

Damien Ringeisen

Doctor in Physics

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Education

- 2016 – 2020 **PhD in Physics (Dr. rer. nat.)**, *University of Bremen*, Bremen, Germany, Fracture Angles in Numerical Simulations of Sea Ice with Viscous-Plastic Rheologies
Obtained with *Magna Cum Laude*
- 2015 – 2016 **MSc in Physics**, *EPFL*, Lausanne, Switzerland, *Specialization in astrophysics*
Minor in Environmental Sciences and Engineering
- 2010 – 2015 **BSc in Physics**, *Swiss Federal Institute of Technology (EPFL)*, Lausanne, Switzerland

Professional Experiences

- 2023 – now **PostDoctoral Research Scientist**, *Columbia University and NASA GISS*, New York, NY, USA
(ongoing, 6 months) Coupling the PISM ice sheet model to the GISS-modelE global climate model for sea level rise predictions.
- 2021 – 2023 **PostDoctoral Researcher**, *McGill University*, Montreal, QC Canada
(2 years) Modeling sea ice with state-of-the-art granular rheologies.
- 2020 – 2021 **ArcTrain Research Fellow**, *Alfred Wegener Institute & University of Bremen*, Bremen, Germany
(6 months) Implementation of new sea ice rheologies for high-resolution sea ice modelling.
- 2016 – 2020 **PhD Student**, *Alfred Wegener Institute & ArcTrain*, Bremerhaven, Germany
(4 years) Investigation of sea ice rheology to improve the representation of large scale cracks and fracture in sea ice models
- 2016 **Master Thesis**, *Observatoire de l'Université de Genève and EPFL*, Geneva, Switzerland
(5 months) Modeling dust envelopes surrounding disintegrating transiting exoplanets.
Obtained with high honor (6.0)
- 2013 & 2014 **Summer internship**, *Astrophysics Laboratory - EPFL*, Lausanne, Switzerland
(2 x 5 weeks) Real data testing of the new version of an automated finder for galaxy-scale strong gravitational lenses with R. Joseph, D. Paraficz & F. Courbin. Details in [arXiv:1403.1063](https://arxiv.org/abs/1403.1063) and in Publications below.

Publications

- First Author **Deformation lines in Arctic sea ice: intersection angle distribution and mechanical properties**, Ringeisen, D., Hutter, N., and von Albedyll, L. *The Cryosphere*, 17, 4047–4061, <https://doi.org/10.5194/tc-17-4047-2023>, 2023.
- First Author **Teardrop and Parabolic Lens Yield Curves for Viscous-Plastic Sea Ice Models: New Constitutive Equations and Failure Angles**, Ringeisen, D., Losch, M., and Tremblay, L. B., <https://doi.org/10.1029/2023MS003613>, *Journal of Advances in Modeling Earth Systems*, 15, e2023MS003613, 2023.
- First Author **Non-normal flow rules affect fracture angles in sea ice viscous-plastic rheologies**, Ringeisen, D., Tremblay, L. B., and Losch, M., *The Cryosphere*, 15, 2873–2888, <https://doi.org/10.5194/tc-15-2873-2021>, 2021.
- First Author **Simulating intersection angles between conjugate faults in sea ice with different viscous-plastic rheologies**, Ringeisen, D., Losch, M., Tremblay, L. B., and Hutter, N., *The Cryosphere*, 13, 1167–1186, <https://doi.org/10.5194/tc-13-1167-2019>, 2019.
- Co-Author **The PCA Lens-Finder: application to CFHTLS**, D. Paraficz, F. Courbin, A. Tramacere, R. Joseph, R. B. Metcalf, J.-P. Kneib, P. Dubath, D. Droz, F. Filleul, D. Ringeisen and C. Schäfer *A&A*, 592 (2016) A75, <https://doi.org/10.1051/0004-6361/201527971>

