

Curriculum Vitae

Personal Details

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

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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> " supervised by 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

Spokesperson of the Collegial Management Team of IMK-TRO, KIT (2020-present)

Dean of Studies, BSc and MSc Meteorology programs, KIT (2019-present)

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)

Initiator and main organizer of two summers school on "Atmospheric Ice Nucleation: Fundamentals and Recent Trends" (2016) and "Atmospheric Ice Nucleation and its Implications" (2013) within the DFG Research Group INUIT.

Referee for the formal (blind) instrument intercomparison during the Fifth International Ice Nucleation Workshop (FIN-2), together with Paul Connolly and Xiaohong Liu (2015)

Deputy Member of the Council for Research and Promotion of Young Scientists (CRYS) at KIT (2015-2019)

Contributing author to the 5th 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: *Science, Proceedings of the National Academy of Sciences, Bulletin of the American Meteorological Society, 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) panel and remote reviews, 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 sole Principal Investigator unless stated otherwise)

BMBF project WarmWorld, module 1 "Better", subproject "Calibration of ice and mixed-phase microphysics in ICON", 298.000€, 03/2023-02/2027.

NHR@KIT Bridge PhD project: "Postsimulation diagnostics of microphysical process

rates with AI", PIs C. Hoose and A. Streit, 138 000€, 12/2022-12/2025.

KIT Future Fields 2 Project „Ice Multiplication“, Lead PIs: C. Hoose and T. Leisner, Co-PIs E. Järvinen, M. Uhlmann, J. Cermak and B. Nestler, 376 100 €, 01/2022-12/2023.

BMBF project "MOSAIC 2 – MAMiP: Modeling of Arctic Multilayer Mixed-Phase Clouds", 210 451 €, 2021-2024.

DFG project "Cloud response to volcanic eruptions (VolCloud)", PIs J. Quaas and C. Hoose, within the research unit VolImpact (Revisiting the volcanic impact on atmosphere and climate – preparations for the next big volcanic eruption, FOR 2820), Phase 1: 172 850€, 2019-2022 and Phase 2: 229 750€, 2022-2025.

ERC Starting Grant "C2Phase – Closure of the Cloud Phase", 1 500 000 €, 2017-2023.

BMBF project HD(CP)², 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)², 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

summer 2022	Exercises to Theoretical Meteorology II, KIT
winter 2021/2022	"Theoretische Meteorologie IV" (Boundary Layer Meteorology), KIT
winter 2021/2022	"Cloud Physics", KIT (shared with Dr. C. Han and Dr. A. Oertel)

summer 2021	Exkursion (Field Trip), KIT
summer 2021	"Numerische Methoden in der Meteorologie" (Numerical Methods in Meteorology), KIT
winter 2020/2021	"Theoretische Meteorologie I" (Atmospheric Dynamics and Thermodynamics, shared with Dr. C. Grams), KIT
winter 2020/2021	"Cloud Physics", KIT (shared with Dr. C. Han)
summer 2020	"Numerische Methoden in der Meteorologie" (Numerical Methods in Meteorology), KIT
winter 2019/2020	"Theoretische Meteorologie I" (Atmospheric Dynamics and Thermodynamics, shared with Dr. C. Grams), KIT
winter 2019/2020	"Cloud Physics", KIT (shared with Dr. Q. Coopman)
summer 2019	"Numerische Methoden in der Meteorologie" (Numerical Methods in Meteorology), KIT
summer 2019	"Theoretische Meteorologie II" (Advanced Atmospheric Dynamics and Thermodynamics, shared with Dr. C. Grams), KIT
winter 2018/2019	"Theoretische Meteorologie I" (Atmospheric Dynamics and Thermodynamics), KIT
winter 2018/2019	"Cloud Physics", KIT (shared with Dr. H. Beydoun and Dr. Q. Coopman)
winter 2018/2019	Seminar "IPCC 5 th Assessment Report", KIT (shared with Prof. Dr. J. Pinto and Dr. P. Ludwig)
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 th 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

