SIMONA MEILER

Stanford University
School of Engineering & Doerr School of Sustainability
Department of Civil and Environmental Engineering

EDUCATION AND PROFESSIONAL APPOINTMENTS

08/2024 – present	**Postdoctoral Scholar, Department of Civil and Environmental Engineering, Stanford University** Supervision: Prof. Jack W. Baker
12/2023 – 08/2024	**Postdoctoral Scholar, Weather and Climate Risks Group, ETH Zurich** Supervision: Prof. David N. Bresch
01/2024 – 06/2024	**Consultant UNU-EHS/iDMC, Global Displacement Risk Model** Supervision: Dr. Maxime Souvignet (UNU-EHS), Sylvain Ponserre (iDMC)
09/2020 – 11/2023	**PhD Student, Weather and Climate Risks Group, ETH Zurich** Supervision: Prof. David N. Bresch Co-supervision: Prof. Kerry Emanuel (MIT) Unraveling unknowns in tropical cyclone risk assessment
04/2020 – 09/2020	**Research assistant, ETH Zurich** Research assistant in the Weather and Climate Risk group at ETH Zurich
10/2019 – 03/2020	**MIT Boston, USA, Internship** Research internship in Mick Follows' group at the Department of Earth, Atmosphere and Planetary Sciences (EAPS)
09/2017 – 03/2020	**ETH Zurich, Master's degree in Environmental Sciences** Major: Biogeochemistry and Pollutant Dynamics Master's thesis: "Ocean oxygen extreme events in the eastern tropical Pacific"
09/2010 – 02/2016	**ETH Zurich, Bachelor's degree in Environmental Sciences** Specialization: Biogeochemistry and Pollutant Dynamics Bachelor thesis: "Investigating the importance of iron reservation through siderophore secretion in competition"
07/2008	**Bündner Kantonsschule Chur, Matura** Core subjects: Spanish, Geography

GRANTS AND FELLOWSHIPS

12/2025	**Stanford Doerr Discovery Grant** - *Mapping the dimensional structure of climate risk uncertainties.* 75'000.- USD for 1 year.
07/2025	**Innosuisse Innovation Project (IP-SBM) 127.978** – *Quantifying socio-economic risks of North Atlantic hurricanes in a changing climate*. PI: Prof. Ulrike Lohmann (ETH Zurich). Role: Co-applicant; PhD co-supervisor (J. Liu). Industry partner: Schroders. Dates: 09/2025-03/2029

12/2023 **SNSF Postdoc.Mobility Fellowship (P500PN_222189)** – *Probabilistic climate risk modelling and robust decision-making under uncertainty.* 138'000.- CHF awarded for the period 09/01/2024 – 08/31/2026

AWARDS AND HONORS

12/2025	Prix Schläfli Geosciences, Swiss Academy of Sciences, 2025
11/2024	ETH Medal – outstanding doctoral theses 2024
10/2024	SCOR Switzerland Actuarial Award 2024

LIST OF PUBLICATIONS

PhD Thesis

Meiler, S. (2023). *Unraveling Unknowns in Tropical Cyclone Risk Assessment* [Doctoral dissertation, ETH Zurich]. https://doi.org/10.3929/ethz-b-000645395

Peer-reviewed publications

Meiler, S., Lee, C.-Y., Camargo, S. J., & Sobel, A. H. (2026). Global coastal wind hazard maps from the CHAZ tropical cyclone model. *Scientific Data*. https://doi.org/10.1038/s41597-025-06452-0

Meiler, S., Mühlhofer, E., Lüthi, S., Bresch, D. N., Ottonelli, D., Ghizzoni, T., Trasfaroni, E., Rudari, R., Rossi, L., Kasmalkar, I., Mohammadiamanab, N., Daou, D., Nguyen, T. L., Gyawali, D. R., Peter, M., Oakes, R., Souvignet, M., & Ponserre, S. (2025). A natural hazard risk modelling approach to human displacement—Frontiers & challenges. *Environmental Research: Climate.* https://doi.org/10.1088/2752-5295/ae014c

Wattin Håkansson, V., **Meiler, S.**, Hülsen, S., Villiger, L., Bossut, M., McCaughey, J. W., Kropf, C. M., & Bresch, D. N. (2025). Beyond single company climate risk disclosure: Event-based physical risk reporting. *Environmental Research: Climate*, 4(3), 035014. https://doi.org/10.1088/2752-5295/adf912

Cologna, V., **Meiler, S**., Kropf, C.M. et al. (2025). Extreme weather event attribution predicts climate policy support across the world. *Nature Climate Change*. *15*, 725–735. https://doi.org/10.1038/s41558-025-02372-4

