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 Follow's 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

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

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., 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., Lee, C.-Y., Camargo, S. J., & Sobel, A. H. Global coastal wind hazard maps from the CHAZ tropical cyclone model. Submitted to *Scientific Data*.

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. Submitted to *The Geneva Papers on Risk and Insurance – Issues and Practice*.

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. Predicting Flood-Induced Human Displacement: A Multi-Model Assessment for the Horn of Africa, Manuscript under review at *Nature Sustainability.*

Manuscripts in preparation (available upon request)

Colombi, N., Burger, F. A., **Meiler, S.,** Kropf, C. M., Emanuel, K., Frölicher, T. L., & Bresch, D. N. (in preparation). The Atlantic meridional overturning circulation influence on tropical cyclones activity.

McCaughey, J. W., Housset, T., Ponserre, S., Röösli, T., Zimmermann, S., Manimaran, S. **Meiler, S.,** Kropf, C. M., Lüthi, S., Riedel, L., Mühlhofer, E., Kam, P. M., Oakes, R., Schewe, J., Souvignet, M., Desai, B. (in preparation). Typology of disaster-induced displacement: drivers, data needs, and modelling.

SELECT PRESENTATIONS *invited speaker

6/2025	**Meiler, S** *Hurricane recovery potential,* Symposium for Tropical Cyclone Risk in a Changing Climate, Tampa, FL, USA
4/2025	***Meiler, S** *From Climate Anxiety to Community Action,* Swissnex, San Francisco CA, USA
4/2025	***Meiler, S** *Tropical Cyclones, Displacement, and Policy: Advancing Climate Risk Assessments,* Institut des Actuaires France, webinar
1/2025	***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
02/2022	**Meiler, S.**, Sarhadi, A., Emanuel, K., Bresch, D. N., *Tropical cyclone rain, surge and wind impacts – now and in a changing climate*, Workshop on Understanding and Modeling Complex Risks in Coupled Human-Environment Systems, RiskKan Modeling and insurance working group
06/2021	*__Meiler, S.__, *Global tropical cyclone model intercomparison – focus CHAZ model*, invited speaker Ocean and Climate Physics (OCP) division group meeting, Columbia University
04/2021	**Meiler, S**, Emanuel, K., Bresch, D. N., *Global tropical cyclone model intercomparison*, vEGU 2021
01/2021	**Meiler, S.**, Emanuel, K., Bresch, D. N., *Sub-hazard risk assessment of tropical cyclone damage in CLIMADA,* Workshop on Compound Weather and Climate Events, Oeschger Centre for Climate Change Research (OCCR), Bern
07/2013	**Speech at graduation ceremony** of FMS and HMS students at Bündner Kantonsschule Chur

TEACHING AND ADVISING

2024 – present	**PhD student co-supervision:** Sarah Hülsen, ETH Zurich; Nicolas Colombi, ETH Zurich; Juner Liu, ETH Zurich (prospective student)
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

2025 – present **Working groups**

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., 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; 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; 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.

REFERENCES

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473 Via Ortega
Stanford, California 94305
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