

Curriculum Vitae

CATHY HOHENEGGER

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Citizenship: Swiss
Born: 11.3.1979

Education

2003-2007 **Dr. Sc. ETH**
PhD, Inst. for Atmospheric and Climate Science ETH Zurich
PhD Thesis: "Dynamical analysis of atmospheric predictability in cloud-resolving models"
Advisor: Prof. Dr. C. Schär

1998-2003 **Dipl. Natw. ETH** with distinction
Master equivalent, Earth Sciences ETH Zurich
Diploma Thesis: "An Assessment of the Sensitivity of the European Climate on Aerosol Forcing simulated with a Regional Climate Model"
Advisor: Dr. Pier-Luigi Vidale.

Professional experience

2011- **Research Group Leader**, Max Planck Institute for Meteorology, Hamburg, Germany

2010 - **Scientist**, Max Planck Institute for Meteorology, Hamburg, Germany

2009 - 2010 **Visiting Scientist**, Department of Atmospheric Sciences, U. of Washington, Seattle, USA

2007 - 2009 **Post-doctoral Research Associate**, Inst. for Atmospheric and Climate Science ETH Zurich, Zurich, Switzerland

2003 - 2006 **Graduate Research / Teaching Assistant**, Inst. for Atmospheric and Climate Science ETH Zurich, Zurich, Switzerland

Jul. - Oct. 2001 **Internship**, Federal Office of Meteorology and Climatology, Zurich, Switzerland.

Honors and fellowship

2015	Outstanding AGU reviewer for 2015
2011 -	AcademiaNet member
2009 - 2010	Fellowship for advanced researchers , Swiss National Science Foundation
26 May 2005	Young scientist travel award , European Meteorological Society, ICAM/MAP conference, Zadar, Croatia
22 November 2003	ETH Willi-Studer-Prize , ETH Zurich, Zurich, Switzerland.

External funding

1.1.2023-31.12.2025	Canopies in the Earth System , CLiCCS excellence cluster, co-PI, funded by DFG
1.1.2019-31.12.2022	Advancing the representation of convection across scales , HErZ phase 3, Lead PI, funded by BMVI
1.4.2016-31.3.2019	Cloud and convective organisation , HD(CP) ² phase 2, PI, funded by BMBF
1.1.2015-31.12.2018	Advancing the representation of convection across scales , HErZ phase 2, Lead PI, funded by BMVI
1.2.2011-31.1.2015	Clouds and convection , HErZ phase 1, PI, funded by BMVI
2011-	Large-eddy simulations of clouds and convective processes , PI, yearly CPU time allocation at DKRZ funded by BMBF

Community service

1.6.2019-	Speaker, steering committee of the field campaign FESSTVaL
30.6.2019-13.7.2019	Co-organizer of the 2nd ICTP summer school on theory, mechanisms and hierarchical modelling of climate dynamics: convective organization and climate sensitivity, Trieste, Italy
1.7.2016-30.6.2019	Scientific representative of the Max Planck Institute for Meteorology in the Chemical Physical Technical (CPT) Section of the Max Planck Society
1.1.2015-31.12.2018	Speaker of the executive board of the Hans Ertel Centre for Weather Research (HErZ)
15-26.6.2015	Co-organizer of the 1st WCRP summer school on model development, Hamburg, Germany
2014-	Member of the executive committee of the IMPRS
2014-	Convener of the session on atmospheric convection at the EGU General Assembly
2012-2014	Grant holder and member of the management committee of the COST ES0905 action
2013	Organizer of the HErZ general meeting, Hamburg, Germany
2012	Co-organizer of the fourth international high-resolution cloud modelling workshop, Ringberg, Germany
2011-	Member of the executive board of the Hans Ertel Centre for Weather Research (HErZ)
2006-	Reviewer for various scientific journals (AGU, AMS...)

Supervision

Internships

Wolfgang Langhans (2008), Thomas Frederikse (2013)

Bachelor theses

Matthias-Heinz Retsch (2015)

Master theses

Hauke Schulz (2016, joint with Prof. Bjorn Stevens), Matthias-Heinz Retsch (2017, joint with Prof. Thorsten Mauritsen), Jule Ratdke (2019, joint with Prof. Thorsten Mauritsen)

