

# Curriculum Vitae

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## Personal Details

Corinna Hoose, Dr. sc. ETH  
Professor of Theoretical Meteorology  
Karlsruhe Institute of Technology (KIT)

Street Address:           KIT Campus South  
                                  Institute for Meteorology and Climate Research  
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## Research Background and Interests

- Modeling of cloud and aerosol processes at different scales
- Aerosol indirect effects on clouds
- Heterogeneous ice nucleation

## Employment and Education

01/2013-present	Professor (W3) of Theoretical Meteorology, Karlsruhe Institute of Technology, Germany
04/2010-10/2016	Leader of the Helmholtz-University Young Investigators Group "Aerosol effects on cloud ice, precipitation and climate" at Karlsruhe Institute of Technology, Germany
06/2008-03/2010	Postdoctoral Researcher at University of Oslo, Norway, group of Prof. Dr. Jón Egill Kristjánsson
03/2008-05/2008	Postdoctoral Researcher at ETH Zürich, Switzerland, Institute for Atmospheric and Climate Science, group of Prof. Dr. Ulrike Lohmann
02/2005-02/2008	PhD studies at ETH Zürich on " <i>Aerosol Processing and its effect on Mixed-Phase clouds in a Global Climate Model</i> " under supervision of Prof. Dr. Ulrike Lohmann. Thesis awarded with the "Medaille der ETH".
10/1999-12/2004	University of Karlsruhe, Germany, studies of physics.

Diploma Thesis (12 months research project) under supervision of Dr. Bernhard Vogel and Prof. Dr. Christoph Kottmeier at the Forschungszentrum Karlsruhe (now KIT), Institute for Meteorology and Climate Research (IMK-TRO).

Received Diploma degree (Dipl.-Phys., equivalent to a Master's degree) with grade: "mit Auszeichnung bestanden (1,0)" - best mark with distinction

- 08/2002-06/2003      Université Joseph Fourier, Grenoble, France. Thesis (3 months research project) under supervision of Dr. Christophe Genthon and Dr. Patricia Martinerie.  
Degree: Maîtrise de Physique (grade: "mention très bien" - best mark).
- 1999                      High-school graduation (Abitur) with grade "1,1 (sehr gut)", Gymnasium Heepen, Bielefeld, Germany.

## **Awards**

IAMAS (International Association for Meteorology and Atmospheric Sciences) Early Career Scientist Medal, 2017.

ERC Starting Grant, 2016.

Medaille der ETH (award for the Doctoral Thesis), 2008.

"Deutsch-Französischer Hochschulpreis" (award for outstanding achievements in the French-German exchange program between the Universität Karlsruhe and the Université Joseph Fourier, Grenoble), 2003.

## **Professional Services**

Member of the DFG Senate Commission on Earth System Research (2017-present)

Member of the International Commission on Clouds and Precipitation (ICCP) (2016-present)

Member of the Scientific Advisory Board of the Leibniz Institute for Tropospheric Research (2016-present)

Member of the Organizing Committee of the "Atmospheric Ice Nucleation Conference", Leeds (2017)

Organizer of the 2<sup>nd</sup> INUIT summer school on "Atmospheric Ice Nucleation: Fundamentals and Recent Trends" (2016)

Referee for the formal (blind) instrument intercomparison during the Fifth

International Ice Nucleation Workshop (FIN-2), together with Paul Connolly and Xiaohong Liu (2015-present)

Deputy Member of the Council for Research and Promotion of Young Scientists (CRYS) at KIT (2015-present)

Organizer of the summer school on "Atmospheric Ice Nucleation and its Implications" within the DFG INUIT Research Group (2013)

Contributing author to the 5<sup>th</sup> Assessment report of the IPCC, Chapter 7: *Boucher, O. et al, 2013: Clouds and Aerosols. In: Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Stocker, T.F., D. Qin, G.-K. Plattner, M. Tignor, S.K. Allen, J. Boschung, A. Nauels, Y. Xia, V. Bex and P.M. Midgley (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.*

Co-Editor of *Atmospheric Chemistry and Physics* (since 2011)

Special Issue Editor of "The Saharan Aerosol Long-range Transport and Aerosol-Cloud-interaction Experiment (SALTRACE)" (ACP/AMT inter-journal Special Issue) and "VERDI – Vertical Distribution of Ice in Arctic Clouds" (ACP/AMT inter-journal Special Issue)

Spokesperson of the Young Investigator Network (YIN) of the Karlsruhe Institute of Technology (2012)

Reviewer for Journals: *Nature Geoscience, Journal of Geophysical Research, Journal of the Atmospheric Sciences, Geophysical Research Letters, Atmospheric Chemistry and Physics, Biogeosciences, Geoscientific Model Development, Chemical Reviews, Annales Geophysicae, Atmospheric Environment, Atmospheric Science Letters, Environmental Research Letters, Meteorology and Atmospheric Physics, Tellus B.*

Reviewer for Funding Agencies: *Deutsche Forschungsgemeinschaft (DFG), European Research Council (ERC), Swiss National Science Foundation (SNF), Alexander von Humboldt Foundation, US Department of Energy (DOE), US National Science Foundation (NSF), UK Natural Environment Research Council (NERC).*

### **Project Funding (as Principal Investigator)**

ERC Starting Grant "C2Phase – Closure of the Cloud Phase", 1 500 000 €, 2017-2022.

BMBF project HD(CP)<sup>2</sup>, work package S1\_TP4: "Response of mixed-phase clouds to aerosol perturbations", 315 000 €, 4/2016-03/2019.

DFG projects within the Transregional Collaborative Research Center "Waves to Weather": "Microphysical Uncertainties in Deep Convective Clouds and their

Implications for Data Assimilation" with Co-PIs M. Kunz, B. Vogel and M. Weissmann, and "Relative impact of surface and aerosol heterogeneities on the initiation of deep convection" with PI C. Barthlott and Co-PI C. Keil, 625 600 €, 07/2015-06/2019.

DFG project "Statistics of ice nucleation conditions in mixed-phase clouds" within the research unit INUIT (Ice nucleation research unit), 210 100 €, 01/2015-12/2017.

