

# Emanuele Bevacqua

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## Postdoctoral work experience

- Since **Emmy Noether Group Leader.**  
06/2024 Helmholtz Centre for Environmental Research - UFZ, Leipzig, Germany.
- Since **Deputy Head of the *Compound Environmental Risks* department.**  
01/2024 Helmholtz Centre for Environmental Research - UFZ, Leipzig, Germany.
- 01/2021– **Postdoctoral Researcher.**  
05/2024 Helmholtz Centre for Environmental Research - UFZ, Leipzig, Germany.
- 02/2020– **Postdoctoral Research Fellow.**  
12/2020 Department of Meteorology, University of Reading, United Kingdom.
- 03/2019– **Postdoctoral Research Assistant.**  
01/2020 Department of Meteorology, University of Reading, United Kingdom.
- 09/2018– **Postdoctoral Research Scientist.**  
02/2019 Wegener Center for Climate and Global Change, University of Graz, Austria.

## Education

- 11/2014– **PhD (Dr. rer. nat) in Physics (Climate Science).**  
09/2018 2016–2018: Wegener Center for Climate and Global Change, University of Graz, Austria.  
2014–2015: GEOMAR – Helmholtz Centre for Ocean Research Kiel, Germany.  
Thesis: *Multivariate statistical modelling and analysis of compound events.* Supervisor: Prof. Douglas Maraun.  
*Pass with distinction (Max Grade).*
- 2012–2014 **Master of Science in Physics (Astrophysics and Geophysics).**  
University of Calabria, Cosenza, Italy.  
Thesis: *Analysis of the magnetohydrodynamic turbulence anisotropy based on a novel definition of the mean magnetic field.* Supervisor: Prof. Vincenzo Carbone.  
*Cum laude, and honourable mention for the career (Max Grade).*
- 2009–2012 **Bachelor's degree in Physics.**  
University of Calabria, Cosenza, Italy.  
Thesis: *Focus on the last glacial period: the dynamics of the Dansgaard–Oeschger events.* Supervisor: Prof. Vincenzo Carbone.  
*Cum laude, and honourable mention for the career (Max Grade).*

## Research stays

- 03/2019 **Laboratoire de Météorologie Dynamique (LMD)**, Paris, France. Short-term scientific mission, part of the DAMOCLES project.
- 06/2015–12/2015 **Laboratoire des Sciences du Climat et de l'Environnement**, Gif-sur-Yvette, France. Development of a statistical model for the CE:LLO project. Supervisor: Dr. Mathieu Vrac.
- 02/2015 **Norwegian Computing Center**, Oslo, Norway. Training in Pair-copula constructions. Supervisors: Dr. I. Hobaek-Haff and Prof. A. Frigessi.

