# MARK V. BERNHOFEN

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## RESEARCH EXPERIENCE

**Research Associate, Environmental Change Institute, University of Oxford**                    **2024-2025**
- Leading Howden Foundation funded project on equitable climate risk analytics in developing countries
- Appointed as Climate Risk Analytics Lead for the Resilient Planet Finance Lab
- Led Google.org funded project on climate risk analytics to support community leaders in Kenya

**Researcher, Grantham Research Institute on Climate and the Environment, London School of Economics**                    **2025**
- Hold a joint (1 day per week) position at the LSE
- Leading research on integrating physical climate risk and adaptation within credit ratings
- Leading research on the ethical and responsible use of climate data for decision-making

**Research Associate, Smith School of Enterprise and the Environment, University of Oxford**                    **2022-2024**
- Appointed as part of the UK Centre for Greening Finance and Investment
- Led the physical climate risk workstream of a UK Government funded project in collaboration with Bank of Thailand to develop a climate stress test for financial institutions in Thailand.
- Led research on the economic impact of heatwaves, global flood risk uncertainty, and climate financial risk.

**Postdoctoral Researcher, School of Civil Engineering, University of Leeds**                    **2022**
- Appointed as part of the Global Challenges Research Fund Water Security and Sustainable Development Hub
- Led project which explored the role of global datasets for flood risk management at the national scale in Colombia, Ethiopia, England, India, and Malaysia.

**PhD Research, School of Civil Engineering, University of Leeds**                    **2017-2022**
- Research focused on the evaluation and intercomparison of global flood risk datasets.
- Evaluated global flood hazard models and risk data.
- Developed new global flood risk models.
- Published four lead author research papers and contributed to two additional research papers.

## EDUCATION

**University of Leeds**                    **2017-2022**
PhD Civil Engineering: "Global flood model assessment and flood risk evaluation"

**University of Leeds**                    **2013-2017**
MEng Civil & Structural Engineering (International) First Class

**The West Bridgford School, Nottingham**                    **2007-2013**
5 A-Levels (Mathematics, Biology, German, History, General Studies); 13 GCSEs

## HONOURS AND AWARDS

| | |
|---|---|
| University of Leeds Graduate Board Examination Group Research Excellence Award | **2022** |
| NERC funded PhD fellowship with additional CASE funding from Fathom Global | **2017-2022** |
| Best student presentation, University of Leeds postgraduate research conference | **2019** |
| Best student poster, University of Leeds postgraduate research conference | **2018** |
| Hydraulic Analysis Prize recipient for best water related research project | **2017** |
| University of Leeds Faculty of Engineering Dean's List | **2014-2015** |

# TEACHING EXPERIENCE

**Small Countries Financial Management Programme, University of Oxford**                                    **2025**
- Taught full day course on climate risk and adaptation finance to small country government officials

**MSc Global Dimensions on Resilience and Sustainability, University of Oxford**                           **2024-2025**
- Deliver one lecture on climate risk modelling and decision-making.
- Design and execute interactive game on decision-making under uncertainty.

**Climate-related Financial Risk Programme, University of Oxford**                                         **2022-2024**
- Deliver half-day lecture on physical climate financial risk and adaptation for the Oxford Sustainable Finance Group's Executive Education programme.

**BSc Global Governance, University of Rome Tor Vergata**                                                  **2024**
- Invited lecture on Climate Adaptation and Finance for first year undergraduate course

**Climate Risk and Sustainable Finance Development Programme, Bank of Thailand**                           **2023**
- Taught three capacity building lectures to Bank of Thailand staff on physical climate risk, scenario analysis and stress testing, adaptation and adaptation finance.

**MSc Water Resources Management Module, University of Leeds**                                             **2020-2022**
- Developed an interactive game for students to simulate the interaction and management of different water users in a basin.
- Prepared and marked coursework.

**Teaching Assistant, University of Leeds**                                                                **2020-2022**
- Teaching assistant for various undergraduate courses in the School of Civil Engineering at the University of Leeds
- Responsibilities included marking coursework and exams and leading seminars and labs.