BMBF project HD(CP)<sup>2</sup>, module M3: "Aerosols, CCN and IN" (together with Prof. Dr. Ina Tegen, TROPOS, Leipzig), 141 000 €, 10/2012-09/2015.

DFG project "Mesoscale simulations of aerosol-cloud interactions during the INUIT field campaigns" within the research unit INUIT (Ice nucleation research unit), 163 000 €, 01/2012-12/2016.

Helmholtz-University Young Investigator Group "Aerosol effects on cloud ice, precipitation and climate". Jointly funded by the host institute (IMK-AAF, Karlsruhe Institute of Technology) and the Helmholtz Association President's Initiative and Networking Fund, 1 250 000 €, 04/2010-10/2016.

## Teaching

winter 2017/2018	"Theoretische Meteorologie I" (Atmospheric Dynamics and Thermodynamics), KIT (shared with Prof. Dr. J. Pinto)
winter 2017/2018	"Cloud Physics", KIT (shared with Dr. H. Beydoun and Dr. Q. Coopman)
winter 2017/2018	Hauptseminar "IPCC 5 <sup>th</sup> Assessment Report", KIT (shared with Prof. Dr. J. Pinto and Dr. P. Ludwig)
summer 2017	"Theoretische Meteorologie II" (Advanced Atmospheric Dynamics and Thermodynamics), KIT
summer 2017	"Numerische Methoden in der Meteorologie" (Numerical Methods in Meteorology), KIT
winter 2016/2017	"Theoretische Meteorologie I" (Atmospheric Dynamics and Thermodynamics), KIT
winter 2016/2017	"Wolkenphysik" (cloud physics), KIT
summer 2016	"Theoretische Meteorologie II" (Advanced Atmospheric Dynamics and Thermodynamics), KIT
summer 2016	"Numerische Methoden in der Meteorologie" (Numerical Methods in Meteorology), KIT
winter 2015/2016	"Theoretische Meteorologie I" (Atmospheric Dynamics and Thermodynamics), KIT
winter 2015/2016	"Numerische Methoden in der Meteorologie" (Numerical Methods in Meteorology), KIT
winter 2015/2016	"Wolkenphysik" (cloud physics), KIT
summer 2015	"Theoretische Meteorologie II" (Advanced Atmospheric Dynamics and Thermodynamics), KIT
summer 2015	"Wolkenphysik" (cloud physics), KIT
winter 2014/2015	Hauptseminar "Globale Erwärmung" (seminar "Global

	Warming"), KIT (shared with Prof. Dr. A. Fink and Prof. Dr. P. Knippertz)
winter 2014/2015	"Theoretische Meteorologie I" (Atmospheric Dynamics and Thermodynamics), KIT
summer 2014	"Wolkenphysik" (cloud physics), KIT
summer 2014	"Theoretische Meteorologie II" (Advanced Atmospheric Dynamics and Thermodynamics), KIT (shared with Prof. Dr. P. Knippertz)
summer 2013	"Theoretische Meteorologie II" (Advanced Atmospheric Dynamics and Thermodynamics), KIT
winter 2012/2013	"Theoretische Meteorologie I" (Atmospheric Dynamics and Thermodynamics), KIT
summer 2011 and winter 2011/2012	"Der menschliche Einfluss auf Wolken und Klima" (Human Impacts on Clouds and Climate), new course within the Master's programme in Meteorology at KIT
2005-2008	Teaching assistance in courses of Atmospheric Physics and Cloud Dynamics, ETH Zurich

### **Supervising and Advising of Students**

10/2017-present	Supervision of BSc thesis of Sebastian Müller, KIT
05/2017-present	Supervision of MSc thesis of Markus Karrer, KIT
04/2017-present	Supervision of PhD thesis of Olimpia Bruno, KIT
10/2016-present	Supervision of PhD thesis of Jonas Hesemann, KIT
01/2016-present	Supervision of PhD thesis of Constanze Wellmann, KIT
12/2015-present	Supervision of PhD thesis of Linda Schneider, KIT
04/2012-present	Supervision of PhD thesis of Isabelle Reichardt, KIT
02/2017-02/2018	Supervision of MSc thesis of Maiken Vassel, KIT
02/2014-05/2017	Supervision of PhD thesis of Katharina Loewe, KIT
05/2013-10/2016	Supervision of PhD thesis of Romy Ullrich, KIT
04/2013-07/2016	Supervision of PhD thesis of Marco Paukert, KIT
11/2015	External examiner for PhD defense of Maher Sahyoun, University of Copenhagen, Denmark
03/2015	External examiner ("opponent") for PhD defense of Juha Tonttila, University of Helsinki, Finland
03/2015	External examiner for PhD defense of Luisa Ickes, ETH Zurich, Switzerland
02/2015-08/2015	Supervision of BSc thesis of Markus Karrer, KIT
10/2014-04/2015	Supervision of BSc thesis of Annika Rudolph, KIT
04/2014-10/2014	Supervision of BSc thesis of Maiken Vassel, KIT
08/2010-04/2014	Supervision of PhD thesis of Matthias Hummel, KIT
04/2010-12/2013	Supervision of PhD thesis of Isabelle Steinke, KIT
01/2012-01/2013	Supervision of Diploma thesis of Marco Paukert, KIT
04/2012-10/2012	Supervision of BSc thesis of Alexa Schnur, KIT
10/2011	External examiner for licentiate of Salomon Eliasson, Kiruna Space Campus, Luleå University, Sweden.
04/2011-10/2011	Supervision of Bachelor's thesis of Marlon Maranan, KIT
04/2011-10/2011	Supervision of "Seminararbeit" of Marco Paukert, KIT
2009-2010	Co-supervision of MSc thesis of Kai Kombo Hamad, University of Oslo
2007	Co-supervision of BSc thesis of R. Erdin, ETH Zurich

