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
Postdoctoral research fellow — 2024 – ongoing

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*, accepted

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., Braun, J. "Tectonics or Surface Processes during orogenesis - the Beaumont number: I. Exploring the parameter space", *JGR Solid Earth*, under review

2. **Wolf, S. G.**, Huismans, R. S., Braun, J. "Tectonics or Surface Processes during orogenesis - the Beaumont number: II. Application to orogens on Earth", *JGR Solid Earth*, under review

3. 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 2024*, Vienna, Oral Presentation: "Periodic climatic variations during collisional orogenesis–insights from coupled tectonic-surface-process models", with Jean Braun and Ritske Huismans

2. *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.

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

4. *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.

5. *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.

6. *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.

7. *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.

8. *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.

9. *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.

10. *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.

11. *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.

12. *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.

13. *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.

14. *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.

15. *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.

16. *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 – ongoing
  Representative of the non-permanent scientific staff, UiB
- Deputy member of the board at the Faculty of Science and Technology, UiB 2024 – ongoing
  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 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