

# Dr. Gerard Kilroy

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<b>Nationality</b>	Irish
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## Work History

2021 - 2022 (Fix-term) | Research scientist, MPI, Hamburg.

- Working directly with numerical weather simulation data in the DYnamics of the Atmospheric general circulation Modeled On Non-hydrostatic Domains project (DYAMOND), - the first ever intercomparison of global-storm-resolving models.
- Processing large data sets (> 25 TB) using tools such as CDO to convert, extract and regrid the data to NetCDF format to perform a numerical analyses.
- Applying Hurricane tracking algorithms to the data, which I developed and wrote in Fortran90, to extract individual weather events from the data.
- Generating graphics, animations and scientific tables in a Linux environment and interpreting the results in terms of realistic weather paradigms.
- Writing up a publication, giving presentations on the results. Maintaining a website to present results using the TYPO3 system.

2014 - 2021 | Research scientist, LMU, Munich.

- Directly modifying and running high-resolution three-dimensional numerical weather models on Linux clusters for research of atmospheric phenomena such as Tropical Cyclones and thunderstorms.
- Performing a numerical and statistical analysis of the output data, processing large data sets and interpreting the results in terms of realistic weather paradigms.
- Working on satellite data and imagery using PYTHON. Generating animations and movies in a Linux environment.
- Writing up publications based on these results and presenting at large conferences worldwide.
- Working with ECMWF and ERA5 operational analyses data to understand the dynamics of tropical storm formation in different ocean basins.

2011 - 2013 | Ph.D. candidate, LMU, Munich.

- Thesis title: Numerical studies of tropical convection.

## Education

2011 - 2013	<b>Ph.D. of Meteorology, LMU (University of Munich),</b> Faculty of Physics, Thesis title: Numerical studies of tropical convection Grade: Magna Cum Laude, (Honours)
2009 - 2011	<b>M.Sc. Meteorology, UCD (University College Dublin, Ireland),</b> Thesis title: Performance of the WRF Model in Simulating Historical Irish Storms Grade: Second Class Honours, Grade 1
2005 - 2009	<b>B.Sc. Mathematical Science, UCD (University College Dublin, Ireland),</b> Selected modules: Environmental Fluids, Advanced Computational Science, Combinatorics, Financial Mathematics, Electrodynamics and Gauge Theory, Mathematical Biology, Partial Differential Equations, Advanced Linear Algebra, Actuarial Statistics, Probability Distributions, Programming, Software Engineering Grade: Second Class Honours, Grade 1

## Relevant Skills and Languages

*Programming Languages:* Fortran, Python, BASH command line and scripting

*Working Knowledge:* HTML, Java, Matlab, SLURM, parallel high performance computing

*Additional Skills:* Microsoft Office, Sharepoint, Photoshop, Latex

*English:* Mother Tongue

*German:* B1 Level. Currently attending a B2 course.

## Conferences, Lectures, Awards and Research Visits

For full list, see [www.meteo.physik.uni-muenchen.de/~gerard.kilroy/](http://www.meteo.physik.uni-muenchen.de/~gerard.kilroy/)

- Oral presentation at the 30th, 31st and 32nd Conference on Hurricanes and Tropical Meteorology (2012, 2014, 2016).
- M.Sc. lecturer in “Tropical Cyclones” at Munich University (Summer Semester 2016, 2017, Winter Semester 2019/2020).
- Presented multiple seminars at the Shanghai Typhoon Institute, NUIST University Nanjing, and at Nanjing university during an invited visit to China (November, 2017).
- Awarded the LF Richardson Prize of the UK Royal Meteorological Society for 2019.
- Associate Editor for the AMS Journal of Atmospheric Sciences, 2021.
- Rapporteur for the cyclone genesis topic for the World Meteorological Organization (WMO) International Workshop on Tropical Cyclones in 2022 (IWTC10).

## Recent Publications

For full list (25 publications), see [www.meteo.physik.uni-muenchen.de/~gerard.kilroy/](http://www.meteo.physik.uni-muenchen.de/~gerard.kilroy/)

- Kilroy G, Smith RK, Montgomery MT, 2020: An idealized numerical study of tropical cyclogenesis and evolution at the Equator. *Q. J. R. Meteorol. Soc.*, 146, 685-699.
- Kilroy G, 2021: Evolution of Convective Characteristics During Tropical Cyclogenesis. *Q. J. R. Meteorol. Soc.*, 147, 2103-2123.