Norman Julius Steinert

Senior researcher

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Profile

I am an open-minded and enthusiastic Climate Researcher at the CICERO Center for International Research in Oslo, Norway. My work focuses on the investigation of climate change mitigation scenarios and Earth system reversibility, as well as the land component in the frame of the global carbon cycle. This includes work on the permafrost-carbon feedback and the biosphere in climate change projections of current generation climate models and corresponding dynamic ecosystem (in)stabilities. Further, my research interest lies in the analysis of land-atmosphere and land-climate interactions, including thermodynamic and hydrological processes at the land surface. I extend my research to investigating high-latitude ecosystems as potential tipping elements under changing warming conditions.

Links

ORCID Website GoogleScholar Research Gate

Education

PhD in Physics, "Cum Laude", Complutense University of Madrid, *Madrid, Spain* Oct 2017 – Dec 2021

Master of Science in Meteorology, Free University of Berlin, *Berlin, Germany* Oct 2013 – Jul 2017

Bachelor of Science in Meteorology, Free University of Berlin, *Berlin, Germany* Oct 2010 - Sept 2013

Employment

Senior Researcher, CICERO – Center for International Climate Research, Oslo, Norway Jan 2024 – present

Postdoc, NORCE - Norwegian Research Centre, *Bergen, Norway* Jan 2022 – Dec 2023

Research assistant, Global forecasters - CIEMAT, *Madrid, Spain* Jun 2017 – Sept 2017

Intern, Reuniwatt, *Saint-Pierre, La Reunion, France* Oct 2016 – Apr 2017

Student assistant, Max Planck Institute for Meteorology, *Hamburg, Germany* Mar 2015 – Sept 2016

Intern, Alfred-Wegener-Institute, *Bremerhaven, Germany* Feb 2014 – Apr 2014

Student assistant, FUB - Institute for Meteorology, *Berlin, Germany* Nov 2013 – Jan 2015

Intern, ETH - Institute for Atmospheric and Climate Science, *Zurich, Switzerland* Jul 2012 – Sept 2012

Student assistant, German Research Center for Geosciences, *Potsdam, Germany* Jun 2012 – Nov 2013

Skills

Analytical Thinking

Climate Modeling

Coding and Scripting

Creative Mindset

Organization

Quick Learner

Languages

German

English

Spanish

Norwegian

Mobility

Research stay, *4 months, 2022-2023*, UK Met Office and University of Exeter, Exeter, UK

Research stay, *1 months, 2022*, Utrecht University, *Utrecht, The Netherlands*

Research stay, *3 months, 2021-2022*, Max Planck Institute for Meteorology, *Hamburg, Germany*

Supervision

Callum Christie, Master's project, 2023, University of Exeter, Exeter, UK

Nagore Meabe Yanguas, Master's thesis, *2023*, Complutense University of Madrid, Spain

Alejandro Campos Saz, Master's thesis, *2022*, Complutense University of Madrid, Spain

Francisco Javier Pérez Pérez, Master's thesis, *2021*, Complutense University of Madrid, Spain

Organization of Meetings

EGU General Assembly 2024, Session co-convener: Towards a net-zero world and beyond: remaining carbon budgets, ambitious mitigation pathways with or without temperature overshoot, and implications for policy, 2024, Vienna, Austria

EUCOP6 - 6th European Conference on Permafrost, Session convener: "Modeling of permafrost-climate feedbacks in future scenarios"*, 2023*, Puigcerdà, Spain.

Publications

- Park, S-W., J.-S. Kug, H. Lee, **N. J. Steinert**, S.-I. An, S. Jongsoo: *Potential intensification of permafrost carbon feedback under net-zero and negative emissions*, Submitted.
- Munday, G., C. D. Jones, **N. J. Steinert**, C. Mathison, E. Burke, C. Smith, C. Huntingford, R. Varney: *Risks of unavoidable impacts on forests at 1.5°C with and without overshoot*, In review.
- Schleussner, C.-F., ..., **N. J. Steinert**, ..., et al.: *Overconfidence in overshoot.* In review.
- Nitzbon, J., T. Schneider von Deimling, M. Aliyeva, S. E. Chadburn, G. Grossea, S. Laboor, H. Lee, G. Lohmann, **N. J. Steinert**, S. M. Stuenzi, M. Werner, S. Westermann, and M. Langer: *No respite from permafrost-thaw impacts in absence of a global tipping point*, In review.
- **Steinert, N. J.**, F. J. Cuesta-Valero, F. García-Pereira, P. de Vrese, C. Melo-Aguilar, E. García-Bustamante, J. H. Jungclaus, J. F. González-Rouco: *Underestimated land heat uptake alters the global energy distribution in CMIP6 climate models*, In review.
- Mathison, C. T., Burke, E., Kovacs, E., Munday, G., Huntingford, C., Jones, C., Smith, C., **Steinert, N.**, Wiltshire, A., Gohar, L., and Varney, R.: A rapid application emissions-to-impacts tool for scenario assessment: Probabilistic Regional Impacts from Model patterns and Emissions (PRIME), EGUsphere [preprint], https://doi.org/10.5194/egusphere-2023-2932, 2024.
- García-Pereira, F., J. F. González-Rouco, C. Melo-Aguilar, **N. J. Steinert**, E. García-Bustamante, P. de Vrese, Johann Jungclaus, Stephan Lorenz, Stefan Hagemann, F. J. Cuesta-Valero, A. García-García and H. Beltrami: *First comprehensive assessment of industrial era land heat uptake from multiple sources*, **Earth Syst. Dynam. Discuss**. [preprint], https://doi.org/10.5194/esd-2023-44, In review, 2024.
- Bustamante, M., ..., **N. J. Steinert**, ..., et al.: *Ten New Insights in Climate Science 2023/2024*, **Global Sustainability**, https://doi.org/10.1017/sus.2023.25, Accepted.
- Wunderling, N., … **N. J. Steinert**, …, et al.: *Climate tipping point interactions and cascades: A review,* **Earth System Dynamics**, 15(1), 41–74, 2024.
- García-Pereira, F., J. F. González-Rouco, T. Schmid, C. Melo-Aguilar, C. Vegas-Cañas, **N. J. Steinert**, P. J. Roldán-Gómez, F. J. Cuesta-Valero, A. García-García, H. Beltrami, and P. de Vrese: *Thermodynamic and hydrological drivers of the subsurface thermal regime in Central Spain*, **SOIL**, 10(1), 1–21, 2024.
- **Steinert, N. J.**, M. V. Debolskiy, E. J. Burke, F. García-Pereira, and H. Lee: *Evaluating permafrost definitions for global permafrost area estimates in CMIP6 climate models*, **Environmental Research Letters**, 19(1), 014033, 2023.
- de Vrese, P., G. Georgievski, J. F. Gonzalez Rouco, D. Notz, T. Stacke, **N. J. Steinert**, S. Wilkenskjeld, and V. Brovkin: *Representation of soil hydrology in permafrost regions may explain large part of inter-model spread in simulated Arctic and subarctic climate*, **The Cryosphere**, 17(5), 2095–2118, https://doi.org/10.5194/tc-17-2095-2023.