## Peer-reviewed publications

50. Sullivan, S. C., **Hoose, C.**, Kiselev, A., Leisner, T., and Nenes, A. (2018): Initiation of secondary ice production in clouds, *Atmos. Chem. Phys.*, 18, 1593-1610, doi:10.5194/acp-18-1593-2018
49. Hande, L. B. and **C. Hoose** (2017): Partitioning the primary ice formation modes in large eddy simulations of mixed-phase clouds, *Atmos. Chem. Phys.*, 17, 14105-14118, doi:10.5194/acp-17-14105-2017
48. Sullivan, S. C., **C. Hoose**, A. Nenes (2017): Investigating the contribution of secondary ice production to in-cloud ice crystal numbers, *J. Geophys. Res. Atmos.*, doi: 10.1002/2017JD026546
47. Loewe, K., Ekman, A. M. L., Paukert, M., Sedlar, J., Tjernström, M., and **Hoose, C.** (2017): Modelling micro- and macrophysical contributors to the dissipation of an Arctic mixed-phase cloud during the Arctic Summer Cloud Ocean Study (ASCOS), *Atmos. Chem. Phys.*, 17, 6693-6704, doi:10.5194/acp-17-6693-2017
46. Hande, L. B., **C. Hoose**, C. Barthlott (2017): Aerosol and Droplet Dependent Contact Freezing: Parameterisation Development and Case Study, *J. Atmos. Sci.* 74, 2229–2245, doi:10.1175/JAS-D-16-0313.1
45. Barthlott, C., **C. Hoose**, B. Mühr (2017): Sensitivity of the 2014 Pentecost storms over Germany to different model grids and microphysics scheme, *Quarterly Journal of the Royal Meteorological Society*, doi:10.1002/qj.3019.
44. Paukert, M., **C. Hoose**, M. Simmel (2017): Redistribution of ice nuclei between cloud and rain droplets: Parameterization and application to deep convective clouds, *Journal of Advances in Modeling Earth Systems*, doi:10.1002/2016MS000841
43. Ullrich, R., **C. Hoose**, O. Möhler, M. Niemand, R. Wagner, K. Höhler, N. Hiranuma, H. Saathoff, and T. Leisner (2017): A new ice nucleation active site parametrization for desert dust and soot, *J. Atmos. Sci.*, doi: 10.1175/JAS-D-16-0074.1
42. Heinze, R., Dipankar, A., Henken, C. C., Moseley, C., Sourdeval, O., Trömel, S., Xie, X., Adamidis, P., Ament, F., Baars, H., Barthlott, C., Behrendt, A., Blahak, U., Bley, S., Brdar, S., Brueck, M., Crewell, S., Deneke, H., Di Girolamo, P., Evaristo, R., Fischer, J., Frank, C., Friederichs, P., Göcke, T., Gorges, K., Hande, L., Hanke, M., Hansen, A., Hege, H.-C., **Hoose, C.**, Jahns, T., Kalthoff, N., Klocke, D., Kneifel, S., Knippertz, P., Kuhn, A., van Laar, T., Macke, A., Maurer, V., Mayer, B., Meyer, C. I., Muppa, S. K., Neggers, R. A. J., Orlandi, E., Pantillon, F., Pospichal, B., Röber, N., Scheck, L., Seifert, A., Seifert, P., Senf, F., Siligam, P., Simmer, C., Steinke, S., Stevens, B., Wapler, K., Weniger, M., Wulfmeyer, V., Zängl, G., Zhang, D. and Quaas, J. (2017): Large-eddy

simulations over Germany using ICON: a comprehensive evaluation. *Q.J.R. Meteorol. Soc.*. doi:10.1002/qj.2947

41. Carro-Calvo, L., **C. Hoose**, M. Stengel, and S. Salcedo-Sanz (2016): Cloud Glaciation Temperature Estimation from Passive Remote Sensing Data with Evolutionary Computing, *J. Geophys. Res. Atmos.*, 121, doi:10.1002/2016JD025552

40. Steinke, I., R. Funk, J. Busse, A. Iturri, S. Kirchen, M. Leue, O. Möhler, T. Schwartz, M. Schnaiter, B. Sierau, E. Toprak, R. Ullrich, A. Ulrich, **C. Hoose**, T. Leisner (2016): Ice nucleation activity of agricultural soil dust aerosols from Mongolia, Argentina and Germany, *J. Geophys. Res. Atmos.*, 121, doi:10.1002/2016JD025160.

39. Hande, L. B., Engler, C., **Hoose, C.**, and Tegen, I. (2016): Parameterizing cloud condensation nuclei concentrations during HOPE, *Atmos. Chem. Phys.*, 16, 12059-12079, doi:10.5194/acp-16-12059-2016

38. Barthlott, C. and **Hoose, C.** (2015): Spatial and temporal variability of clouds and precipitation over Germany: multiscale simulations across the "gray zone", *Atmos. Chem. Phys.*, 15, 12361-12384, doi:10.5194/acp-15-12361-2015

37. Hummel, M., **C. Hoose**, M. Gallagher, D.A. Healy, J.A. Huffman, D. O'Connor, U. Pöschl, C. Pöhlker, N.H. Robinson, M. Schnaiter, J.R. Sodeau, M. Stengel, E. Toprak, and H. Vogel (2015): Regional-scale Simulations of Fungal Spore Aerosols Using an Emission Parameterization Adapted to Local Measurements of Fluorescent Biological Aerosol Particles, *Atmos. Chem. Phys.*, 15, 6127-6146, doi:10.5194/acp-15-6127-2015.

36. Hande, L. B., Engler, C., **Hoose, C.** and Tegen, I. (2015): Seasonal Variability of Saharan Desert Dust and Ice Nucleating Particles over Europe, *Atmos. Chem. Phys.*, 15, 4389-4397, doi:10.5194/acp-15-4389-2015.

35. Steinke, I., **Hoose, C.**, Möhler, O., Connolly, P., and Leisner, T. (2015): A new temperature- and humidity-dependent surface site density approach for deposition ice nucleation, *Atmos. Chem. Phys.*, 15, 3703-3717, doi:10.5194/acp-15-3703-2015.

34. Hiranuma, N., O. Möhler, K. Yamashita, T. Tajiri, A. Saito, A. Kiselev, N. Hoffmann, **C. Hoose**, E. Jantsch, T. Koop & M. Murakami (2015): Ice nucleation by cellulose and its potential contribution to ice formation in clouds, *Nature Geoscience*, 8, 273–277, doi:10.1038/ngeo2374.