12/2022-present	Supervision of PhD thesis of Miriam Simm, KIT
12/2022-present	Supervision of MSc thesis of Mathis Tonn, KIT
11/2022	External examiner for PhD thesis of Ruth Price, Univ. Leeds, UK
10/2022-present	Supervision of PhD thesis of Beata Czajka, KIT
09/2022-present	Supervision of PhD thesis of Melina Sebisich, KIT
12/2021-03/2022	Supervision of BSc thesis of Viktoria Dürlich, KIT
07/2021-present	Supervision of PhD thesis of Gabriella Wallentin, KIT
07/2021	External examiner for PhD thesis of Zane Dedekind, ETH Zurich, Switzerland
03/2021-03/2022	Co-Supervision of MSc thesis of Julia Thomas, KIT/Univ. Heidelberg
03/2021	External examiner for PhD thesis of Rachel Hawker, Univ. Leeds, UK
06/2020-present	Supervision of PhD thesis of Behrooz Keshtgar, KIT
04/2020-present	Supervision of PhD thesis of Barbara Dietel, KIT
01/2020	External examiner ("opponent") for PhD defense of Inger Helene Karset, University of Oslo, Norway
06/2019-present	Supervision of PhD thesis of Fatemeh Zarei, KIT
04/2017-present	Supervision of PhD thesis of Olimpia Bruno, KIT
01/2019-01/2020	Supervision of MSc thesis of Barbara Dietel, KIT
12/2018-12/2019	Supervision of MSc thesis of Christian Latt, KIT
11/2018-11/2019	Supervision of MSc thesis of Patrick Kuntze, KIT
09/2019	External examiner for PhD thesis of Kathryn Fowler, Univ. Manchester, UK
04/2012-04/2019	Supervision of PhD thesis of Isabelle Reichardt, KIT
01/2016-02/2019	Supervision of PhD thesis of Constanze Wellmann, KIT
12/2015-12/2018	Supervision of PhD thesis of Linda Schneider, KIT
10/2017-04/2018	Supervision of BSc thesis of Sebastian Müller, KIT
05/2017-05/2018	Supervision of MSc thesis of Markus Karrer, 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 11/2015	Supervision of PhD thesis of Marco Paukert, KIT 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	Co-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 BSc 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

h-index: 36, 7879 citations (Web of Science, 11 Dec 2022)

accepted:

Andrew Ian Barrett, **C. Hoose**: Microphysical Pathways Active within Thunderstorms and Their Sensitivity to CCN Concentration and Wind Shear. *ESS Open Archive*. doi:10.1002/essoar.10511309.1. Accepted for publication in *Journal of Geophysical Research – Atmosphere*.

Thomas, J., Barrett, A., and **Hoose, C.**: Temperature and CCN sensitivity of orographic precipitation enhanced by a mixed-phase seeder-feeder mechanism, *EGUsphere* [preprint], doi:10.5194/egusphere-2022-740. Accepted for publication in *Atmospheric Chemistry and Physics*.

Sylvia Sullivan and **C. Hoose**: Science of cloud and climate science: An analysis of the literature over the past 50 years. *ESS Open Archive*, doi:10.1002/essoar.10510355.1. Accepted for publication in the AGU book "Cloud Physics and Dynamics: Showers and Shade from Earth's Atmosphere".

published:

78. Keshtgar, B., Voigt, A., **Hoose, C.**, Riemer, M., and Mayer, B. (2023): Cloud-radiative impact on the dynamics and predictability of an idealized extratropical cyclone, *Weather Clim. Dynam.*, 4, 115–132, <https://doi.org/10.5194/wcd-4-115-2023>