# JOURNAL PUBLICATIONS

Kerkhofs, R., **Bernhofen, M.V.**, Borsuk, M., Baer, M., Ranger, N., Schoutens, W., Shrimali, G. (2025). An asset-level analysis of financial tail risks under extreme weather events. *Environmental Research: Climate.* link

Cohen, J., Mdee, A., Trigg, M.A., Singhal, S., Cooper, S., Alemu, A.N., Seifu, E., Sing, C.L.I., **Bernhofen, M.V.**, Bhave, A., Carr, A., Dhanya, C.T., Haile, A.T., Pencue-Fierro, L., Sa'adi, Z., Shukla, P., Solano-Correa, Y.T., Amazega, J., Gupta, S., Kumar, A., Mersha, A.N., Noor, Z.Z., Ofori, A., Bekele, T.W. (2025). A Politics of Global Datasets and Models in Flood Risk Management. *Water Alternatives* 18(2): 305-329. link

Hawker, L., Trigg, M., Kruczkiewicz, A., **Bernhofen, M.,** Katsi, L., Paterson, R., Speight, L., Van Den Hoek, J. (2024). Data, guidelines and ethics for managing flood risk when people are already forcibly displaced. *Environmental Research Letters: Perspective*, 20, 011001. link

Carr, A.B., Trigg, M.A., Haile, A. T., **Bernhofen, M.V.**, Alemu, A.N., Bekele, T.W., Walsh, C.L. (2024). Using global datasets to estimate flood exposure at the city scale: an evaluation in Addis Ababa. *Frontiers in Environmental Science,* 12. link

**Bernhofen, M.V.,** Blenkin, F., Trigg, M.A. (2023). Unknown risk: assessing refugee camp flood risk in Ethiopia. *Environmental Research Letters,* 18, 064041. link

**Bernhofen, M.V.**, Cooper S., Trigg, M.A., Mdee, A., Carr, A., Bhave, A., Solano-Correa, Y., Pencue-Fierro, E., Tamiru Haile, A., Yusop, Z., Alias, N., Sa'adi, Z., Bin Ramzan, M., Dhanya, C. T., Shukla, P. (2022). The Role of Global Datasets for Riverine Flood Risk Management at National and Catchment Scales. *Water Resources Research,* 58, e2021WR031555. link

**Bernhofen, M.V.**, Trigg, M.A., Sleigh, P. A., Sampson, C. C., Smith A. M. (2021). Global flood exposure from different sized rivers. *Natural Hazards and Earth System Sciences*. 21. 2829-2847. link

Lau, W. W. Y., Shiran, Y., Bailey, R. M., Cook, E., Stuchtey, M. R., Koskella, J., Velis, C. A., Godfrey, L., Boucher, J., Murphy, M. B., Thompson, R. C., Jankowska, E., Castillo, A. C., Pilditch, T. D., Dixon, B., Koerselman, L., Kosior, E., Favoino, E., Gutberlet, J., Baulch, S., Atreya, M. E., Fischer, D., He, K. K., Petit, M. M., Sumaila, U. R., Neil, E., **Bernhofen, M. V.**, Lawrence, K., Palardy, J. E. (2020). Evaluating scenarios toward zero plastic pollution. *Science.* 369. 6510. link

**Bernhofen, M.V.,** Whyman C., Trigg, M. A., Sleigh, P. A., Smith, A. M., Sampson, C. C., Yamazaki, D., Ward, P. J., Rudari, R., Pappenberger, F., Dottori, F., Salamon, P., Winsemius, H. C. (2018). A first collective validation of global fluvial flood models for major floods in Nigeria and Mozambique. *Environmental Research Letters.* 13. 104007. link

# BOOK CHAPTERS

Trigg, M., Tshimanga, R., Preksedis, N., Mtalo, F., Hughes, D., Mushi C., Bola, G., Kabuya, P., Carr, A., **Bernhofen, M.V.,** Neal, J., Beya, J., Ngandu, F., Bates, P. (2022). Putting river users at the heart of hydraulics and morphology research in the Congo Basin. *In: Congo AGU Geophysical Monograph.* Geophysical Monograph Series. Wiley. link