PhD theses

1. Luca Schmidt, ongoing, started 2020. Precipitation over tropical islands.
2. Leonore Jungandreas, ongoing, started 2018. The influence of deep convection on the West African monsoon and the atmosphere-vegetation interactions during the mid-Holocene. Joint with Prof. Martin Claussen.
3. Laura Paccini, ongoing, started 2018. Sensitivity of resolved convection in the Atlantic Basin to modes of Atlantic SST variability. Joint with Prof. Bjorn Stevens.
4. Sebastien Müller, 2019. Convectively generated gravity waves and convective aggregation in numerical models of tropical dynamics. PhD Thesis, University of Hamburg, Hamburg, *Reports on Earth System Science*, **214**. Joint with Dr. Elisa Manzini.
5. Tobias Becker, 2018. On the interaction of precipitating convection with its environment and the role of convective organization. PhD Thesis, University of Hamburg, Hamburg, *Reports on Earth System Science*, **202**. Joint with Prof. Bjorn Stevens.
6. Guido Cioni, 2018. Large-eddy simulations of land-atmosphere interactions and mid-latitude storms: from conceptual models to realistic cases. PhD Thesis, University of Hamburg, Hamburg, *Reports on Earth System Science*, **206**.
7. Angela Cheska Siongco, 2016. Drivers of precipitation biases in the tropical Atlantic sector. PhD Thesis, University of Hamburg, Hamburg, *Reports on Earth System Science*, **181**. Joint with Prof. Bjorn Stevens.
8. Malte Rieck, 2015. The role of heterogeneities and land-atmosphere interactions in the development of moist convection. PhD Thesis, University of Hamburg, Hamburg, *Reports on Earth System Science*, **167**.

Humboldt fellowships

Dr. James Ruppert (1.2016-7.2018)

Dr. Thibaut Dauhut (5.2019-10.2020)

PostDoc

Tobias Becker, Matthias Brueck, Rieke Heinze, Junhong Lee, Ann Kristin Naumann, Karsten Peters, Nicolas Rochetin, Mirjana Sakradzija, Linda Schlemmer, Jaemyeong Seo, Christian Wengel, Julia Windmiller

Teaching

- Land-atmosphere interactions, summer semester 2019, University of Hamburg, master and PhD students.
- Parameterizing moist processes in atmospheric models (HErZ), summer semesters 2016 and 2017, University of Hamburg, master and PhD students. Joint with Dr. Daniel Klocke.
- LES introductory course, one-week block course, 2012. Joint with Dr. Axel Seifert and Dr. Thijs Heus.
- Teaching at summer schools: ENS summer school (28.5-01.6 2018); Land-atmosphere interactions summer school (21.6-02.7.2015); 1st WCRP summer school on model development (15.6-26.6.2015); Summer school on Clouds and Climate (24.6-05.7 2013); summer school on Basics of atmospheric convection parameterization (29.9-09.10.2013)

Presentations

Invited

- Searching for signatures of self-aggregation in less idealized atmosphere. *Workshop on convective organization*, Copenhagen, Denmark, May 2021
- Impact of resolution and interactive SST on climate statistics in global storm-resolving simulations. *AGU fall meeting*, online, USA, December 2020
- Is convective organization more than candy for the eyes? *Seminar*, U. Reading, UK, 4 November 2019
- Convective organization: should we parameterize it? *Workshop on Convection parametrization: progress and challenges*, Exeter, UK, 18 July 2019.
- Deep convection versus shallow circulation: who wins? *Colloquium*, Institute for atmospheric and climate science, Zurich, Switzerland, 27 May 2019
- Interactions between deep convection and shallow circulations. *Seminar*, Goethe university, Frankfurt, Germany, 9 May 2019.
- How important is convective organization? *Understanding clouds and precipitation*, Berlin, Germany, 27 February 2019.
- What controls precipitation enhancement over a heterogeneous surface? *AGU fall meeting*, Washington DC, USA, 13 December 2018
- Organization controls on precipitating convection. *AGU fall meeting*, Washington DC, USA, 10 December 2018
- The DYAMOND experience. *Easiwace review meeting*, Hamburg, Germany, 6 November 2018
- Convection. *ENS summer school*, Paris, France, 28-30 May 2018
- FESSTVaL: The field experiment on sub-mesoscale spatio-temporal variability in Lindenberg. *Colloquium*, Lindenberg, Germany, 18 April 2018

The coupling of clouds to circulation on the mesoscale. *Sino-German workshop on high-resolution modeling*, Peking, China, 26 March 2018

When the plants wilt...the rain comes. *Sino-German workshop on high-resolution modeling*, Guanzhou, China, 20 March 2018

The self-organization of convection over a simplified land surface. *Niels Bohr Institute colloquium*, Copenhagen, Denmark, 14 March 2018

Effects of convective organization on the subtropics. *ISSI International team on mesoscale patterns of cloudiness and humidity in the trades*, Bern, Switzerland, 27 November 2017

The organization of convection and its interactions with the land surface. *Scientific Advisory Board review meeting*, Hamburg, Germany, 13 November 2017

What should a cumulus parameterization do? *The future of cumulus parametrization*, Delft, the Netherlands, 10 July 2017

Interactions between the land surface and convection: who wins? *Institute Colloquium*, Karlsruhe Institute for Technology, Germany, 13 June 2017

Interaction between convective organization and the climate system. *Institute Colloquium*, University of New South Wales, Australia, 15 March 2015

How does convection shape the climate? ...and parameterizations misshape it? *Institute Colloquium*, Melbourne University, Australia, 10 March 2017

How does convection shape the climate? ...and parameterizations misshape it? *Institute Colloquium*, Monash University, Australia, 3 March 2017

Radiative convective equilibrium simulations over land. *Seminar, LMD*, Paris, France, 21 February 2017.