Meiler, S., Kropf, C. M., McCaughey, J. W., Lee, C.-Y., Camargo, S. J., Sobel, A. H., Bloemendaal, N., Emanuel, K., & Bresch, D. N. (2025). Navigating and attributing uncertainty in future tropical cyclone risk estimates. *Science Advances*, *11*(16), eadn4607. https://doi.org/10.1126/sciadv.adn4607

Hülsen, S., Dee, L. E., Kropf, C. M., **Meiler, S.,** & Bresch, D. N. (2025). Mangroves and their services are at risk from tropical cyclones and sea level rise under climate change. *Communications Earth & Environment*, *6*(1), 1–9. https://doi.org/10.1038/s43247-025-02242-z

Stalhandske, Z., Steinmann, C. B., **Meiler, S**., Sauer, I. J., Vogt, T., Bresch, D. N., & Kropf, C. M. (2024). Global multi-hazard risk assessment in a changing climate. *Scientific Reports*, 14(1), 5875. https://doi.org/10.1038/s41598-024-55775-2

Meiler, S., Ciullo, A., Bresch, D. N., Kropf, C. M. (2023). Uncertainty and sensitivity analysis for probabilistic, global modelling of future tropical cyclone risk. In *Proceedings of the 14th International Conference on Applications of Statistics and Probability in Civil Engineering (ICASP14)*. https://doi.org/10.25546/103244

Meiler, S., Ciullo, A., Kropf, C. M., Emanuel, K., & Bresch, D. N. (2023). Uncertainties and sensitivities in the quantification of future tropical cyclone risk. *Communications Earth & Environment*, *4*(1), Article 1. https://doi.org/10.1038/s43247-023-00998-w

Meiler, S., Britten, G. L., Dutkiewicz, S., Moisander, P. H., & Follows, M. J. (2023). Challenges and opportunities in connecting gene count observations with ocean biogeochemical models: Reply to Zehr and Riemann (2023). *Limnology and Oceanography*, *68*(6), 1413–1416. https://doi.org/10.1002/lno.12363

Ciullo, A., Strobl, E., **Meiler, S.**, Martius, O., Bresch, D. N. (2023). Increasing countries' financial resilience through global catastrophe risk pooling. *Nature Communications 14*, 922. https://doi.org/10.1038/s41467-023-36539-4

Meiler, S., Vogt, T., Bloemendaal, N., Ciullo, A., Lee, C.-Y., Camargo, S. J., Emanuel, K., Bresch, D. N. (2022). Intercomparison of regional loss estimates from global synthetic tropical cyclone models, *Nature Communications*, *13*, 6156. https://doi.org/10.1038/s41467-022-33918-1

Kropf, C. M., Ciullo, A., Otth, L., **Meiler, S.**, Rana, A., Schmid, E., McCaughey, J. W., Bresch, D. N. (2022). Uncertainty and sensitivity analysis for probabilistic weather and climate-risk modelling: an implementation in CLIMADA v.3.1.0. *Geoscientific Model Development*, *15*, 7177–7201. https://doi.org/10.5194/gmd-15-7177-2022

Meiler, S., Britten, G. L., Dutkiewicz, S., Gradoville, M. R., Moisander, P. H., Jahn, O., Follows, M. J. (2022). Constraining uncertainties of diazotroph biogeography from nifH gene abundance. *Limnology and Oceanography*. https://doi.org/10.1002/lno.12036

Manuscripts in review

Meiler, S., Jackson, S. I., Emanuel, K., Diffenbaugh, N. S., & Baker, J. W. (under evaluation). Stress testing insurance market stability under climate risk.

Liu, J., Steinmann, C. B., Bresch, D. N., **Meiler, S**., Lohmann, U., & Hohermuth, B. Recalibrating Risk: A simplified model for North Atlantic hurricanes in a warming climate. Accepted for publication in *Journal of Catastrophe Risk and Resilience.*

Bloemendaal, N., **Meiler, S**., & Camargo, S. J. (under review). Tropical cyclone risks. Oxford Research Encyclopedia: Natural Hazard Science.

Zimmermann, S., **Meiler, S.,** Kam, P. M., Riedel, L., Ottonelli, D., Mühlhofer, E., Kropf, C. M., Trasforini, T., Rossi, L., Ghizzoni, T., Rudari, R., Ponserre, S., Bresch, D. N., Schewe, J. (under review). How well can we quantify flood-displacement risk? A first model intercomparison and evaluation.