77. Werchner, S., E. Gute, **C. Hoose**, Ch. Kottmeier, A. Pauling, H. Vogel, and B. Vogel (2022). When do subpollen particles become relevant for ice nucleation processes in clouds? *Journal of Geophysical Research*, doi: 10.1029/2021JD036340
76. Braun, C., Voigt, A., **Hoose, C.**, Ekman, A. M. L., & Pinto, J. G. (2022). Controls on Subtropical Cloud Reflectivity during a Waterbelt Scenario for the Cryogenian Glaciations, *Journal of Climate*, 35(21), 3457-3476
75. Bruckert, J., Hoshyaripour, G. A., Horváth, Á., Muser, L. O., Prata, F. J., **Hoose, C.**, and Vogel, B. (2022): Online treatment of eruption dynamics improves the volcanic ash and SO₂ dispersion forecast: case of the 2019 Raikoke eruption, *Atmos. Chem. Phys.*, 22, 3535–3552, <https://doi.org/10.5194/acp-22-3535-2022>
74. Craig, G. C., Fink, A. H., **Hoose, C.**, Janjić, T., Knippertz, P., Laurian, A., Lerch, S., Mayer, B., Miltenberger, A., Redl, R., Riemer, M., Tempest, K. I., & Wirth, V. (2021). Waves to Weather: Exploring the Limits of Predictability of Weather, *Bulletin of the American Meteorological Society*, 102(11), E2151-E2164
73. Coopman, Q.; **Hoose, C.**; Stengel, M. (2021): Analyzing the Thermodynamic Phase Partitioning of Mixed Phase Clouds Over the Southern Ocean Using Passive Satellite Observations. *Geophysical Research Letters*, DOI: 10.1029/2021GL093225
72. Marinescu, P. J., van den Heever, S. C., Heikenfeld, M., Barrett, A. I., Barthlott, C., **Hoose, C.**; Fan, J., Fridlind, A. M., Matsui, T., Miltenberger, A. K., Stier, P., Vie, B., White, B. A., Zhang, Y. (2021): Impacts of Varying Concentrations of Cloud Condensation Nuclei on Deep Convective Cloud Updrafts- A Multimodel Assessment. *Journal of the Atmospheric Sciences*, DOI: 10.1175/JAS-D-20-0200.1
71. Bruno, O., **Hoose, C.**, Storelvmo, T., Coopman, Q., Stengel, M. (2021): Exploring the Cloud Top Phase Partitioning in Different Cloud Types Using Active and Passive Satellite Sensors. *Geophysical Research Letters*, DOI: 10.1029/2020GL089863
70. Coopman, Q.; **Hoose, C.**; Stengel, M. (2020): Analysis of the Thermodynamic Phase Transition of Tracked Convective Clouds Based on Geostationary Satellite Observations. *Journal of Geophysical Research / D*, 125 (11), e2019JD032146. doi:10.1029/2019JD032146
69. Savigny, C. von; Timmreck, C.; Buehler, S. A.; Burrows, J. P.; Giorgetta, M.; Hegerl, G.; Horvath, A.; Hoshyaripour, G. A.; **Hoose, C.**; Quaas, J.; Malinina, E.; Rozanov, A.; Schmidt, H.; Thomason, L.; Toohey, M.; Vogel, B. (2020): The Research Unit VolImpact: Revisiting the volcanic impact on atmosphere and climate – preparations for the next big volcanic eruption. *Meteorologische Zeitschrift*, 29 (1), 3–18. doi:10.1127/metz/2019/0999
68. Morrison, H.; Lier-Walqui, M. van; Fridlind, A. M.; Grabowski, W. W.; Harrington, J. Y.; **Hoose, C.**; Korolev, A.; Kumjian, M. R.; Milbrandt, J. A.;

Pawlowska, H.; Posselt, D. J.; Prat, O. P.; Reimel, K. J.; Shima, S.-I.; Diederhoven, B. van; Xue, L. (2020): Confronting the Challenge of Modeling Cloud and Precipitation Microphysics. *Journal of Advances in Modeling Earth Systems*, 12 (8), e2019MS001689. doi:10.1029/2019MS001689

67. Costa-Surós, M.; Sourdeval, O.; Acquistapace, C.; Baars, H.; Carbajal Henken, C.; Genz, C.; Hesemann, J.; Jimenez, C.; König, M.; Kretzschmar, J.; Madenach, N.; Meyer, C. I.; Schrödner, R.; Seifert, P.; Senf, F.; Brueck, M.; Cioni, G.; Engels, J. F.; Fieg, K.; Gorges, K.; Heinze, R.; Siligam, P. K.; Burkhardt, U.; Crewell, S.; **Hoose, C.**; Seifert, A.; Tegen, I.; Quaas, J. (2020): Detection and attribution of aerosol-cloud interactions in large-domain large-eddy simulations with the ICOSahedral Non-hydrostatic model. *Atmospheric Chemistry and Physics*, 20 (9), 5657–5678. doi:10.5194/acp-20-5657-2020