33. Ickes, L., A. Welti, **C. Hoose** and U. Lohmann (2014): Classical nucleation theory of homogeneous freezing of water: thermodynamic and kinetic parameters. *Phys. Chem. Chem. Phys.*, 17(8), 5514-5537, doi: 10.1039/C4CP04184D.

32. Hiranuma, N., M. Paukert, I. Steinke, K. Zhang, G. Kulkarni, **C. Hoose**, M. Schnaiter, H. Saathoff, and O. Möhler (2014): A Comprehensive Parameterization of Heterogeneous Ice Nucleation of Dust Surrogate: Laboratory

Study with Hematite Particles and Its Application to Atmospheric Models. *Atmos. Chem. Phys.* 14, 13145-13158, doi:10.5194/acp-14-13145-2014.

31. Neubauer, D., Lohmann, U., **Hoose, C.**, and Frontoso, M. G. (2014): Impact of the representation of marine stratocumulus clouds on the anthropogenic aerosol effect. *Atmos. Chem. Phys.* 14, 11997-12022, doi:10.5194/acp-14-11997-2014.

30. Wang, Y., X. Liu, **C. Hoose**, and B. Wang (2014): Different contact angle distributions for heterogeneous ice nucleation in the Community Atmospheric Model version 5. *Atmos. Chem. Phys.* 14, 10411-10430, doi:10.5194/acp-14-10411-2014.

29. Joly, M., Amato, P., Deguillaume, L., Monier, M., **Hoose, C.**, and Delort, A.-M. (2014): Quantification of ice nuclei active at near 0 °C temperatures in low-altitude clouds at the Puy de Dôme atmospheric station. *Atmos. Chem. Phys.*, 14, 8185-8195, doi:10.5194/acp-14-8185-2014.

28. Paukert, M. and **C. Hoose** (2014): Modeling immersion freezing with aerosol-dependent prognostic ice nuclei in Arctic mixed-phase clouds. *Journal of Geophysical Research* 119(14), 9073–9092, doi:10.1002/2014JD021917.

27. Ovchinnikov, M., A. S. Ackerman, A. Avramov, A. Cheng, J. Fan, A. M. Fridlind, S. Ghan, J. Harrington, **C. Hoose**, A. Korolev, G. M. McFarquhar, H. Morrison, M. Paukert, J. Savre, B. J. Shipway, M. D. Shupe, A. Solomon and K. Sulia (2014): Intercomparison of large-eddy simulations of Arctic mixed-phase clouds: Importance of ice size distribution assumptions. *JAMES* 6(1), 223-248, doi:10.1002/2013MS000282.

26. Cziczo, D. J., K. D. Froyd, **C. Hoose**, E. J. Jensen, M. Diao, M. A. Zondlo, J. B. Smith, C. H. Twohy and D. M. Murphy (2013): Clarifying the Dominant Sources and Mechanisms of Cirrus Cloud Formation. *Science*, doi:10.1126/science.1234145.

25. Bentsen, M., Bethke, I., Debernard, J. B., Iversen, T., Kirkevåg, A., Seland, Ø., Drange, H., Roelandt, C., Seierstad, I. A., **Hoose, C.**, and Kristjánsson, J. E. (2013): The Norwegian Earth System Model, NorESM1-M – Part 1: Description and basic evaluation of the physical climate, *Geoscientific Model Development* 6, 687-720, doi:10.5194/gmd-6-687-2013

24. Kirkevåg, A., T. Iversen, Ø. Seland, **C. Hoose**, J. E. Kristjánsson, H. Struthers, A. M. L. Ekman, S. Ghan, J. Griesfeller, E. D. Nilsson, and M. Schulz (2013): Aerosol-climate interactions in the Norwegian Earth System Model – NorESM. *Geoscientific Model Development* 6, 207-244, doi:10.5194/gmd-6-207-2013.

23. Burrows, S. M., **C. Hoose**, U. Pöschl, and M. G. Lawrence (2013): Ice nuclei in marine air : bioparticles or dust? *Atmospheric Chemistry and Physics* 13, 245-267, doi:10.5194/acp-13-245-2013.

22. Croft, B., J. R. Pierce, R. V. Martin, **C. Hoose**, and U. Lohmann (2012):



Strong Sensitivity of Aerosol Concentrations to Convective Wet Scavenging Parameterizations in a Global Model. *Atmospheric Chemistry and Physics* 12, 10725-10748.

21. **Hoose, C.** and O. Möhler (2012): Heterogeneous ice nucleation on atmospheric aerosols: A review of results from laboratory experiments. *Atmospheric Chemistry and Physics* 12, 9817-9854, doi:10.5194/acp-12-9817-2012.

20. Niemand, M., O. Möhler, B. Vogel, H. Vogel, **C. Hoose**, P. Connolly, H. Klein, H. Bingemer, P. DeMott, J. Skrotzki and T. Leisner (2012): A particle-surface-area-based parameterization of immersion freezing on mineral dust particles. *Journal of the Atmospheric Sciences* 69, 3077-3092, doi: 10.1175/JAS-D-11-0249.1.

19. Després, V. R., J. A. Huffman, S. M. Burrows, **C. Hoose**, A. S. Safatov, G. Buryak, J. Fröhlich-Nowoisky, W. Elbert, M. O. Andreae, U. Pöschl and R. Jaenicke (2011): Primary Biological Aerosol Particles in the Atmosphere: A Review. *Tellus B* 64 (15598), doi:10.3402/tellusb.v64i0.15598.

18. Steinke, I., O. Möhler, A. Kiselev, M. Niemand, H. Saathoff, J. Skrotzki, M. Schnaiter, **C. Hoose** and T. Leisner (2011): Volcanic ash particles from the Eyjafjallajökull eruption as ice nuclei in clouds. *Atmospheric Chemistry and Physics* 11, 12945-12958.

