric Clusters'.²

¹ H. Wu, M. Engsvang, Y. Knattrup, J. Kubečka, and J. Elm, *Improved Configurational Sampling Protocol for Large Atmospheric Molecular Clusters*, ACS Omega **2023** 8 (47), 45065-45077, DOI: 10.1021/acsomega.3c06794

² J. Kubečka, V. Besel, I. Neeffjes, Y. Knattrup, T. Kurtén, H. Vehkamäki, and J. Elm, *Computational Tools for Handling Molecular Clusters: Configurational Sampling, Storage, Analysis, and Machine Learning*, ACS Omega **2023** 8 (47), 45115-45128, DOI: 10.1021/acsomega.3c07412