Manuscripts in preparation (available upon request)

Meiler, S., Blagojevic, N., Tucker Lochhead, M., Gori, A., & Baker, J. W. (in preparation). Extending tropical cyclone risk assessment across the US through recovery simulations.

Colombi, N., Burger, F. A., **Meiler, S.,** Kropf, C. M., Emanuel, K., Frölicher, T. L., & Bresch, D. N. (in preparation). Tipping of the Atlantic Meridional Overturning Circulation will reshape tropical cyclone dynamics.

Juhel, S., **Meiler, S.,** Bossut, M., Hülsen, S., McCaughey, J. W., Kropf, C. M., & Bresch, D. N. (in preparation). Integrating Multi-Criteria Decision Analysis and Uncertainty Quantification for Climate Adaptation.

Datasets

Meiler, S., Lee, C. Y., Camargo, S., & Sobel, A. H. (2025). Global coastal wind hazard maps from the CHAZ tropical cyclone model (No. 10.5061/dryad.qfttdz0vz) [Dataset]. Dryad. https://doi.org/10.5061/dryad.qfttdz0vz

SELECT PRESENTATIONS ***invited speaker**

02/2026	***Meiler, S** *Who bears the risk? Stress-testing insurance system stability under evolving risks,* Usable Climate Risk Science Webinar, webinar
12/2025	***Meiler, S** *Uncertainty, Recovery, and Systemic Risk Modeling in Climate Risk Assessment,* Prix Schläfli lecture tour, University of Bern, Lausanne, Zürich, CHE
06/2025	**Meiler, S** *Hurricane recovery potential,* Symposium for Tropical Cyclone Risk in a Changing Climate, Tampa, FL, USA
04/2025	***Meiler, S** *From Climate Anxiety to Community Action,* Swissnex, San Francisco CA, USA
04/2025	***Meiler, S** *Tropical Cyclones, Displacement, and Policy: Advancing Climate Risk Assessments,* Institut des Actuaires France, webinar
01/2025	***Meiler, S** *Tropical Cyclones, Displacement, and Policy: Advancing Climate Risk Assessments,* JPL Center for Climate Sciences (CCS) Friday Seminar, webinar
10/2024	***Meiler, S** *Bridging Science and Solutions in Climate Risk,* JPL Climate Risk Science Workshop, Pasadena CA, USA
05/2024	***Meiler, S** *Unraveling the unknowns of global tropical cyclone risk in the future,* Symposium on Hurricane Risk in a Changing Climate, Honolulu HI, USA
05/2024	***Meiler, S** *Unraveling the unknowns of global tropical cyclone risk in the future,* Oasis Insight Conference, London, UK
04/2024	**Meiler, S.,** Kropf, C.M., Emanuel, K., Bresch, D. N. *Choose Your Model Wisely: Navigating Uncertainties in Future Global Tropical Cyclone Risks,* EGU General Assembly 2024, Vienna, AUT
04/2023	**Meiler, S.,** Emanuel, K., Bresch, D. N. *Unraveling the unknowns of global tropical cyclone risk in the future,* EGU General Assembly 2023, Vienna AUT
06/2022	**Meiler S**, *Global synthetic TC model intercomparison*, Symposium on Hurricane Risk in a Changing Climate, Key Largo FL, USA
05/2022	**Meiler, S.,** Sarhadi, A., Emanuel, K., Bresch, D. N. *Advancing compound modelling of tropical cyclone wind, surge and rain impacts – now and in a changing climate*, EGU General Assembly 2022, Vienna AUT
02/2022	**Meiler, S.**, *Global synthetic TC model intercomparison*, invited speaker Fathom Tropical Cyclone Workshop, Bristol UK
06/2021	***Meiler, S.**, *Global tropical cyclone model intercomparison – focus CHAZ model*, invited speaker Ocean and Climate Physics (OCP) division group meeting, Columbia University, New York NY, USA
04/2021	**Meiler, S**, Emanuel, K., Bresch, D. N., *Global tropical cyclone model intercomparison*, vEGU 2021
07/2013	**Speech at graduation ceremony** of FMS and HMS students at Bündner Kantonsschule Chur, CHE

TEACHING AND ADVISING

2024 – present	**PhD student co-supervision:** Sarah Hülsen, ETH Zurich; Nicolas Colombi, ETH Zurich; Juner Liu, ETH Zurich, Ziqian Xia, Stanford University
01/2025 – 04/2025	**Lecturer "Topics in Disaster & Climate Risk and Resilience Research"**, CEE 308, Stanford University
02/2023 – 07/2023	**Bachelor Thesis supervision**, Natalia Feringa, *Transparency in climate risk disclosure*, ETH Zurich
02/2021 – 08/2022	**Teaching assistant**, *Climate Change Uncertainty and Risk: From Probabilistic Forecasts to Economics of Climate Adaptation,* ETH Zurich
09/2021 – 04/2022	**Master Thesis supervision**, Anna Gevecke, *Global tropical cyclone risk in the future climate*, ETH Zurich
09/2019	**ETH WEEK, Tutor,** ETH Zurich