## Publications

- 2025 ■ Feng, S., Zscheischler, J., Hao, Z., and **Bevacqua, E.** (2024). "Growing human-induced climate change footprint in regional weekly fire extremes". In press, *npj Climate and Atmospheric Science*, <https://www.researchsquare.com/article/rs-5380721/v1>.
- **Bevacqua, E.**, Schleussner, C., and Zscheischler, J. (2024). "A year above 1.5 °C signals that Earth is most probably within the 20-year period that will reach the Paris Agreement limit". *Nature Climate Change*, DOI: 10.1038/s41558-025-02246-9.
- 2024 ■ Li, J., Zhang, Y., **Bevacqua, E.**, Zscheischler, J., Keenan, T., Lian, X., Zhou, S., Zhang, H., He, M., and Piao, S. (2024). "Future increase in compound soil drought-heat extremes exacerbated by vegetation greening". *Nature Communications*, 15, 10875, DOI: 10.1038/s41467-024-55175-0.
- Lembo, V., Bordoni, S., **Bevacqua, E.**, Domeisen, D. I. V., Franzke, C. L. E., Galfi, V. M., Garfinkel, C. I., Grams, C. M., Hochman, A., Jha, R., Kornhuber, K., Kwasniok, F., Lucarini, V., Messori, G., Pappert, D., Perez-Fernandez, I., Riboldi, J., Russo, E., Shaw, A. T., Strigunova, I., Strnad, F., Yiou, P., and Žagar, N. (2024). "Dynamics, Statistics, and Predictability of Rossby Waves, Heat Waves, and Spatially Compounding Extreme Events". *Bulletin of the American Meteorological Society*, 105, 12, DOI: 10.1175/BAMS-D-24-0145.1.
  - **Bevacqua, E.**, Rakovec, O., Schumacher, D. L., Kumar, R., Thober, S., Samaniego, L., Seneviratne, S. I., and Zscheischler, J. (2024). "Direct and lagged climate change effects intensified the 2022 European drought". *Nature Geoscience*, 17, 1100–1107, DOI: 10.1038/s41561-024-01559-2.
  - Perkins-Kirkpatrick, S. E., Alexander, L. V., King, A. D., Kew, S., Philip, S. Y., Barnes, C., Maraun, D., Stuart-Smith, R., Jézéquel, A., **Bevacqua, E.**, Burgess, S., Fischer, E., Hegerl, G. C., Kimutai, J., Koren, G., Lawal, K. A., Min, S.-K., New, M., Odoulami, R. C., Patricola, C. M., Pinto, I., Ribes, A., Shaw, T. A., Thiery, W., Trewin, B., Vautard, R., Wehner, M., and Zscheischler, J. (2024). "Frontiers in attributing climate extremes and associated impacts". *Frontiers in Climate*, 6, 1455023, DOI: 10.3389/fclim.2024.1455023.

- Jézéquel, A., Bastos, A., Faranda, D., Kimutai, J., Le Grix, N., Wilson, A. M., Rufat, S., Shepherd T. G., Stuart-Smith, T. F., Van Loon, A. F., **Bevacqua, E.**, D'Andrea, F., Lehner, F., Lloyd, E. A., Moemken, J., Ramos, A.M., Sippel, S., and Zscheischler, J. (2024). "Broadening the scope of anthropogenic influence in extreme event attribution". *Environmental Research: Climate*, 3, 042003, DOI: 10.1088/2752-5295/ad7527.
- Fang, B., **Bevacqua, E.**, Rakovec, O., and Zscheischler, J. (2024). "An increase in the spatial extent of European floods over the last 70 years". *Hydrol. Earth Syst. Sci.*, 28, 3755–3775, DOI: 10.5194/hess-28-3755-2024.
- Banfi, F., **Bevacqua, E.**, Rivoire, P., Oliveira, S. C., Pinto, J. G., Ramos, A. M., and De Michele, C. (2024). "Temporal clustering of precipitation for detection of potential landslides". *Natural Hazards Earth System Science*, 24, 2689–2704, DOI: 10.5194/nhess-24-2689-2024.
- Matte, D., Christensen, J. H., Drew, M., Sobolowski, S., Paquin, D., Lynch, A., Bremer, S., Engholm, I., Brunet, N. D., Kolstad, E. W., Kettleborough, H., Thompson, V., **Bevacqua, E.**, Heinrich, D., Pryor, S. C., Böhnisch, A., Feser, F., Prein, A. F., Fischer, E., and Leduc, M. (2024). "How to engage and adapt to unprecedented extremes". *Bulletin of the American Meteorological Society*, 105, 8, E1407–E1415, DOI: 10.1175/BAMS-D-24-0138.1.
- Li, D., Zscheischler, J., Chen, Y., Yin, B., Feng, J., Freund, M., Qi, J., Zhu, Y., and **Bevacqua, E.** (2024). "Intensification and poleward shift of compound wind and precipitation extremes in a warmer climate". *Geophysical Research Letters*, 51 (11), e2024GL110135, DOI: 10.1029/2024GL110135.
- Muheki, D., Deijns, A. A. A., **Bevacqua, E.**, Messori, G., Zscheischler, J., and Thiery, W. (2024). "The perfect storm? Concurrent climate extremes in East Africa", *Earth System Dynamics*, 15, 429–466, DOI: 10.5194/esd-15-429-2024.
- Gimeno-Sotelo, L., **Bevacqua, E.**, Fernández-Álvarez, J. C., Barriopedro, D., Zscheischler, J., Gimeno, L. (2024). "Projected changes in extreme daily precipitation linked to changes in precipitable water and vertical velocity in CMIP6 models". *Atmospheric Research*, 107413, DOI: 10.1016/j.atmosres.2024.107413.
- 2023 ▪ Qian, C., Ye, Y., **Bevacqua, E.**, and Zscheischler, J. (2023). "Human influences on spatially compounding flooding and heatwave events in China and future increasing risks", *Weather and Climate Extremes*, 42, 100616, DOI: 10.1016/j.wace.2023.100616.
- Richards, J., Huser, R., **Bevacqua, E.**, and Zscheischler, J. (2023). "Insights into the Drivers and Spatiotemporal Trends of Extreme Mediterranean Wildfires with Statistical Deep Learning", *Artificial Intelligence for the Earth Systems*, vol. 2, no. 4, DOI: 10.1175/AIES-D-22-0095.1.
- Gimeno-Sotelo, L., **Bevacqua, E.**, and Gimeno, L. (2023), "Combinations of drivers that most favor the occurrence of daily precipitation extremes", *Atmospheric Research*, 106959, 0169-8095, DOI: 10.1016/j.atmosres.2023.106959.