Conferences and Workshops

- Sept. 2022 **Workshop: Mathematics of sea ice in the twenty-first century**, *Cambridge*, United Kingdom
Podium presentation: **LKFs intersection angles in sea ice: from observations to mechanical properties for the sea ice viscous-plastic model**
- Aug. 2022 **YOPP final summit**, *Montréal*, Canada
Podium presentation: **Non-Elliptical Yield Curves for Viscous-Plastic Sea Ice Models**
- July. 2021 **6th ECCOMAS Young Investigators Conference 2021**, *Online*, Valencia
Virtual presentation: **Breaking the ice: Fracture angles with viscous-plastic sea ice rheologies**
- Apr. 2021 **virtual EGU General Assembly 2021 (vEGU21)**, *Online*, Europe (Vienna)
Virtual presentation: **Alternative viscous-plastic rheologies for the representation of fracture lines in high-resolution sea ice models**
- Dec. 2020 **AGU Fall Meeting**, *Online*, USA
Virtual Poster Presentation: **The Effects of Non-Normal Flow Rules on Fracture Angles in Viscous-Plastic Sea Ice Models**
- Aug. 2019 **IGS Symposium - Sea Ice at the Interface**, *Winnipeg*, Canada
Poster Presentation: **Angles between conjugate LKFs with sea ice Viscous-Plastic rheologies**
- Apr. 2019 **Annual European Rheology Conference**, *Portoroz*, Slovenia
Podium Presentation: **Modeling sea ice fracture at very high resolution with VP rheologies**
- Dec. 2017 **Workshop on Mathematics of sea ice phenomena: Sea ice fracture and cracks**, *Isaac Newton Institute, Cambridge*, UK
Poster Presentation: **Modeling sea ice at floe resolving resolution**

Teaching

- Jan. 2023 **Guest lecture**, *McGill University*, Montréal, Canada
Guest lecture for the class *ESYS200: Earth System Processes* of Prof. Bernhard Lehner
- Jan. 2023 **Guest lecture**, *McGill University*, Montréal, Canada
Guest lecture for the class *ATOC568: Ocean Physics* of Prof. Carolina Dufour
- Oct. 2022 **Training**, *McGill University*, Montréal, Canada
Introduction to Git and LaTeX to first-year master students
- 2020 – 2021 **Tutor**, *University of Bremen*, Bremen, Germany
Tutor for the exercise class of the course *Dynamics I* given by Prof. Dr. Thomas Jung.
- 2013 – 2015 **Teaching assistant**, *EPFL*, Lausanne, Switzerland
Teaching assistant in Physics class for first year forensic science students. Interactions with students in class and correction of the weekly exercises.

Community services

- 2022 – Now **Preprint moderator**
Moderation of preprints for EGUsphere
- June 2022 **Jury for the Québec Océan price for Student Publication**
- 2021 – Now **Reviewer activity**
- Geophysical Research Letters
 - Journal of atmospheric and oceanic technology
 - The Cryosphere
 - Atmosphere and Oceans
- 2017 – 2018 **Representative of the AWI Ph.D. students**
Political representation and student life organisation
- 2010 – 2012 **Coach for 1st year student**, *EPFL*, Lausanne, Switzerland
Support to new students in Physics

Field Experience

- 2019 **ArcTrain Summer School**, Québec, Canada, Côte-Nord and Manicouagan
 - Science of Arctic environments (Taïga/Toundra)
 - Training on collaboration and interaction with indigenous community
- 2018 **ArcTrain Floating University - PS115.2**, RV *Polarstern*, Lomonosov Ridge, Arctic Ocean
 - Analysis of sea ice radar images for sea ice motion analysis,
 - Use of Infra-Red camera to determine sea ice thickness

Outreach

- Since 2021 Co-lead and editor of the APECS podcast *Polar Times*
- 2022 Science mediation to school classes during the Oceanoclasse 2022 event
- 2019 Portrait to advertize climate science careers on the website abi.de (German)
- 2018 Blog post on the Polarstern blog
- Since 2016 Writing and managing the ArcTrain blog arctrain.de (8 blog posts)

Languages

- French Mother tongue
- English Fluent
- German Intermediate

Computer Skills

- Modeling : FORTRAN, C/C++, Python
- OS : GNU/Linux, MacOS
- Analysis : Python, R, Matlab
- Office : L^AT_EX, Markdown, TikZ/PDFplot

Memberships

- 2022-2023 Québec Océan
- 2021-2023 ArcticNet
- Since 2020 European Geosciences Union (EGU)
- Since 2020 American Geosciences Union (AGU)
- Since 2019 International Glaciology Society (IGS)
- Since 2016 Association of Polar Early Career Scientists (APECS)