17. Kulmala, M., A. Asmi, H. K. Lappalainen, U. Baltensperger, J.-L. Brenguier, M. C. Facchini, H.-C. Hansson, Ø. Hov, C. D. O'Dowd, U. Pöschl, A. Wiedensohler, R. Boers, O. Boucher, G. de Leeuw, H. A. C. Denier van der Gon, J. Feichter, R. Krejci, P. Laj, H. Lihavainen, U. Lohmann, G. McFiggans, T. Mentel, C. Pilinis, I. Riipinen, M. Schulz, A. Stohl, E. Swietlicki, E. Vignati, C. Alves, M. Amann, M. Ammann, S. Arabas, P. Artaxo, H. Baars, D. C. S. Beddows, R. Bergström, J. P. Beukes, M. Bilde, J. F. Burkhardt, F. Canonaco, S. L. Clegg, H. Coe, S. Crumeyrolle, B. D'Anna, S. Decesari, S. Gilardoni, M. Fischer, A. M. Fjaeraa, C. Fountoukis, C. George, L. Gomes, P. Halloran, T. Hamburger, R. M. Harrison, H. Herrmann, T. Hoffmann, **C. Hoose**, M. Hu, A. Hyvärinen, U. Hörrak, Y. Iinuma, T. Iversen, M. Josipovic, M. Kanakidou, A. Kiendler-Scharr, A. Kirkevåg, G. Kiss, Z. Klimont, P. Kolmonen, M. Komppula, J.-E. Kristjánsson, L. Laakso, A. Laaksonen, L. Labonnote, V. A. Lanz, K. E. J. Lehtinen, L. V. Rizzo, R. Makkonen, H. E. Manninen, G. McMeeking, J. Merikanto, A. Minikin, S. Mirme, W. T. Morgan, E. Nemitz, D. O'Donnell, T. S. Panwar, H. Pawlowska, A. Petzold, J. J. Pienaar, C. Pio, C. Plass-Duelmer, A. S. H. Prévôt, S. Pryor, C. L. Reddington, G. Roberts, D. Rosenfeld, J. Schwarz, Ø. Seland, K. Sellegri, X. J. Shen, M. Shiraiwa, H. Siebert, B. Sierau, D. Simpson, J. Y. Sun, D. Topping, P. Tunved, P. Vaattovaara, V. Vakkari, J. P. Veefkind, A. Visschedijk, H. Vuollekoski, R. Vuolo, B. Wehner, J. Wildt, S. Woodward, D. R. Worsnop, G.-J. van Zadelhoff, A. A. Zardini, K. Zhang, P. G. van Zyl, V.-M. Kerminen, K. S. Carslaw, and S. N. Pandis (2011): General overview: European Integrated project on Aerosol Cloud Climate and Air Quality interactions (EUCAARI) – integrating aerosol research from nano to global scales. *Atmospheric Chemistry and Physics* 11, 13061-13143.

16. Koch, D., Y. Balkanski, S. E. Bauer, R. C. Easter, S. Ferrachat, S. J. Ghan,

- C. Hoose**, T. Iversen, A. Kirkevåg, J. E. Kristjánsson, X. Liu, U. Lohmann, S. Menon, J. Quaas, M. Schulz, Ø. Seland, T. Takemura, and N. Yan (2011): Soot microphysical effects on liquid clouds, a multi-model investigation. *Atmospheric Chemistry and Physics* 11, 1051-1064.
15. Storelvmo, T., **C. Hoose** and P. Eriksson (2010): Global modeling of mixed-phase clouds: The albedo and lifetime effects of aerosols. *Journal of Geophysical Research* 116, D05207, doi:10.1029/2010JD014724.
14. Alterskjær, K., J. E. Kristjánsson and **C. Hoose** (2010): Do Anthropogenic Aerosols Enhance or Suppress the Surface Cloud Forcing in the Arctic? *Journal of Geophysical Research* 115, D22204, doi:10.1029/2010JD014015.
13. **Hoose, C.**, J. E. Kristjánsson, J.-P. Chen and A. Hazra (2010): A classical-theory-based parameterization of heterogeneous ice nucleation by mineral dust, soot and biological particles in a global climate model. *Journal of the Atmospheric Sciences*, 67(8) 2483–2503, doi:10.1175/2010JAS3425.1.
12. **Hoose, C.**, J. E. Kristjánsson and S. M. Burrows (2010): How important is biological ice nucleation in clouds on a global scale? *Environmental Research Letters* 5, 024009, doi:10.1088/1748-9326/5/2/024009.
11. Croft, B., U. Lohmann, R. V. Martin, P. Stier, S. Wurzler, J. Feichter, **C. Hoose**, U. Heikkilä, A. van Donkelaar, and S. Ferrachat (2009): Influences of in-cloud aerosol scavenging parameterizations on aerosol concentrations and wet deposition in ECHAM5-HAM. *Atmospheric Chemistry and Physics* 10, 1511-1543.
10. Lohmann, U. and **Hoose, C.** (2009): Sensitivity studies of different aerosol indirect effects in mixed-phase clouds. *Atmospheric Chemistry and Physics* 9, 8917-8934.
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5. **Hoose, C.**, U. Lohmann, R. Bennartz, B. Croft, and G. Lesins (2008): Global simulations of aerosol processing in clouds. *Atmospheric Chemistry and Physics*, 8, 6939-6963.

4. **Hoose, C.**, U. Lohmann, R. Erdin and I. Tegen (2008): Global Influence of Dust Mineralogical Composition on Heterogeneous Ice Nucleation in Mixed-Phase Clouds, *Environmental Research Letters* 3 (2008) 025003, doi: 10.1088/1748-9326/3/2/025003.

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2. Lohmann, U., P. Stier, **C. Hoose**, S. Ferrachat, S. Kloster, E. Roeckner and J. Zhang (2007): Cloud microphysics and aerosol indirect effects in the global climate model ECHAM5-HAM. *Atmospheric Chemistry and Physics*, 7, 3425-3446.

