Sebastian Georg Wolf

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Education

University of Bergen — Bergen, Norway
Ph.D. in Geodynamics, Passed (Ungraded) — Sept 2016 – March 2021
Main advisors: Prof. Ritske S. Huismans, Prof. Patience Cowie

- Thesis: "Orogenesis from bottom to top – Investigating the geodynamics of mountain building using coupled thermo-mechanical-surface-process models"

University of Bergen — Bergen, Norway
M.Sc. in Geosciences (Geodynamics), Average Grade A — 2014 – 2016

- Thesis: "From slab rollback to orogenic plateau formation: a numerical modelling study of ocean-continent subduction systems"

Ludwig-Maximilians-Universität (LMU) & — Munich, Germany
Technische Universität Munich (TUM) — 2010 – 2014
B.Sc. in Geosciences (Geology), Passed with distinction (A)

- Thesis: "Geometric and crystallographic quantification of quartz fabrics in a hydrothermal brittle fault zone: Rusey Fault (Cornwall)"

Work Experience

University of Bergen — Bergen, Norway
Researcher — 2025 – ongoing

University of Bergen — Bergen, Norway
Postdoctoral research fellow — 2024 – 2025

German Research Centre for Geosciences, GFZ — Potsdam, Germany
Postdoctoral research fellow — 2023 – 2024

University of Bergen — Bergen, Norway
Postdoctoral research fellow — 2021 – 2023

University of Bergen — Bergen, Norway
PhD Research project — 2016 – 2021

Grundbaulabor München — Munich, Germany
Assistant Geologist — 2011 – 2015

Publications

Published Research Articles

1. Erdős, Z., Huismans, R. S., **Wolf, S. G.**, Faccenna, C. "Terrane accretion explains thin and hot ocean-continent back-arcs", *Science Advances*, 11, 17, https://doi.org/10.1126/sciadv.adq8444

2. Yuan, X. , Li, Y. Q., Brune, S., Li, L., Pons, M., **Wolf, S. G.** "Coordination between deformation, orographic precipitation, and erosion during orogenic growth", *Nature Communications*, 15, 10362, https://doi.org/10.1038/s41467-024-54690-4

3. Yuan, X.P., Jiao, R., Liu-Zeng, J., Dupont-Nivet, G., **Wolf, S. G.**, Shen, X. (2023) "Downstream propagation of fluvial erosion in Eastern Tibet". *Earth and Planetary Science Letters*, 605, 118017, https://doi.org/10.1016/j.epsl.2023.118017

4. Wolf, L., Huismans, R. S., **Wolf, S. G.**, Rouby, D., May, D. A. (2022) "Evolution of rift architecture and fault linkage during continental rifting: Investigating the effects of tectonics and surface processes using lithosphere-scale 3D coupled numerical models". *Journal of Geophysical Research: Solid Earth*, 127, e2022JB024687

5. Wolf, L., Huismans, R. S., Rouby, D., Gawthorpe, R. L., **Wolf, S. G.** (2022) "Links Between Faulting, Topography, and Sediment Production During Continental Rifting: Insights From Coupled Surface Process, Thermomechanical Modeling". *Journal of Geophysical Research: Solid Earth*, 127, 3, https://doi.org/10.1029/2021JB023490

6. **Wolf, S. G.**, Huismans, R. S., Braun, J., Yuan, X. (2022). "Topographic Evolution of Mountain Belts Controlled by Rheology and Surface Process Efficiency", *Nature*, https://doi.org/10.1038/s41586-022-04700-6

7. Yuan, X., Huppert, K., Braun, J., Shen, X., Liu-Zeng, J., Guerit, L., **Wolf, S. G.**, Zhang, J., Jolivet, M. (2022)"Propagating uplift controls on high-elevation, low-relief landscape formation in Southeast Tibetan Plateau". *Geology*, v. 50, https://doi.org/10.1130/G49022.1

8. Erdős, Z., Huismans, R. S., Faccenna, C., **Wolf, S. G.** (2021). "The role of subduction interface and upper plate strength on back-arc extension: application to Mediterranean back-arc basins", *Tectonics*, 40, e2021TC006795, https://doi.org/10.1029/2021TC006795