Trigg, M. A., **Bernhofen, M.V.**, Marechal, D., Alfieri, L., Dottori, F., Hoch, J., Horritt, M., Sampson, C., Smith, A., Yamazaki, D., Li H. (2021). Global Flood Models. *In: Global Drought and Flood*. link

# UNDER REVIEW AND IN PREPARATION

**Bernhofen, M.V.**, Burke, M., Puranasamriddhi, A., Kerkhofs, R., Ranger, N., Shrimali, G. (under review). Modelling the impact of physical climate risk and adaptation on sovereign credit ratings. *Oxford Review of Economic Policy.*

Perros, R., Hirmer, S., **Bernhofen, M.,** Tomei, J. (under review). Energy access underpins climate adaptation and resilience in sub-Saharan Africa. *Nature Energy*.

Lambin, R. & **Bernhofen, M.** (in preparation). The role of intermediary actors in driving just adaptation – perspectives from Kenya. *npj Climate Action*

**Bernhofen, M.,** Ranger, N., Hall, J. (in preparation). Flood risk inequality in developing countries and the benefits of adaptation.

# REPORTS

**Bernhofen, M.V.**, Burke, M., Puranasamriddhi, A., Ranger, N., Shrimali, G. (2024) The Impact of Physical Climate Risks and Adaptation on Sovereign Credit Ratings. *SSRN.* link

Zhang, F, Borja-Vega, C., de Jong, I., Setiono, I.M., Lopez, P., Galeza, K., Fernandez, P.B., Garcia-Moreno, P.L.V., Rodriguez, F.V., Cestti, R., Wight, C., Kabanda, P., Kehayova, V., Trigg, M., **Bernhofen, M.** (2024). Water for Shared Prosperity. *World Bank Flagship Report for the 10th World Water Forum in Indonesia.* link

Noels, J., **Bernhofen, M.V.**, Jachnik, R., Touboul, S. (2024), "Towards assessing the alignment of finance with climate resilience goals: Exploring options, methodologies, data and metrics", OECD Environment Working Papers, No. 251, OECD Publishing, Paris, https://doi.org/10.1787/9446d65e-en.

Ranger, N., **Bernhofen, M.V.** (2024). Aligning Finance with Adaptation and Resilience Goals: Targets and Metrics for Financial Institutions. *SSRN.* link

**Bernhofen, M.V.**, Trigg, M.A. (2023). Floods: Guidelines for the economic analysis of flood risk management options. *In: Economic Analysis and Guidelines for Water Projects.* The World Bank

Ranger, N., Bloomfield, H., **Bernhofen, M.V.** (2023). Learning from the 2021/22 Climate Biennial Exploratory Scenario (CBES) Exercise in the UK: Bank Consultation Workshop January 2023. *UK Centre for Greening Finance and Investment*

Trigg, M.A., **Bernhofen, M.V.,** Borja-Vega, C., Fernandes, W., Monteiro, E., Gonzalez, J. A., Masafu, C., Trigg, S. (2023). Combining global flood risk data and approaches with local data and expertise to assess urban flood risk in the city of Belo Horizonte, Brazil. *SSRN.* link

**Bernhofen, M.V.** (2021). Amazonia Legal Flood Risk Analysis. Prepared for The World Bank.

**Bernhofen, M. V.,** Dolan, F., Borja-Vega, C. (2021). Water sector note for the Amazon Economic Memorandum. Prepared for The World Bank.

Trigg, M.A., **Bernhofen M.V.** (2020). Policy Brief: Enhancing Nigerian Flood Management using Global Flood Hazard Maps. Prepared for Nigerian Minister of Water Resources.

