Martin Bergemann

Climate Scientist/ Software Engineer

Hamburg
Germany

antarcticrainforest.github.io

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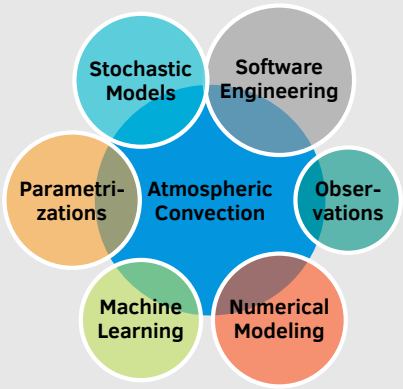
Interests



Programming

Python

Fortran

C\C++

Libraries

- **Visualisation:** PyQt5, PyGTK, matplotlib, plotly, bookeh
- **HPC/numerics:** slurm, pbs, openMP, MPI, netCDF, HDF5
- **Data Analysis:** scikit-learn, numpy, pandas, scipy

Reference

Prof. Christian Jakob (Monash Uni)
christian.jakob@monash.edu
Prof. Todd P. Lane (Uni Melbourne)
tplane@unimelb.edu.au
Prof. Boualem Khouider (Uni Victoria)
khouider@uvic.ca

Research/Experience

since Aug. 2018 — **Software Engineer for Data Analysis** — European XFEL, Hamburg
- Support of user experiments, maintenance and development of data analysis software for single particle biology and serial femtosecond X-ray crystallography (SPB/SFX). Lead of HPC pipelines taskforce.

Feb. 2018 - Dec. 2018 — **Research Fellow in Extreme Rainfall** — University of Melbourne, Melbourne
- Investigate tropical convective extreme events using cloud resolving model ensemble simulations and radar observations.

Feb. 2017 - Jan. 2018 — **Research Fellow** — Monash University, Melbourne
- Develop and implement a parametrization of sub-grid scale sea-breeze circulation systems to inform cumulus parametrization about their presence in global climate/NWP models (UK MO).

Oct. 2014 - Jan. 2017 — **Research Associate** — Monash University, Melbourne
- Apply and improve a 3D variational data assimilation algorithm to force cloud resolving or single column model simulations.

May 2013 - Oct. 2016 — **PhD-Studentship** — Monash University, Melbourne
- Develop a pattern recognition algorithm for application in satellite based preciptation estimates to identify tropical rainfall caused by land-sea interaction.
- Develop a stochastic modeling approach that is able to capture the main characteristics of coastal convection.

Jan. 2012 - Mar. 2013 — **Research Associate** — Freie Universität, Berlin
- Simulate and investigate regional African climate change caused by mountain uplift during the Miocene period 14 - 7 Ma BP.

Education

May 2013 - Oct. 2016 — **PhD, Atmospheric Science** — Monash University, Melbourne
Supervisor: Prof. Christian Jakob
Thesis: Coastal Convection in the Tropics

Oct. 2004 - Oct. 2011 — **German Diplom (MSc) in Meteorology** — Freie Universität, Berlin
Minors in Physics and Mathematics
Thesis: Last inter-glacial vegetation simulation in northern Asia: A parametrization approach and a data model comparison

Publications

2019 — ***M. Bergemann*, S. Narsey, V. Louf, S. Wales, T. P. Lane**
Simulation of Tropical Island Thunderstorms - does an Increase of Resolution Improve the Representation of Extreme Events? *Monthly Weather Review (under review)*

2017 — ***M. Bergemann*, B. Khouider, C. Jakob**
Coastal Tropical Convection in a Stochastic Modeling Framework - *Journal of Advances in Modeling Earth Systems (DOI: 10.1002/2017MS001048)*

2016 — ***M. Bergemann* & C. Jakob**
How important is tropospheric humidity for coastal rainfall in the tropics? - *Geophysical Research Letters, Vol. 43/11 (DOI: 10.1002/2016GL069255)*

2015 — ***M. Bergemann*, C. Jakob, T. P. Lane**
Global Detection and Analysis of Coastline-Associated Rainfall Using an Objective Pattern Recognition Technique - *Journal of Climate Vol. 28/18 (DOI: 10.1175/JCLI-D-15-0098.1)*

2014 — ***M. Bergemann* & S. Müller**
Last interglacial vegetation in northern Asia: Model simulations and comparison with pollen-based reconstructions - *Quaternary International Vol. 384 (DOI: 10.1016/j.quaint.2013.10.041)*