9. **Wolf, S. G.**, Huismans, R. S., Muñoz, J.-A., Curry, M. E., van der Beek, P. (2021). "Growth of Collisional Orogens From Small and Cold to Large and Hot — Inferences From Geodynamic Models". *Journal of Geophysical Research: Solid Earth*, 126, e2020JB021168. https://doi.org/10.1029/2020JB021168

10. Curry, M. E., van der Beek, P., Huismans, R. S., **Wolf, S. G.**, Fillon, C., Muñoz, J.-A. (2021). "Spatio-temporal patterns of Pyrenean exhumation revealed by inverse thermo-kinematic modeling of a large thermochronologic dataset". *Geology*, v. 49. https://doi.org/10.1130/G48687.1

11. **Wolf, S. G.**, Huismans, R. S. (2019). "Mountain Building or Backarc Extension in Ocean-Continent Subduction Systems: A Function of Backarc Lithospheric Strength and Absolute Plate Velocities". *Journal of Geophysical Research: Solid Earth*, 124, 7, p.7461-7482. https://doi.org/10.1029/2018JB017171

12. Curry, M. E., van der Beek, P., Huismans, R. S., **Wolf, S. G.**, Muñoz, J.-A. (2019). "Evolving paleotopography and lithospheric flexure of the Pyrenean Orogen from 3D flexural modeling and basin analysis", *Earth and Planetary Science Letters*, 515, p.26-37. https://doi.org/10.1016/j.epsl.2019.03.009

M.Sc.- and PhD-thesis

1. Wolf, S. G. (2016) From slab rollback to orogenic plateau formation: a numerical modelling study of ocean-continent subduction systems, University of Bergen, M.Sc. thesis

2. Wolf, S. G. (2020) Orogenesis from bottom to top – Investigating the geodynamics of mountain building using coupled thermo-mechanical-surface-process models, University of Bergen, Ph.D. thesis

Research Articles under review

1. **Wolf, S. G.**, Huismans, R. S., Muñoz, J.-A., May, D. A., "Rift linkage and inheritance determine collisional mountain belt evolution", *Nature Communications*, under review

2. **Wolf, S. G.**, Huismans, R. S., Braun, J. "Tectonics and Surface Processes during collisional orogenesis - Exploring the parameter space of the Beaumont number", *JGR Solid Earth*, under review

3. **Wolf, S. G.**, Huismans, R. S., Braun, J. "Tectonics and Surface Processes during collisional orogenesis – Application of the Beaumont number to orogens on Earth", *JGR Solid Earth*, under review

4. Theunissen, T., Huismans, R. S., Rouby, D., **Wolf, S. G.**, May, D. A. "Inherited transform weaknesses control structure and morphology of highly oblique rift-transform systems", *Science Advances*, under review

Notable Invited Presentations

1. *TSK 2024*, Freiburg., Keynote Presentation: "Quantifying the interaction between surface processes and tectonics during mountain building: the Beaumont number", with Ritske Huismans and Jean Braun.

2. *GEOMOD 2023*, Paris, Keynote Presentation: "Tectonics or Surface Processes: The Beaumont number of mountain belts on Earth", with Ritske Huismans and Jean Braun.

3. *European Geosciences Union General Assembly 2023*, Vienna, Invited Presentation: "How high do mountains grow - quantifying growth and decay of topography in collisional orogens", with Ritske Huismans and Jean Braun and Xiaoping Yuan.

4. *Geoscience Colloquium*, Institute of Earth and Environmental Sciences, University of Freiburg, October 2023: "Tectonics or Surface Processes: The Beaumont number of collisional mountain belts on Earth".

5. *American Geophysical Union Fall Meeting 2022*, Chicago, Invited Presentation: "How high do mountains grow - quantifying growth and decay of topography in collisional orogens", with Ritske Huismans and Jean Braun and Xiaoping Yuan.

6. *Seminar Earth Surface Process Modelling Group*, GFZ Potsdam, October 2020: "Topographic evolution of mountain belts controlled by rheology and surface process efficiency".

International Conferences (presenting author only, all together >25 presentations)

1. *European Geosciences Union General Assembly 2025*, Vienna, Poster Presentation: "Modelling the influence of pre-collisional rift linkage during mountain building", Ritske Huismans and Josep-Anton Muñoz and Dave. A. May

2. *European Geosciences Union General Assembly 2024*, Vienna, Oral Presentation: "Periodic climatic variations during collisional orogenesis–insights from coupled tectonic-surface-process models", with Jean Braun and Ritske Huismans

3. *TSK 2024*, Freiburg., Keynote Presentation: "Quantifying the interaction between surface processes and tectonics during mountain building: the Beaumont number", with Ritske Huismans and Jean Braun.