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## Theses

**Hoose, C.** (2008): Aerosol Processing and its Effect on Mixed-Phase Clouds in a Global Climate Model. *PhD thesis, ETH Dissertation No. 17648.*

**Hoose, C.** (2004): Numerische Simulationen zur Ausbreitung von Mineralstaub auf der regionalen Skala (Numerical simulation of the dispersion of mineral dust on the regional scale). *Diplomarbeit, University of Karlsruhe (Diploma thesis).*

**Hoose, C.** (2003), Modélisation numérique du cycle du soufre atmosphérique en climat glaciaire (Numerical modeling of the atmospheric sulfur cycle in glacial climate). *Rapport de Stage Maîtrise, Université Joseph Fourier, Grenoble (report on a 3-months research project).*

## Conference Proceedings and Other Publications

Hummel, M., **C. Hoose**, O. Möhler, C. Oehm, I. Steinke and H. Vogel (2013): The Contribution of Biological Aerosols to Atmospheric Ice Nucleation. *Extended abstract for the ICNAA conference, Fort Collins.*

Steinke, I., O. Möhler, A. Kiselev, M. Niemand, H. Saathoff, M. Schnaiter, J. Skrotzki, E. Toprak, **C. Hoose**, M. Hummel, R. Funk, T. Leisner (2012): Ice nucleation properties of soil dust particles. *Extended abstract for the ICCP Conference, Leipzig.*

Rickels, W., Klepper, G., Doern, J., Betz, G., Brachatzek, N., Cacean, S., Güssow, K., Heintzenberg, J., Hiller, S., **Hoose, C.**, Leisner, T., Oschlies, A., Platt, U., Proelß, A., Renn, O. Schäfer, S., Zürn M. (2011): Gezielte Eingriffe in das Klima? Eine Bestandsaufnahme der Debatte zu Climate Engineering. *Sondierungsstudie für das Bundesministerium für Bildung und Forschung.*

Möhler, O. and **Hoose, C.** (2011): Ocean algae and atmospheric ice. *Nature Geoscience* 4, 76-77, doi:10.1038/ngeo1075 (News and Views article).

**Hoose, C.**, J. E. Kristjánsson, S. Arabas, R. Boers, H. Pawlowska, V. Puygrenier, H. Siebert, and O. Thouron (2010): Parameterization of in-cloud vertical velocities for cloud droplet activation calculations in coarse-grid models: Analysis of observations and cloud resolving model results. *Extended Abstract for the 13th AMS Conference on Atmospheric Radiation, Portland, Oregon.*

**Hoose, C.** (2009): Biological ice formation. *Nature Geoscience* 2, 385-386, doi:10.1038/ngeo530 (News and Views article).

Lohmann, U., T. Storelvmo and **C. Hoose** (2009): Influence of Anthropogenic Aerosols on Climate by Acting as Cloud Condensation Nuclei and Ice Nuclei. *Contribution to the International Conference on Nucleation and Atmospheric Aerosols (ICNAA), Prague.*

**Hoose, C.**, J. E. Kristjánsson, A. Kirkevåg, Ø. Seland, T. Iversen and T. Storelvmo (2008): Sensitivity of cloud droplet number concentration in a GCM to the representation of subgrid-scale vertical velocity. *Contribution to EUCAARI annual meeting, Helsinki.*

Kirkevåg, A., T. Iversen, Ø. Seland, J. B. Debernard, J. E. Kristjánsson, T. Storelvmo and **C. Hoose** (2008): Aerosol-Cloud-Climate Interactions in CAM-Oslo: On the Importance of Natural Aerosols for Estimates of Anthropogenic Effects. *Contribution to Nordic Society for Aerosol Research Symposium, Oslo.*

**Hoose, C.** and U. Lohmann (2008): Dust impacts on warm and cold clouds: Insights from global models. *Invited contribution to the 3rd International Workshop on Mineral Dust, Leipzig.*

**Hoose, C.**, B. Vogel, H. Vogel and C. Kottmeier (2004): Numerische Simulationen zur Ausbreitung von Mineralstaub auf der regionalen Skala. *Beitrag zur DACH Meteorologen-Tagung, Karlsruhe. (Conference contribution, in*

*German.)*

### **Invited Presentations**

- 2018 INUIT Final Conference and Second Atmospheric Ice Nucleation Conference: "Quantifying the partitioning of primary ice formation into different ice nucleation modes in cloud-resolving simulations with laboratory-based INP parameterizations"
- 2017 Short Course at the Interdisciplinary Center for Scientific Computing, Heidelberg University: "Aerosol-cloud interactions in polar regions"
- 2017 Cologne Geosciences Colloquium, University of Cologne: "Dissipation of Arctic mixed-phase stratus clouds"
- 2016 AGU Fall Meeting, San Francisco: "Modelling heterogeneous ice nucleation on mineral dust and soot with parameterizations based on laboratory experiments"
- 2016 WCRP/SPARC Workshop, Berlin: "Ice formation in clouds - small-scale uncertainties and their relevance for large scales"
- 2016 ICTP Trieste Summer School on Aerosols and Clouds
- 2016 Max-Planck Institute for Chemistry, Mainz and University of Mainz: "Dissipation of Arctic Stratus"
- 2016 BACCHUS annual meeting, Zurich: "Dissipation of Arctic mixed-phase stratus"
- 2015 MISU Stockholm: "Ice formation in Mixed-Phase Clouds: Constraints from small and large scales"
- 2015 Leipzig Graduate School Advanced Training Module: "Ice nucleation in atmospheric modeling"
- 2015 Nordic Aerosol Society Annual Meeting, Kuopio, Finland: "Representation of heterogeneous ice nucleation in cloud-resolving, mesoscale and global models"
- 2014 NCGG7, Amsterdam: "Impact of natural and anthropogenic aerosols on mixed-phase and ice clouds"
- 2014 1st European Hail Workshop, Bern: "Formation of ice phase hydrometeors in convective clouds"
- 2014 CECAM Workshop "From Atoms to Clouds": "On the difficulties to achieve closure between lab experiments, parameterization and field measurements of ice nuclei" (Co-authors: L. Hande, M. Hummel, M. Paukert)
- 2013 Heraeus Seminar on "Water Vapour and Ice in the Atmosphere": "Transferring laboratory ice nucleation results into models"
- 2013 "ISCCP at 30" conference, New York: "Combining laboratory, model and remote sensing studies to advance our understanding of aerosol impacts on mixed-phase clouds"
- 2013 Institute for Atmospheric and Climate Science, ETH Zurich, seminar:

- "Combining modelling, laboratory and remote sensing studies on heterogeneous ice nucleation and aerosol impacts in mixed-phase clouds"
- 2013 DPG-Frühjahrstagung, Jena, Hauptvortrag: "A summary of results from laboratory ice nucleation experiments" (Co-author: O. Möhler)
- 2012 DLR Institute for Physics of the Atmosphere (IPA): "Microphysics and global climate impacts of mixed-phase clouds"
- 2012 Telluride Summer Research Centre (TSRC) Workshop "Aerosols and Clouds: Connections from the Laboratory to the Field to the Globe", USA
- 2012 "Bioaerosol Effects on Clouds" Workshop, Steamboat Springs, USA: "Mesoscale simulations of biological particles: atmospheric concentrations, comparison to observations, and contribution to IN concentrations" (Co-authors: M. Hummel, A. Schnur, S. Jäger, O. Möhler, C. Oehm, M. Schnaiter, G. Schurgers, I. Steinke, E. Toprak, H. Vogel)
- 2012 Leipziger Meteorologisches Kolloquium: "Microphysics and global climate impacts of mixed-phase clouds"
- 2012 EGU conference, Vienna, Austria: "Heterogeneous ice nucleation parameterizations based on laboratory experiments" (Co-authors: O. Möhler, M. Niemand, I. Steinke)
- 2012 DMG Zweigverein Frankfurt: „Aerosoleffekte in Mischphasenwolken: von mikrophysikalischen Prozessen zu globalen Klimasimulationen“
- 2012 HAMMOZ user workshop, Zürich, Schweiz: "What is the best way to parameterize heterogeneous ice nucleation in global and mesoscale models?"
- 2011 AGU fall meeting, San Francisco, USA: "A summary of results from laboratory ice nucleation experiments: current state of scientific understanding and parameterization developments" (Co-author: O. Möhler)
- 2011 Goldschmidt-Conference, Prague, Czech Republic: "Impact of biological and mineral dust aerosols on mixed-phase clouds" (Co-authors: C. Anquetil-Deck, S. M. Burrows, M. Hummel, J. E. Kristjánsson and O. Möhler)
- 2011 IUGG-Konferenz, Melbourne, Australia: "Parameterizing bioaerosol emissions and interactions with clouds - current issues in models on different scales" (Co-authors: C. Anquetil-Deck, S. M. Burrows, M. Hummel and J. E. Kristjánsson)
- 2011 Leeds University, Institute for Climate and Atmospheric Science, UK: "Aerosol influence on liquid and mixed-phase clouds - insights from global modelling and experiments"
- 2011 Third International Workshop on Space-based Snowfall Measurement (IWSSM), Grainau, Germany: "Ice in global climate models"
- 2010 AGU fall meeting, San Francisco, USA: "How important is biological ice nucleation in clouds on a global scale?" (Co-authors: S. M. Burrows, J.-P.

- Chen, A. Hazra and J. E. Kristjánsson)
- 2010 Max-Planck Institute for Chemistry, Mainz, Germany, Colloquium: "Aerosol influence on liquid and mixed-phase clouds - insights from global modelling and experiments"
- 2010 7<sup>th</sup> Japanese-German Frontiers of Science Symposium, Potsdam, Germany: "Aerosol Indirect Effects: Tiny Atmospheric Particles Influence Clouds and Climate"
- 2010 Deutscher Wetterdienst, Offenbach, Germany: "Aerosol influence on cloud ice formation at warm subzero temperatures - insights from experiments and models"
- 2010 Max-Planck Institute for Meteorology, Hamburg, Germany: "Aerosol influence on cloud ice formation at warm subzero temperatures - insights from experiments and models"
- 2010 Karlsruhe Institute of Technology, Vortragsreihe „Hydrosphäre“: „Indirekte Aerosoleffekte – Einfluss von atmosphärischen Partikeln auf Wolken und Niederschlag“
- 2010 EGU-Conference, Vienna, Austria: "Cloud glaciation by mineral dust, soot and biological particles" (Co-authors: S. M. Burrows, J.-P. Chen, A. Hazra and J. E. Kristjánsson)
- 2010 University of Warsaw, Poland, Institute of Geophysics, seminar series: "Aerosol indirect effects via warm and mixed-phase clouds in the CAM-Oslo GCM"
- 2010 Karlsruhe Institute of Technology, 1. Thematischer Workshop des Kompetenzfelds „Atmosphäre und Klima“ zur Aerosolforschung am KIT: „Globale Simulationen von indirekten Aerosoleffekten“
- 2009 Karlsruhe Institute of Technology, Institut für Meteorologie und Klimaforschung, Atmosphärische Aerosolforschung: "Indirekte Aerosoleffekte in Wasser- und Mischphasenwolken: Ergebnisse und Schwierigkeiten in globalen Modellen"
- 2009 National Taiwan University, Department of Atmospheric Science, Seminar: "Aerosol indirect effects via warm and mixed-phase clouds in the CAM-Oslo GCM"
- 2008 AGU fall meeting, San Francisco, USA: "Aerosol Processing in Stratiform Clouds in a Global Climate Model" (Co-authors: U. Lohmann, B. Croft, R. Bennartz and G. Lesins)
- 2008 3rd International Workshop on Mineral Dust, Leipzig, Germany: "Dust impacts on warm and cold clouds: Insights from global models" (Co-author: U. Lohmann)
- 2006 HAM User Workshop, Hamburg, Germany: "The ECHAM5 double-moment cloud scheme"