- Li, J., **Bevacqua, E.**, Wang, Z., Sitch, S., Nabel, J., Arora, V., Arneeth, A., Jain, A. K., Goll, D., Tian, H., and Zscheischler, J. (2023) "Hydroclimatic extremes contribute to asymmetric trends in ecosystem productivity loss", *Communications Earth & Environment* volume 4, 197, DOI: 10.1038/s43247-023-00869-4.
  - **Bevacqua, E.**, Suarez-Gutierrez, L., Jezequel, A., Lehner, F., Vrac, M., Yiou, P., and Zscheischler, J. (2023). "Advancing research on compound weather and climate events via large ensemble model simulations", *Nature Communications*, 14, 2145, DOI: 10.1038/s41467-023-37847-5.
  - Manning, C., Widmann, M., Maraun, D., van Loon, A. F., and **Bevacqua, E.** (2023) "Large spread in the representation of compound long-duration dry and hot spells over Europe in CMIP5", *Weather and Climate Dynamics*, 4, 309–329, DOI: 10.5194/wcd-4-309-2023.
- 2022
- Jiang, S., **Bevacqua, E.**, and Zscheischler, J. (2022) "River flooding mechanisms and their changes in Europe revealed by explainable machine learning", *Hydrology and Earth System Sciences*, 26, 6339–6359, DOI: 10.5194/hess-26-6339-2022.
  - Li, D., Chen, Y., Messmer, M., Zhu, Y., Qi, J., Feng, J., Yin, B., and **Bevacqua, E.** (2022). "Compound wind and precipitation extremes across the Indo-Pacific: climatology, variability and drivers". *Geophysical Research Letters*, 49, e2022GL098594, DOI: 10.1029/2022GL098594.
  - Li, J., **Bevacqua, E.**, Chen, C., Wang, Z., Chen, X., Myneni, R. B., Wu, X., Xu, C., Zhang, Z., and Zscheischler, J. (2022) "Regional asymmetry in the response of global vegetation growth to springtime compound climate events". *Communications Earth & Environment*, 3, 123, DOI: 10.1038/s43247-022-00455-0.
  - **Bevacqua, E.**, Zappa, G., Lehner, F., and Zscheischler, J. (2022). "Precipitation trends determine future occurrences of compound hot-dry events". *Nature Climate Change*, 12, 350–355, DOI: 10.1038/s41558-022-01309-5.
  - Maraun, D., Knevels, R., Mishra, A. N., Truhetz, H., **Bevacqua, E.**, Proske, H., Zappa, G., Brenning, A., Petschko, H., Schaffer, A., Leopold, P., and Puxley, L. (2022). "A severe landslide event in the Alpine foreland under possible future climate and land-use changes". *Communications Earth & Environment*, 3, 87, DOI: 10.1038/s43247-022-00408-7.
  - Switanek, M., Maraun, D., and **Bevacqua, E.** (2022). "Stochastic downscaling of gridded precipitation to spatially coherent sub-grid precipitation fields using a transformed Gaussian model". *International Journal of Climatology*, 42(12), 6126–6147, DOI: 10.1002/joc.7581.
- 2021
- **Bevacqua, E.**, De Michele, C., Manning, C., Couasnon, A., Ribeiro, A. F. S., Ramos, A. M., Vignotto, E., Bastos, A., Blesić, S., Durante, F., Hillier, J., Oliveira, S. C., Pinto, J. G., Ragno, E., Rivoire, P., Saunders, K., van der Wiel, K., Wu, W., Zhang, T., Zscheischler, J. (2021). "Guidelines for studying diverse types of compound weather and climate events". *Earth's Future*, 9, e2021EF002340, DOI: 10.1029/2021EF002340.