4. *GEOMOD 2023*, Paris, Keynote Presentation: "Tectonics or Surface Processes: The Beaumont number of mountain belts on Earth", with Ritske Huismans and Jean Braun.

5. *European Geosciences Union General Assembly 2023*, Vienna, Invited Presentation: "How high do mountains grow - quantifying growth and decay of topography in collisional orogens", with Ritske Huismans and Jean Braun and Xiaoping Yuan.

6. *European Geosciences Union General Assembly 2022*, Vienna, Oral Presentation: "Quantifying the growth and decay of topography in collisional orogens", with Ritske Huismans and Jean Braun and Xiaoping Yuan.

7. *American Geophysical Union Fall Meeting 2022*, Chicago, Invited Presentation: "How high do mountains grow - quantifying growth and decay of topography in collisional orogens", with Ritske Huismans and Jean Braun and Xiaoping Yuan.

8. *European Geosciences Union General Assembly 2021*, Vienna, Oral Presentation: "Quantifying the growth and decay of topography in collisional orogens ", with Ritske Huismans and Jean Braun and Xiaoping Yuan.

9. *American Geophysical Union Fall Meeting 2020*, New Orleans, Oral Presentation: "Quantifying the topographic evolution of mountain belts during growth and decay", with Ritske Huismans and Jean Braun and Xiaoping Yuan.

10. *European Geosciences Union General Assembly 2020*, Vienna, Oral Presentation: "Topographic evolution of mountain belts controlled by rheology and surface process efficiency", with Ritske Huismans and Jean Braun and Xiaoping Yuan.

11. *European Geosciences Union General Assembly 2019*, Vienna, Oral Presentation: "From small and cold to large and hot: What controls mountain belt growth?", with Ritske Huismans and Josep-Anton Muñoz and Peter van der Beek and Maggie Ellis Curry.
12. *GeoMod 2018*, Barcelona, Poster Presentation: "From small and cold to large and hot orogens: How do they grow and what are the influences of extensional inheritance and surface processes?", with Ritske Huismans and Peter van der Beek.
13. *GeoMod 2018*, Barcelona, Oral Presentation: "Factors controlling back-arc extension or overriding plate shortening – a numerical modeling study of ocean-continent subduction systems", with Ritske Huismans.
14. *European Geosciences Union General Assembly 2018*, Vienna, Oral Presentation: "From small and cold to large and hot orogens: Investigating the influence of extensional inheritance and surface processes", with Ritske Huismans and Peter van der Beek.
15. *European Geosciences Union General Assembly 2018*, Vienna, Poster Presentation: "Factors controlling back-arc extension or overriding plate shortening – a numerical modeling study of ocean-continent subduction systems", with Ritske Huismans.
16. *XV International Workshop on Modelling of Mantle and Lithosphere Dynamics 2017*, Putten, Netherlands, Poster Presentation: "From back-arc extension to orogenic plateau formation – a numerical modeling study of ocean-continent subduction systems", with Ritske Huismans.
17. *European Geosciences Union General Assembly 2017*, Vienna, Poster Presentation: "From back-arc extension to orogenic plateau formation – a numerical modeling study of ocean-continent subduction systems", with Ritske Huismans.

Supervision of graduate students and research fellows

1. Francina S. Garcia, **PhD**, Co-supervisor, Department of Earth Science, University of Bergen, Norway 2025 – 2028
2. Alessandro Gibellini, **PhD**, Co-supervisor, Department of Earth Science, University of Bergen, Norway 2025 – 2028
3. William Munday, **PhD**, Co-supervisor, Faculty of Earth Science, University of Barcelona, Spain 2025 – 2028
4. Tom Garot, **PhD**, Co-supervisor, Faculty of Earth Science, University of Barcelona, Spain 2025 – 2028
5. Aleksandra Danielsen, **MSc**, Supervisor, Department of Earth Science, University of Bergen, Norway 2023 – 2025

Project managment experience

- Co-I in EU MSCA doctoral network "INITIATE" – University of Bergen, Norway 2024 – ongoing
  Co-I in work package on the interaction between surface processes and tectonics in convergent systems with focus on the Andes and Pyrenees; co-supervision of 4 PhD students