Intensification of convective extremes driven by cloud-cloud interaction. *Seminar*, KNMI, de Bilt, the Netherlands, 17 January 2017.

Cloud and convection. *WIS-Minerva meeting*, Weizmann Institute of Science, Israel, 5 September 2016.

Propagation of land-sea breezes. *Seminar*, U. Wageningen, the Netherlands, 11 April 2016.

Land-sea breezes in large-eddy simulations, convection-permitting and convection parameterizing simulations. *NICAM-ICON workshop*, Hamburg, Germany, 23 February 2016.

Land atmosphere interactions and the representation of convection. *Research training day Terrestrial Modeling Systems*, Bonn, Germany, 23 October 2015.

Surface effects, convective self-aggregation and climate. *Group Seminar IAC*, ETH Zurich, Switzerland, 17 August 2015.

Cloud modelling. *Summer school on model development*, Hamburg, Germany, 15-25 June 2015.

Moist convection in observations and models. *Summer school on land-atmosphere interactions*, Valsavarenche, Italy, 27 June 2015.

Convection and land sea breeze. *CSU Department seminar*, Fort Collins, USA, 2 June 2015.

Controls on and representation of land-atmosphere interactions across scales. *U. Reading seminar*, Reading, UK, 6 October 2014.

What determines the coupling strength between convection and the land surface? *WCRP Grant challenges meeting*, Ringberg, Germany, 24 March 2014.

What is consistency? *COST final meeting*, Toulouse, France, 18 March 2014.

Convective self-aggregation and climate. *Seminar, LMU*, Munich, Germany, 4 February 2014.

Convection over heterogeneous surfaces. *Seminar, Institute for Meteorology U. Hannover*, Hannover, Germany, 23 January 2014.

Convection and land surface interactions. *COST summer school on basics of atmospheric convection parameterization*, Brac, Croatia, 6 October 2013.

Clouds and land surface interactions. *EUCLIPSE summer school on clouds and climate*, Les Houches, France, 24 June - 5 July 2013.

Does deep convection care about congestus clouds? *Seminar, LMD*, Paris, France, 16 January 2013.

Patterns and scale interactions in continental cumulus convection. *International workshop on scales and patterns in the Earth System*, Dresden, Germany, 7 November 2012.

Computergestützte Wettervorhersagen: wie wird das Wetter simuliert? *FINE network*, Hamburg, Germany, 25 October 2012.

Cheating with the convection scheme. *5th International workshop on cloud-resolving modeling*, 14 June 2012.

How to trigger deep convective clouds? *MPI Institute seminar*, Hamburg, Germany, 14 February 2012.

How to trigger deep convective clouds? *Institute seminar, University of Utah*, Salt Lake City, USA, 16 December 2011.

Clouds and Convection. *Fachsitzung Deutsche Meteorologische Gesellschaft*, Offenbach am Main, Germany, 15 June 2011

Clouds and Convection. *HErZ kickoff meeting, German Weather Service*, Offenbach am Main, Germany, 28 March 2011

From shallow to deep convection: A model and modeling perspective. *Seminar, Institute for Atmospheric and Climate Science, ETH Zurich*, Zurich, Switzerland, 7 February 2011

Simulating atmospheric convection and its interactions with the environment. *Seminar, Max Planck Institute for Meteorology*, Hamburg, Germany, 28 October 2009

Climate over the Alps. *PCC summer institute, Friday Harbor Laboratories*, San Juan Islands, WA, USA, 15 September 2009

Cloud-resolving simulations: From weather towards climate. *Seminar, Institute of Physics and Meteorology, University of Hohenheim*, Stuttgart, Germany, 13 January 2009

Cloud-resolving simulations: from weather towards climate. *Seminar, MeteoSwiss*, Zurich, Switzerland, 17 June 2008

Dynamical analysis of atmospheric predictability in cloud-resolving models. *Alpine summer school*, Valsavarenche, Italy, 26 June 2007

Predictability in high-resolution numerical weather prediction models. *Colloquium MeteoSwiss*, Zurich, Switzerland, 10 November 2005.

