Mirjam Johanna Hirt

Curriculum Vitae

[redacted]
Munich
Germany
[redacted]
✉ *m.hirt@lmu.de*
Citizenship: German
Born in: Friedberg

Working experience

12/2016 – today **PhD student** at LMU, Munich: Convective Initiation - Relevant processes and Their Representation in Convection-Permitting Models

03/2016 – 08/2016 **Student Trainee** at the Georisks Department of *Munich Re*, Munich: Analysing and modelling of storm risks; assessing vulnerabilities in relation to tropical cyclones; helping in developing a stochastic event set of tropical cyclones; Tools are Matlab, Excel, Access and ArcGIS.

06/2013 – 02/2016 **Student assistant** in the working group *Theoretical Meteorology*: Tutoring for *Dynamik der Atmosphäre II* (prepare/hold tutorials, provide/correct exercises, supporting the students, provide/correct exams); Assisting in research (literature research, preparing posters, helping with a scientific publication).

07/2012 – 10/2012 **Research internship**, *Max Planck Institute for Meteorology*, Hamburg.
Middle and Upper Atmosphere with Dr. Hauke Schmidt: Literature research and statistical data analysis on the stratospheric polar vortex, the solar cycle and the QBO.

02/ 2012 – 07/2013 **Student research assistant** in the Project EWIG (managing and archiving data in geosciences): literature research, preparing posters and helping with conferences

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Education

04/2014 – 10/2016 **MSc, Meteorology**, *Freie Universität Berlin*, 1,1.
Master thesis at the Working Group Theoretical Meteorology: Statistical and dynamical analyses of atmospheric blockings with an idealized point vortex model

08/2013 – 12/2013 **Term abroad**, *University of Svalbard*, Longyearbyen.
Arctic Geophysics (*Polar Ocean Climate* and *Polar Meteorology and Climate*)

10/2010 – 02/2014 **BSc, Meteorology**, *Freie Universität Berlin*, 1,3.
Bachelor thesis in the Working Group Theoretical Meteorology: Die Punktwirbeltheorie und die Stabilität großskaliger, atmosphärischer Wirbelkonfigurationen

09/2001 – 06/2010 **Abitur (general qualification for university entrance)**, *Rhabanus-Maurus-Gymnasium St. Ottilien*, 1,6.
Advanced courses in English and physics

Workshops, summer schools and further training

09/2018 **Workshop**, *Schneefernerhaus Zugspitze*.
Hands-on workshop on Machine learning. Topics include linear regression, decision trees, random forests, deep neural networks.

09/2017 **Summer School**, *Heidelberg*.
ScienceFore Summer School: The Science of statistical Forecasting

03/2017 **Training Course**, *ECMWF Reading*, UK.
Parameterizations of subgrid scale processes

03/2017 **Workshop**, *Leibnitz Rechenzentrum*, Garching.
Parallelization in high performance computing

12/2016 **Workshop**, *Stuttgart*.
Scientific writing and presentation

11/2015 **Fall School**, *Institut de Physique de Cargèse*, Corsica.
Statistical and mathematical tools for the study of climate extremes.

Computer skills

Python	advanced, regularly used packages include numpy, scipy, xarray, pandas, seaborn and many more
LaTex, Beamer	advanced
Linux	familiar
Microsoft Office	familiar with Word, Excel and Power Point, fundamentals in Access
Fortran	familiar
Matlab	familiar
R	familiar
CDO	familiar
ArcGIS	fundamentals
NCL	fundamentals
HTML	fundamentals

Languages

German	native speaker
English	fluent, spoken and written
French	fundamentals

Italian	fundamentals
Latin	fundamentals

Further activities

07/2019 – 03/2020	Supervision of a Bachelor student (HIWI and thesis)
03/2019 – 11/2019	Initiation and organization of a Lunch seminar series for Early career scientists within the Meteorological Institute Munich
11/2018 – today	Equal opportunity representative of LMU, Munich within the research project W2W
09/2018	Organization of a three-day workshop on Machine Learning within the W2W project at Zugspitze.
03/2017 – today	Helping in organizing and executing events for school children: Girls days, "Mädchen machen Technik", "Tag der Physik"
02/2015 – 2016	Student representative of the educational committee for the establishment of the new MSc degree programme *Computational Science*, FU Berlin
02/2013	Study trip/meteorological measuring campaign in Egypt
10/2011 – 2016	Guiding tours for pupils at the Institute for Meteorology, FU Berlin
06/2011 – 2016	Member of the student association, FU Berlin

External presentations and conferences

05/2020	**European Geophysical Union General Assembly**, *Vienna, Austria*, Oral presentation on "Cold pool driven convective initiation: How can we improve its representation in km-scale models?". (Conference cancelled due to Corona-virus outbreak)
03/2020	**ICCARUS**, *DWD, Offenbach, Germany*, Oral presentation on "Cold pool driven convective initiation: How can we improve its representation in km-scale models?". (Conference cancelled due to Corona-virus outbreak)
07/2019	**Convection parameterizations: progress and challgens (CPPC)**, *MetOffice, Exeter, UK*, Oral presentation on "Cold pool driven convection initiation and missing aspects in km-scale models".
05/2019	**Group meeting**, *University Kopenhagen, Nils-Bohr Institute*, Oral presentation on "Cold pool driven convection initiation and missing aspects in km-scale models".
02/2019	**Understanding Clouds and Precipitation (UCP) conference**, *Berlin*, Poster presentation on "Cold pool driven convection initiation: What are km-scale models missing?".
02/2019	**Moist processes in the atmosphere**, *Mathematisches Forschungsinstitut Oberwolfach*, participitation.

05/2018 **HDCP2 Workshop on Cold pools**, *Max Planck Institute for Meteorology, Hamburg*, Oral presentation on "Triggering of convection by cold pools in convection permitting models".

04/2018 **European Geophysical Union General Assembly**, *Vienna, Austria*, Poster presentation on "Stochastic perturbations to account for convection initiation by subgrid-scale orography and turbulence".

03/2018 **ICCARUS**, *DWD, Offenbach*, Oral presentation on "Physically based stochastic perturbations (PSP) - Parameterizing boundary layer variability and subgrid scale orography" .

09/2017 **Conference on Predictability and Multi-Scale Prediction of High Impact Weather**, *Oral presentation on "Representation of mechanical lifting by subgridscale orography using stochastic perturbations"*.

Peer-reviewed Publications

Mirjam Hirt, George C. Craig, Sophia A. K. Schäfer, Julien Savre, and Rieke Heinze. Cold pool driven convective initiation: using causal graph analysis to determine what convection permitting models are missing. *Quarterly Journal of the Royal Meteorological Society*.

Mirjam Hirt, Stephan Rasp, Ulrich Blahak, and George C. Craig. Stochastic parameterization of processes leading to convective initiation in kilometer-scale models. *Monthly Weather Review*, 147(11):3917–3934, 2019.

Mirjam Hirt, Lisa Schielicke, Annette Müller, and Peter Névir. Statistics and dynamics of blockings with a point vortex model. *Tellus A*, 70(1):1–20, 2018.

Annette Müller, Peter Névir, Lisa Schielicke, **Mirjam Hirt**, Joscha Pueltz, and Isabell Sonntag. Applications of point vortex equilibria: blocking events and the stability of the polar vortex. *Tellus A*, 67, December 2015.

Munich, 6. April 2020 Mirjam Johanna Hirt