Salamon P., Kettner, A., Coughlan De Perez, E., Rudari, R., Trigg, A., Weerts, A., Cohen, S., Prados, A., Wu, H., Ward, P., Neal, J., **Bernhofen, M.,** Livesy, D., Alfieri, L, Bhardwaj, A., Prudhomme, C., Nelson, C., Ficchi, A., Tavakoly, A., Brakenridge, G., Galantowicz, J., Matgen, P., Winsemius, H., Green, D. Glasscoe, M. Schultz, L., Bevington, J. (2018) The Global Flood Partnership Conference 2018 - Bridging the gap between science and users. *Publications Office of the European Union.* JRC113100

# CONFERENCES AND PRESENTATIONS

"Climate and Nature Risk" (Invited Presentation). Oxford Scenarios Programme, Saïd Business School, University of Oxford. (October, 2024). Oxford, UK.

"Physical climate risk, sovereign credit ratings, and the benefits of adaptation" (Presentation). European Geosciences Union (EGU) annual conference (2024). Vienna, Austria

"Learnings from the Resilient Planet Data Hub" (Invited Presentation). ADBI and GAIP Workshop on Developing Protection Gap Strategies for ASEAN countries. (December 2023). Ha Long Bay, Vietnam.

"Unknown risk: assessing refugee camp flood risk in Ethiopia" (Presentation). International Conference on Flood Management. (February 2023). Tsukuba, Japan

"Assessing the risk of heatwaves to data centres in Southeast Asia using climate data from the Global Resilience Index Initiative" (Invited Seminar). Oxford Internet Institute. (May 2023). Oxford, UK.

"The Global Resilience Index Initiative" (Invited Virtual Presentation). Global Earthquake Model Governing Board Meeting. (December 2022)

"The economic impact of heatwaves" (Invited Seminar). Oxford Future of Cooling Programme. (November 2022). Oxford, UK

"Left off the map? Assessing refugee camp flood exposure in Ethiopia" (Presentation). Global Flood Partnership. (September 2022). Leeds, UK.

"The evaluation and appropriate application of global flood risk data" (Invited Seminar). Oxford Programme for Sustainable Infrastructure. (May 2022). Oxford, UK.

"The role of global datasets for riverine flood risk management at national scales" (Invited Virtual Presentation). Cloud to Street (now Floodbase). (May 2022). New York, NY, USA

"Assessing the role of global datasets for flood risk management at national and catchment scales" (Presentation). American Geophysical Union (AGU) fall meeting (2021). New Orleans, LA, USA.

"Assessing the role of global datasets for flood risk management at national and catchment scales" (Presentation). Virtual Global Flood Partnership (GFP) conference (2021).

"Assessing the role of global datasets for flood risk management at national and catchment scales" (Poster). HEPEX - ECMWF - CEMS - C3S - GFP joint virtual workshop (2021) *Connecting global to local hydrological modelling and forecasting: scientific advances and challenges*

"River size representation in global flood models: a geospatial investigation" (Poster). American Geophysical Union (AGU) fall meeting (2019). San Francisco, CA, USA.

"River size representation in global flood models: a geospatial investigation" (Presentation). Global Flood Partnership (GFP) conference (2019). Guangzhou, China.

"Investigating how the scale of global flood model river representation affects the comprehensiveness of flood hazard output" (Poster). American Geophysical Union (AGU) fall meeting (2018). Washington, DC, USA.

"A first collective validation of global fluvial flood models for major floods in Nigeria and Mozambique" (Presentation). Global Flood Partnership (GFP) conference (2018). Delft, the Netherlands

# TECHNICAL SKILLS

Python (Advanced); QGIS (Advanced); Microsoft Office (Advanced); R (Proficient)

# LANGUAGE SKILLS

Bilingual in English and German

# SERVICE AND APPOINTMENTS

Cambridge institute for Sustainability Leadership Advisory Group
Climate Bonds Initiative Resilience and Adaptation Taxonomy Working Group
Climate Financial Risk Forum Adaptation Working Group
Climate Financial Risk Forum Short Term Scenarios Technical Working Group
Insurance Development Forum Risk Modelling Steering Group
Resilient Planet Data Hub Working Group
Postgraduate Research Representative, University of Leeds