- Villalobos-Herrera, R., **Bevacqua, E.**, Ribeiro, A.F.S., Auld, G., Crocetti, L., Mircheva, B., Ha, M., Zscheischler, J., and De Michele, C. (2021). "Towards a compound-event-oriented climate model evaluation: a decomposition of the underlying biases in multivariate fire and heat stress hazards". *Natural Hazards and Earth System Sciences*, 21, 1867–1885, DOI: 10.5194/nhess-21-1867-2021.
- **Bevacqua, E.**, Shepherd, T.G., Watson, P.A.G., Sparrow, S., Wallom, D., and Mitchell, D. (2020). "Larger spatial footprint of wintertime total precipitation extremes in a warmer climate". *Geophysical Research Letters*, 48, e2020GL091990, DOI: 10.1029/2020GL091990.
- Zappa, G., **Bevacqua, E.**, and Shepherd, T. G. (2021): "Communicating potentially large but non-robust changes in multi-model projections of future climate", *International Journal of Climatology*, 41, 3657–3669, DOI: 10.1002/joc.7041.
- Messori, G., **Bevacqua, E.**, Caballero, R., Coumou, D., De Luca, P., Faranda, F., Kornhuber, K., Martius, O., Pons, F., Raymond, C., Ye, K., Yiou, P., and Zscheischler, J. (2021). "Compound climate events and extremes in the mid-latitudes: dynamics, simulation and statistical characterisation". *Bulletin of the American Meteorological Society*, 102(4), E774-E781, DOI: 10.1175/BAMS-D-20-0289.1.
- 2020 ▪ **Bevacqua, E.**, Vourdoukas, M. I., Zappa, G., Hodges, K., Shepherd, T. G., Maraun, D., Mentaschi, L., and Feyen, L. (2020). "More meteorological events that drive compound coastal flooding are projected under climate change". *Communications Earth & Environment*, 1, 47, DOI: 10.1038/s43247-020-00044-z.
- **Bevacqua, E.**, Zappa, G., and Shepherd, T. G. (2020). "Shorter cyclone clusters modulate changes in European wintertime precipitation extremes". *Environmental Research Letters*, 15, 124005, DOI: 10.1088/1748-9326/abbde7.
- **Bevacqua, E.**, Vourdoukas, M. I., Shepherd, T. G., and Vrac, M. (2020). "Brief communication: The role of using precipitation or river discharge data when assessing global coastal compound flooding". *Natural Hazards and Earth System Sciences*, 20, 1765–1782, DOI: 10.5194/nhess-20-1765-2020.
- Zscheischler, J., Martius, O., Westra, S., **Bevacqua, E.**, Raymond, C., Horton, R., van den Hurk, B., AghaKouchak, A., Jézéquel, A., Mahecha, M. D., Maraun, D., Ramos, A. M., Ridder, N., Thiery, W., Vignotto, E. (2019). "A typology of compound weather and climate events". *Nature Reviews Earth & Environment*, 1, 333–347, DOI: 10.1038/s43017-020-0060-z.
- Jézéquel, A., **Bevacqua, E.**, D'Andrea, F., Thao, S., Vautard, R., Vrac, M., Yiou, P. (2020). "Conditional and residual trends of singular hot days in Europe". *Environmental Research Letters*, 15, 064018, DOI: 10.1088/1748-9326/ab76dd.
- 2019 ▪ **Bevacqua, E.**, Maraun, D., Vourdoukas, M. I., Voukouvalas, E., Vrac, M., Mentaschi, L., and Widmann, M. (2019). "Higher probability of compound flooding from precipitation and storm surge in Europe under anthropogenic climate change". *Science Advances*, 5(9), eaaw5531, DOI: 10.1126/sciadv.aaw5531.