## Conferences and Workshops: Contributed First Author Presentations

- 2017 IAMAS Conference, Cape Town, South Africa: "Microphysical and dynamical signatures in cloud-top phase distributions of deep convective clouds" (oral presentation). Co-authors: M. Karrer, C. Barthlott, C. Wellmann.
- 2017 Heraeus Seminar on "Aerosols-clouds-precipitation and climate: Towards a flux-closure field campaign", Bad Honnef, Germany: "Simulation of deep convective clouds with COSMO and advanced treatments of ice nucleating particles" (oral presentation). Co-authors: C. Barthlott, L. B. Hande, M. Paukert and R. Ullrich.
- 2016 INUIT Summer School on "Atmospheric Ice Nucleation: Fundamentals and Recent Trends", Grasellenbach, Germany: "(Heterogeneous) ice nucleation parameterizations in global, regional and cloud models" (oral presentation).
- 2016 ICCP Manchester, UK: "Observed and simulated cloud-top phase changes" (oral presentation). Co-authors: L. Carro-Calvo, M. Karrer, S. Salcedo-Sanz, M. Stengel.
- 2016 Understanding Clouds and Precipitation, Berlin, Germany: "Comparing model and satellite views of the liquid/ice partitioning in developing convective clouds" (oral presentation). Co-authors: M. Karrer, C. Barthlott, M. Stengel.
- 2013 INUIT Summer School on "Atmospheric Ice Nucleation and its Implications", Braunfels, Germany: "Parameterizations of heterogeneous ice nucleation and their applications in models" (oral presentation).
- 2012 ICCP conference, Leipzig, Germany: "A summary of results from laboratory ice nucleation experiments: current state of scientific understanding and parameterization developments" (poster). Co-author: O. Möhler.
- 2012 8<sup>th</sup> International Cloud Modeling Workshop, Warsaw, Poland: "On aerosol-dependent heterogeneous ice nucleation parameterizations" (oral presentation).
- 2012 REKLIM workshop, Lüneburg, Germany: "A summary of results from laboratory ice nucleation experiments and their parameterization for atmospheric modelling" (oral presentation).
- 2011 IN2clouds workshop, Ettlingen, Germany: "Deriving IN parameterizations for global and regional models from laboratory data: comparison of different approaches" (oral presentation).
- 2010 AMS Cloud Physics conference, Portland, Oregon, USA: "Parameterization of in-cloud vertical velocities for cloud droplet activation calculations in coarse-grid models: Analysis of observations and cloud resolving model results" (oral presentation). Co-authors: J. E. Kristjánsson, S. Arabas, R. Boers, H. Pawlowska, V. Puygrenier, H. Siebert, and O. Thouron.
- 2009 EUCAARI Annual meeting, Stockholm, Sweden: "Improving the parameterization of in-cloud updraft velocity with the aid of EUCAARI-IMPACT data" (poster). Co-authors: J. E. Kristjánsson, S. Arabas, and H.



Pawlowska.

- 2009 EUCAARI Annual meeting, Stockholm, Sweden: "Are bioaerosols important contributors to global atmospheric ice nucleation?" (poster). Koautoren: J. E. Kristjánsson, J.-P. Chen and A. Hazra.
- 2009 AeroCom Workshop, GFDL Princeton, USA: "Ice nucleation by mineral dust, soot, bacteria and pollen: GCM studies with new freezing parameterizations" (oral presentation). Co-authors: J. E. Kristjánsson, J.-P. Chen and A. Hazra.
- 2009 EGU-Conference, Vienna, Austria: "Vertical velocity probability distributions simulated in the CAM-Oslo GCM" (oral presentation). Co-authors: J. E. Kristjánsson, S. Arabas, and H. Pawlowska.
- 2009 EGU-Conference, Vienna, Austria: "Constraining cloud droplet concentration in GCMs suppresses the aerosol indirect effect" (oral presentation). Co-authors: J. E. Kristjánsson, T. Iversen, A. Kirkevåg, Ø. Seland and A. Gettelman.
- 2008 AGU fall meeting, San Francisco, USA: "Sensitivity of cloud droplet activation to the vertical velocity probability distribution" (poster). Co-authors: J. E. Kristjánsson and G. Svensson.
- 2008 AeroCom Workshop, Reykjavik, Iceland: "Explicit representation of in-droplet and in-crystal aerosols in ECHAM5-HAM" (oral presentation). Co-authors: U. Lohmann, R. Bennartz, B. Croft, and G. Lesins.
- 2008 ICCP, Cancún, Mexico: "Global simulations of aerosol processing in clouds" (poster). Co-authors: U. Lohmann, R. Bennartz, B. Croft, and G. Lesins.
- 2007 AGU fall meeting, San Francisco, USA: "Aerosol Processing in Mixed-Phase Clouds in ECHAM5-HAM: Comparison of Single-Column Model Simulations with Observations" (poster). Co-authors: U. Lohmann, P. Stier, B. Verheggen and E. Weingartner.
- 2007 IUGG, Perugia, Italy: "Aerosol Processing in Mixed-Phase Clouds in ECHAM5-HAM" (oral presentation). Co-authors: U. Lohmann, B. Verheggen and E. Weingartner.
- 2007 IUGG, Perugia, Italy: "Global Influence of Dust Mineralogy on Heterogeneous Ice Nucleation" (oral presentation). Co-authors: U. Lohmann, R. Erdin and I. Tegen.
- 2006 HAM User Workshop, Hamburg, Germany: "Aerosol processing in cloud droplets and ice crystals" (oral presentation).
- 2006 ARM Cloud Modeling Working Group Fall Meeting, San Francisco, USA: "Heterogeneous freezing parameterizations in the ECHAM5-HAM global aerosol-climate model: Application to M-PACE single column model studies" (oral presentation). Co-author: U. Lohmann.
- 2006 EGU-Konferenz, Vienna, Austria: "Aerosol processing in ECHAM5-HAM" (oral presentation). Co-author: U. Lohmann.
- 2005 4th International NCCR Climate Summer School, "From the Holocene to the Anthropocene: Climate of the last 1000 Years", Grindelwald, Switzerland: "Mixed-phase Clouds in a Global Climate Model: Aerosol

- Processing and Heterogeneous Freezing" (poster). Co-author: U. Lohmann.
- 2005 IAMAS, Beijing, China: "A Detailed Parameterization of Mineral Dust Emission in a Regional Model" (oral presentation). Co-authors: B. Vogel, H. Vogel and Ch. Kottmeier.
- 2004 1st French-German Summer School on "Aerosols and Heterogeneous Chemistry", Ile d'Oléron, France: "A Detailed Parameterization of Mineral Dust Emission in a Regional Model" (poster). Co-authors: B. Vogel, H. Vogel and Ch. Kottmeier.
- 2004 DACH Meteorologen-Tagung, Karlsruhe, Germany: "Numerische Simulationen zur Ausbreitung von Mineralstaub auf der regionalen Skala" (oral presentation). Co-authors: B. Vogel, H. Vogel and Ch. Kottmeier.