66. Wellmann, C.; Barrett, A. I.; Johnson, J. S.; Kunz, M.; Vogel, B.; Carslaw, K. S.; **Hoose, C.** (2020): Comparing the impact of environmental conditions and microphysics on the forecast uncertainty of deep convective clouds and hail. *Atmospheric Chemistry and Physics* 20 (4), 2201–2219. doi:10.5194/acp-20-2201-2020

65. Schneider, L.; Barthlott, C.; **Hoose, C.**; Barrett, A. I. (2019): Relative impact of aerosol, soil moisture, and orography perturbations on deep convection. *Atmos. Chem. Phys.*, 19 (19), 12343–12359. doi:10.5194/acp-19-12343-2019

64. Coopman, Q.; **Hoose, C.**; Stengel, M. (2019): Detection of Mixed-Phase Convective Clouds by a Binary Phase Information From the Passive Geostationary Instrument SEVIRI. *Journal of Geophysical Research / Atmospheres*, 2018JD029772. doi:10.1029/2018JD029772

63. Barrett, A. I.; Wellmann, C.; Seifert, A.; **Hoose, C.**; Vogel, B.; Kunz, M. (2019): One Step at a Time: How Model Time Step Significantly Affects Convection-Permitting Simulations. *Journal of Advances in Modeling Earth Systems*, 11 (3), 641–658. doi:10.1029/2018MS001418

62. Vassel, M., Ickes, L., Maturilli, M., and **Hoose, C.** (2019): Classification of Arctic multilayer clouds using radiosonde and radar data, *Atmos. Chem. Phys.*, accepted, doi:10.5194/acp-2018-774

61. Beydoun, H. & **Hoose, C.** (2019): Aerosol-cloud-precipitation interactions in the context of convective self-aggregation. *Journal of Advances in Modeling Earth Systems*, 11. doi:10.1029/2018MS001523

60. Ullrich, R.; **Hoose, C.**; Cziczo, D. J.; Froyd, K. D.; Schwarz, J. P.; Perring, A. E.; Bui, T. V.; Schmitt, C. G.; Vogel, B.; Rieger, D.; Leisner, T.; Möhler, O. (2019): Comparison of Modeled and Measured Ice Nucleating Particle Composition in a Cirrus Cloud. *Journal of the Atmospheric Sciences*, 76 (4), 1015–1029. doi:10.1175/JAS-D-18-0034.1

59. Wellmann, C.; Barrett, A. I.; Johnson, J. S.; Kunz, M.; Vogel, B.; Carslaw, K. S.; **Hoose, C.** (2018): Using Emulators to Understand the Sensitivity of Deep

Convective Clouds and Hail to Environmental Conditions. *Journal of Advances in Modeling Earth Systems*, 10 (12), 3103–3122. doi:10.1029/2018MS001465

58. Weger, M.; Heinold, B.; Engler, C.; Schumann, U.; Seifert, A.; Föbige, R.; Voigt, C.; Baars, H.; Blahak, U.; Borrmann, S.; **Hoose, C.**; Kaufmann, S.; Krämer, M.; Seifert, P.; Senf, F.; Schneider, J.; Tegen, I. (2018): The impact of mineral dust on cloud formation during the Saharan dust event in April 2014 over Europe. *Atmos. Chem. Phys.*, 18 (23), 17545–17572. doi:10.5194/acp-18-17545-2018

57. Sullivan, S. C.; Barthlott, C.; Crosier, J.; Zhukov, I.; Nenes, A.; **Hoose, C.** (2018): The effect of secondary ice production parameterization on the simulation of a cold frontal rainband. *Atmos. Chem. Phys.*, 18 (22), 16461–16480. doi:10.5194/acp-18-16461-2018

56. Barthlott, C.; **Hoose, C.** (2018): Aerosol effects on clouds and precipitation over central Europe in different weather regimes. *Journal of the Atmospheric Sciences*, 75, 4247–4264. doi:10.1175/JAS-D-18-0110.1