ACADEMIC SERVICE

2026-2028	**Steering committee member,** Knowledge–Action Network on Emergent Risks and Extreme Events (Risk-KAN)
2025 – present	**Working groups**
	Co-lead of the Risk-KAN **Climate Risk Modelling for the Financial Sector** working group
	Member of **US CLIVAR Working Group** on Accelerating Research on the Scientific Foundations of Regional Climate Risk Information
	Consultant (unpaid) on catastrophe modeling for the Property Insurance Working group of the **U.S Federal Reserve's Insurance Policy Advisory Committee (IPAC)**, in connection with working group's analysis of the potential impact of windstorm events on designated insurance markets.
2024 – present	**Conference organization**
	Meiler, S., Bloemendaal, N.: co-chair scientific program, *Symposium for Tropical Cyclone Risk* 2027
	Meiler, S., Cologna, V., Zimmermann, S., Hoffmann, R., Matano, A., De Boer, T., & Nunes Carvalho, T. M.: *Bridging natural and social sciences to study societal responses to extreme weather events*. ITS2.8/NH13.12. EGU General Assembly 2026, Vienna AUT. 05/2026
	Meiler, S., Cologna, V., Hoffmann, R., Manimaran, S., & Zimmermann, S.: *Bridging natural and social sciences to study societal responses to extreme weather events*. ITS2.9/NH13.7. EGU General Assembly 2025, Vienna AUT. 04/2025
	Cologna, V., **Meiler, S.**, Ettinger, J., Hoffmann, R., Kropf, C.M., Manimaran, S., & Kam, P.M.: *Bridging natural and social sciences to study societal responses to extreme weather events*. ITS2.5/NH13.5. EGU General Assembly 2024, Vienna AUT. 04/2024
	Thompson, V., Mitchell, D., Kornhuber, K., **Meiler, S.,** & Hamed, R.: *Future Changes in Weather and Climate Hazards around the World*. NH11.2. EGU General Assembly 2024, Vienna AUT. 04/2024

2022 – present	**Journal reviews** Climate Risk Management; Communications Earth & Environment; Earth's Future; Geophysical Research Letters; Journal of Advances in Modelling Earth Systems; Journal of Catastrophe Risk and Resilience, Disasters; Natural Hazards; Natural Hazards and Earth System Sciences; Nature; Progress in Disaster Science; Science Advances; Scientific Reports
2021 – 2023	**Delegate of the "Mittelbau" (Junior Researchers) to Departmental Commissions D-USYS, ETH Zurich** - Departmental Conferences (2012-2023) - Teaching Commission: Environmental Sciences (2022-2023)

WORK EXPERIENCE

03/2018 – 07/2018	**Vertical Coffee Roasters, Unterlunkhofen, Trainee Coffee Roaster**
08/2016 – 07/2018	**Kaffeezentrale, Uster, Marketing and Communication Employee**
05/2016 – 05/2018	**Alfredo Polti SA, Arvigo, Freelancer Business Communication**
09/2006 – 04/2018	**Swiss Ski, Snowboardcross, Professional Athlete**
07/2008 - 08/2010	**Stiftung Bergwaldprojekt, Trin, Intern Reforestation Foundation**

SPORT CAREER HIGHLIGHTS

02/2018	Winter Olympic Games, PyeongChang, 22nd place
02/2015	Universiade, Granada, 3rd place
02/2014	Winter Olympic Games, Sochi, 10th place
02/2010	Winter Olympic Games, Vancouver, 9th place
2007, 2009, 2013	3 x Participation at World Championships

LANGUAGE SKILLS

German	native (first language)	**Romansh**	bilingual native
English	near-native (C2)	**Italian**	basic knowledge (A2)
French	fluent (C1)	**Latin**	basic knowledge
Spanish	fluent (B2)		

COMPUTER SKILLS

Application software: MS Office Suite, Adobe Creative Suite, WordPress

Programming languages: Python, MATLAB, LaTeX

Version control and collaboration: Git and GitHub

Scripting and command line tools: Shell/bash, terminal

High-performance computing: Experienced in utilizing high-performance computing; knowledgeable in SLURM and LSF for job management and scheduling.