- Schwinger, J., A. Asaadi, **N. J. Steinert**, H. Lee: *Emit now, mitigate later? Earth system reversibility under overshoots of different magnitude and duration*, **Earth System Dynamics**, 13, 1641–1665, 2022.
- Martin, M., … **N. J. Steinert**, …, et al.: *Ten new insights in climate science 2022*, **Global Sustainability**, 5, e20, 1–20, 2022.
- Melo-Aguilar, C. A., J. F., González-Rouco, **N. J., Steinert**, H., Beltrami, F., Cuesta-Valero, A., García-García, F., García-Pereira, E., García-Bustamante, P. Roldán-Gómez, T. Schmid and J. Navarro: *Near-surface soil thermal regime and land–air temperature coupling: a case study over Spain*, **Int. J. Climatol**., 2022.
- González-Rouco, J. F., **Steinert, N. J.**, García-Bustamante, E., Hagemann, S., De-Vrese, P., Jungclaus, J. H., Lorenz, S. J, Melo-Aguilar, C., and: *Increasing the depth of a Land Surface Model: Part I: Impacts on the Subsurface Thermal Regime and Energy Storage.*, **J. Hydrometeorol**., 22(12), 3211-3230, 2021.
- **Steinert, N. J.**, González-Rouco, J. F., De-Vrese, P., García-Bustamante, E., Hagemann, S., Melo-Aguilar, C., Jungclaus, J. H., and Lorenz, S. J.: *Increasing the depth of a Land Surface Model: Part II: Temperature Sensitivity to Improved Subsurface Thermodynamics and Associated Permafrost Response.*, **J. Hydrometeorol**., 22(12), 3231-3254, 2021.
- **Steinert, N. J.**, González-Rouco, J. F., García-Bustamante, E., Melo-Aguilar, C., García-Pereira, F., and Alexeev, V.: *Agreement of Analytical and Simulation-Based Estimates of the Required Land Depth in Climate Models*, **Geophys. Res. Lett**., 48(20), e2021GRL094273, 2021.
- Melo-Aguilar, C., González-Rouco, J. F., García-Bustamante, E., **Steinert, N.**, Jungclaus, J. H., Navarro, J., and Roldán-Gómez, P. J.: *Methodological and physical biases in global to subcontinental borehole temperature reconstructions: an assessment from a pseudo-proxy perspective*, **Clim. Past**, 16, 453–474, https://doi.org/10.5194/cp-16-453-2020, 2020.
- Melo-Aguilar, C., González-Rouco, J. F., García-Bustamante, E., Navarro-Montesinos, J., and **Steinert, N.**: *Influence of radiative forcing factors on ground–air temperature coupling during the last millennium: implications for borehole climatology*, **Clim. Past**, 14, 1583–1606, https://doi.org/10.5194/cp-14-1583-2018, 2018.

🎗 Awards and Grants

- **Best PYRN ECS Poster Presentation Award**: Runner-up
  EUCOP6 European Conference on Permafrost, Puigcerdà, Spain, June 2023
- **PhD Thesis Award**, Spanish National Research Council - most relevant theses in 2021
  Spanish National Research Council (CSIC), Madrid, Spain, February 2023

- Fast Track Initiative Grant – LICORICE project (Effects of climate-driven Land-surface Integrity Changes in permafrOst Regions on northward expanding agrICulturE)
  Bjerknes Centre for Climate Research, Bergen, Norway, January 2023
- RCN Researcher Mobility Grant
  Research Council of Norway, NORCE Norwegian Research Centre, Bergen, Norway, December 2022
- Utrecht Network Young Researchers Grant
  Utrecht Network, April 2021
- Top 3 presentations at PhDay Physics Complutense 2019
  Complutense University Madrid, Spain, November 2019
- Ernst-Reuter-Gesellschaft Travel Grant
  Free University of Berlin, Germany, August 2016