55. Hummel, M.; **Hoose, C.**; Pummer, B.; Schaupp, C.; Fröhlich-Nowoisky, J.; Möhler, O. (2018): Simulating the influence of primary biological aerosol particles on clouds by heterogeneous ice nucleation. *Atmos. Chem. Phys.*, 18 (20), 15437–15450. doi:10.5194/acp-18-15437-2018

54. Schäfer, M.; Loewe, K.; Ehrlich, A.; **Hoose, C.**; Wendisch, M. (2018): Simulated and observed horizontal inhomogeneities of optical thickness of Arctic stratus. *Atmos. Chem. Phys.*, 18 (17), 13115–13133. doi:10.5194/acp-18-13115-2018

53. Stevens, R. G.; Loewe, K.; Dearden, C.; Dimitrellos, A.; Possner, A.; Eirund, G. K.; Raatikainen, T.; Hill, A. A.; Shipway, B. J.; Wilkinson, J.; Romakkaniemi, S.; Tonttila, J.; Laaksonen, A.; Korhonen, H.; Connolly, P.; Lohmann, U.; **Hoose, C.**; Ekman, A. M. L.; Carslaw, K. S.; Field, P. R. (2018): A model intercomparison of CCN-limited tenuous clouds in the high Arctic. *Atmos. Chem. Phys.*, 18 (15), 11041–11071, doi:10.5194/acp-18-11041-2018

52. **Hoose, C.**, Karrer, M., Barthlott, C. (2018), Cloud top phase distributions of simulated deep convective clouds. *Journal of Geophysical Research / Atmospheres*, 123 (18), 10464–10476. doi:10.1029/2018JD028381

51. Schneider, L., Barthlott, C., Barrett, A. and **Hoose, C.** (2018), The precipitation response to variable terrain forcing over low-mountain ranges in different weather regimes. *Q. J. R. Meteorol. Soc.*, doi:10.1002/qj.3250

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.* 122, 9391-9412, 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* 143, 1485-1503, doi:10.1002/qj.3019.
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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

- Hoose, C.** (2022). Another piece of evidence for important but uncertain ice multiplication processes. *AGU Advances*, 3, e2022AV000669. <https://doi.org/10.1029/2022AV000669>. *Invited comment on Atlas et al. (2022)*, <https://doi.org/10.1029/2021AV000454>.
- 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.*
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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

- 2023 Batsheva de Rothschild Seminar on Cloud-Climate Interactions across Scales, Interuniversity Institute for Marine Sciences, Eilat, Israel: "Microphysical Pathways Active within Thunderstorms and Their Sensitivity to CCN Concentration and Wind Shear"
- 2023 University of Oslo, Norway: "Mixed-phase microphysics and other challenges in modelling convective clouds"
- 2022 Summer Colloquium, University of Bonn: "Challenges in modelling convective clouds"

- 2021 Colloquium of the Institut für Umweltphysik, University of Heidelberg: "Glaciation of convective clouds: modelling and satellite observations"
- 2020 Colloquium of the Meteorological Institute, LMU, Munich: "Glaciation of convective clouds: modelling and satellite observations"
- 2020 HITS Colloquium, Heidelberg: "Simulation of deep convective clouds under various meteorological and microphysical impacts"
- 2020 University of Oslo, Norway: "Glaciation of convective clouds"
- 2019 Colloquium of the Institute of Atmosphere and Climate (IAC), ETH Zurich: "Glaciation of Deep Convective Clouds"
- 2019 Gordon Research Conference on Radiation and Climate: "Glaciation Processes in Convective Clouds"
- 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 7th 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

- 2022 AMS Cloud Physics Conference, Madison, US: "Microphysical Pathways Active within Thunderstorms and Their Sensitivity to CCN Concentration and Wind Shear" (oral presentation). Co-author: A. Barrett.
- 2022 AMS Cloud Physics Conference, Madison, US: "Ice multiplication in convective clouds: sensitivity experiments with the ICON model" (poster presentation). Co-authors: C. Han, V. Dürlich.
- 2021 International Conference on Cloud Physics and Precipitation: "Closure study for ice nucleating particles via inverse modeling" (poster presentation). Co-authors: M. Niemand, K. Loewe, T. Schiebel, O. Möhler.
- 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 8th 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.