Conferences, workshops

When the plants wilt...the rain comes. *2nd Pan-GASS conference*, Lorne, Australia, 2 March 2018.

Regulation of the climate in coupled convection-permitting simulations. *Europ. Geo. Union General Assembly*, Vienna, Austria, 24 April 2017.

S5: cloud and convective organization. *HD(CP²) General Meeting*, Munich, Germany, 13 February 2017.

The modulation of static heterogeneity by precipitation. *22nd Symposium on boundary layers and turbulence and 32nd Conference on agricultural and forest meteorology*, Salt Lake City, USA, 21 June 2016.

Advancing the representation of convection across scales. *HErZ General Meeting*, Offenbach, Germany, 2 March 2016.

Coupled radiative convective equilibrium climate simulations with explicit and parameterized convection. *Understanding Cloud and Precipitation conference*, Berlin, Germany, 15 February 2016.

Advancing the representation of convection across scales. *HErZ General Meeting*, Offenbach, Germany, 22 April 2015.

Interactions between continental convection and mesoscale circulations across model resolutions. *WWOSC conference*, Montreal, Canada, 9 August 2014.

Multi-resolution analysis of land-atmosphere interactions. *7th international scientific conference on the global water and energy cycle*, The Hague, The Netherlands, 14 July 2014.

Cumulus congestus: along for the ride? *4th EUCLIPSE general assembly*, Hamburg, Germany, 11 June 2013.

From shallow to deep convection. *HErZ workshop*, Offenbach, 15 November 2012.

From shallow to deep convection. *30th conference on hurricanes and tropical meteorology*, Ponte Vedra Beach, Florida, USA, 19 April 2012.

Unifying entrainment formulation in shallow and deep convection. *COST meeting on entrainment and detrainment*, KNMI De Bilt, The Netherlands, 23. February 2012.

Parameter estimation in convection parameterizations using LES. *MPI-FMI workshop on model development and parameter estimation*, Hamburg, Germany, 20. January 2012.

Preconditioning of convective storms by congestus clouds. *AGU fall meeting*, San Fransisco, 7 December 2011

Simulating deep convection with a shallow convection scheme. *Europ. Geo. Union General Assembly*, Vienna, Austria, 7 May 2010

Deep convection and its parameterization with a shallow cumulus scheme. *Climate dynamics seminar, University of Washington*, Seattle, WA, USA, 18 February 2010

Towards cloud-resolving regional climate simulations over the Alpine region. *Final symposium of NCCR Climate II, MeteoSwiss*, Zurich, Switzerland, 22 January 2009

Climate simulations at cloud-resolving scales. *ALPS workshop*, Zurich, Switzerland, 21 January 2009

Do we understand precipitation recycling? *Hydrology Seminar ETH Zurich*, Zurich, Switzerland, 18 November 2008

Cloud-resolving climate simulations: Validation and process study. *COSMO workshop*, Zurich, Switzerland, 22 October 2008

Results at cloud-resolving scales. *ALPS workshop*, Zurich, Switzerland, 26 June 2008

Atmospheric predictability at synoptic versus cloud-resolving scales. *Europ. Geo. Union General Assembly*, Vienna, Austria, 16 April 2008

Climate simulation at cloud-resolving scales: First results. *ALPS workshop*, Zurich, Switzerland, 29 November 2007

Cloud-resolving ensemble simulations of the August 2005 flood. *International Conf. on Alpine Meteorology*, Chambéry, France, 8 June 2007

Predictability of high-resolution QPF. *COSMO workshop*, Zurich, Switzerland, 24 May 2007

Cloud-resolving ensemble simulations of the August 2005 Alpine flood. *Europ. Geo. Union General Assembly*, Vienna, Austria, 19 April 2007

The linearity trap. *Europ. Geo. Union General Assembly*, Vienna, Austria, 3 April 2006

Error growth in cloud-resolving models. *6th Int. SRNWP-Workshop on Non-Hydrostatic Modeling*, Bad Orb, Germany, 1 November 2005

Sensitivity of perturbation growth to flow characteristics and sampling strategy. *International Conference on Alpine Meteorology and the Mesoscale Alpine Programme Meeting*, Zadar, Croatia, 26 May 2005

Dynamics of error growth and propagation in cloud-resolving models. *Europ. Geo. Union General Assembly*, Vienna, Austria, 26 April 2005

Comparison of cloud-resolving ensemble simulations using LM and MC2 simulations. *11th*

Conf. on Mountain Meteorology and the Mesoscale Alpine Programme Meeting, Mt. Washington Valley, USA, 25 June 2004
Predictability limitations on a meso-gamma-scale. *LM-User Workshop*, Langen, Germany, 8 March 2004.