Service to scientific community

- Reviewer for Nature Geoscience, Science Advances, Journal of Geophysical Research - Solid Earth, Geophysical Research Letters, Tectonophysics since 2022
- Convener and Co-convener at international scientific conferences since 2024

Research Grants and Awards

- Meltzer Research Fund: Grant for international mobility 2023
- Akademia Avtale: Grant for international mobility 2019 – 2020
- Poster Award, DEEP Research School General Assembly 2019
- Munich GeoCenter Graduate award (for being amongst the three best B.Sc.-students in 2014). 2015

Media and outreach

- Futura-sciences.com: De la tectonique ou l'érosion qui contrôle la hauteur des montagnes? 2022
- Pro-physik.de: Wie hoch wächst ein Gebirge? 2022
- Phys.org: Which forces control the elevation of mountains? 2022
- Museum exhibition: Oppdagelsen av Jotunfjeldene 2020
  Scientific guiding through exhibition "Oppdagelsen av Jotunfjeldene" including assistance in workshops (Universitetsmuseet i Bergen, Artist Hanne Åmli)
- OG21, Oil and Gas for the 21st century, invited student presentation, Oslo, Norway 2018

Institutional responsibilities

- Member of the University Library board, UiB 2024 – 2025
  Representative of the non-permanent scientific staff, UiB
- Deputy member of the board at the Faculty of Science and Technology, UiB 2024 – 2025
  Deputy representative of the non-permanent scientific staff, UiB
- Member of the selection committee at Department of Geosciences, UiB 2022 – ongoing
  Acquisition and proposal of candidates to departmental/institutional boards, UiB
- Organizer of local seminar series at UiB 2020 – ongoing
  Organisation of local seminar series "Geolunch" at the Department of Earth Science, UiB.
- DEEP Research School Representative 2018 – 2019
  Elected contact person for all Norwegian PhD students who are members of the DEEP Research School; Participation in DEEP Research School board meetings.
- DEEP Research School Representative at UiB 2017 – 2019
  Contact person for PhD students at the University of Bergen (UiB) who are enrolled in the DEEP Research School.

Teaching

- **Lecturer** at University of Bergen 2025
  Geo-scientific computing using Python
  Led and developed a graduate course on using Python for scientific computing. This intensive course provided an introduction to programming using Python for geoscience graduate students that previously had variable degrees of knowledge in programming. After an introduction to basic principles, we used the landscape-evolution model FastScape to learn how numerical models are developed, how to "run" them, and how to visualise them. The course is based on a combination of lectures and exercises.
- **Lecturer** at University of Bergen 2022
  Geodynamics and Basin Modeling (GEOV254)
  Led a 10 CP graduate course on Geodynamics and Basin Modelling. The course covers fundamental questions and equations related to Geodynamics (e.g. heat, rheology, isostasy, surface processes, convergent & divergent plate boundaries). I gave the lectures, tutored during the programming exercises, graded weekly assignments and conducted the final oral exam.
- **Teaching Assistant** at University of Bergen 2014 - 2018
  Geodynamics and Basin Modeling (GEOV254)
  Teaching Assistant for five years in a 10 CP graduate course covering fundamental questions and equations related to Geodynamics. Helped in class and graded weekly programming exercises.
- **Teaching Assistant** at Department of Earth Science, LMU Munich 2013
  Introduction to Structural Geology
  Assisted during a weekly undergraduate practical course with 20 students and taught basic structural geological methods, e.g. maps and profiles, stereographic projections, brittle failure criteria

- **Teaching Assistant** at Tectonics and Material Fabrics section, TU Munich 2012 - 2013
  Introduction to Endogenous Geology and Plate Tectonics
  Graded weekly exercises for >60 students, and assisted during lectures.
- **Tutor** at Faculty of Civil, Geo and Environmental Engineering, TU Munich 2012 - 2013
  Introduction to Technical mechanics for Geologists
  Tutored a weekly practical course in technical mechanics for geologists. Tutoring was predominantly front-of-class explanation of the weekly exercise.

Career Breaks

- **Parental leave** 01/2022 - 05/2022
- **Parental leave** 04/2024 - 08/2024

Languages

- **German:** Native language
- **English:** Fluent
- **Norwegian:** Fluent
- **French:** Basic Knowledge