- Manning, C., Widmann, M., **Bevacqua, E.**, Van Loon, A. F., Maraun, D., and Vrac, M. (2019). "Increased probability of compound long-duration dry & hot events in Europe during summer (1950-2013)". *Environmental Research Letters*, 14, 094006, DOI: 10.1088/1748-9326/ab23bf.
- 2018 ▪ Manning, C., Widmann, M., **Bevacqua, E.**, Van Loon, A. F., Maraun, D., and Vrac, M. (2018). "Soil moisture drought in Europe: a compound event of precipitation and potential evapotranspiration on multiple timescales". *Journal of Hydrometeorology*, 19(8), 1255-1271, DOI: 10.1175/JHM-D-18-0017.1.
- 2017 ▪ **Bevacqua, E.**, Maraun, D., Haff, I. H., Widmann, M., and Vrac, M. (2017). "Multivariate statistical modelling of compound events via pair-copula constructions: analysis of floods in Ravenna (Italy)". *Hydrology and Earth System Sciences*, 21, 2701-2723, DOI: 10.5194/hess-21-2701-2017.
- 2014 ▪ Alberti, T., Lepreti, F., Vecchio, A., **Bevacqua, E.**, Capparelli, V., and Carbone, V. (2014). "Natural periodicities and Northern Hemisphere–Southern Hemisphere connection of fast temperature changes during the last glacial period: EPICA and NGRIP revisited". *Climate of the Past*, 10, 1751-1762, DOI: 10.5194/cp-10-1751-2014.

Under review/Submitted

- Fang, B., Rakovec, O., **Bevacqua, E.**, Kumar, R., and Zscheischler, J. (2025). "Diverging trends in large floods across Europe in a warming climate". Submitted.
- Li, J., Zhang, Y., **Bevacqua, E.**, Jiang, S., Yuan, X., Zhou, S., Qiu, J., Wang, Z., Zscheischler, J., Wang, K., and Shilong Piao (2025). "Warming and vegetation greening drive recent surge in flash droughts". Submitted.
- Yixuan Guo, Beyerle, U., **Bevacqua, E.**, Zscheischler, J., Suarez-Gutierrez, L., Mittermeier, M., Fu, Z., and Fischer, E. (2025), "Using ensemble boosting to develop storylines for spatially compounding flood and heat events with an Omega pattern". Submitted.
- Messori, G., Muheki, D., Batibeniz, F., **Bevacqua, E.**, Suarez-Gutierrez, L., and Thiery, W. (2025). "Global mapping of concurrent hazards and impacts associated with climate extremes under climate change". Submitted.
- Cache, T., **Bevacqua, E.**, Zscheischler, J., Müller-Thomy, H., and Peleg, N. (2025). "Simulating realistic design storms: a joint return period approach". Submitted.
- François, B., Teber, K., Brett, L., Leeding, R., Gimeno-Sotelo, L., Domeisen, D. I. V., Suarez-Gutierrez, L., and **Bevacqua, E.** (2024). "Concurrent modes of climate variability linked to spatially compounding wind and precipitation extremes in the Northern Hemisphere". *EGU sphere [preprint]*, <https://doi.org/10.5194/egusphere-2024-2079>.
- Feng, S., Zscheischler, J., Zengchao, H., Jägermeyr, J., Müller, C., **Bevacqua, E.** (2023). "The correlation between crop production of major breadbaskets has little influence on extremely low global crop production in crop model simulations". Submitted.

### Software packages and dataset

- **Bevacqua, E.** (2025). Code for paper: Bevacqua et al. (2025), Nature Climate Change [v1.0.0] (v1.0.0). Zenodo. <https://doi.org/10.5281/zenodo.14637944>.
- Muheki, D., Deijns, A.A.J., **Bevacqua, E.**, Messori, G., Zscheischler, J., and Thiery, W. (2024). "VUB-HYDR/co\_occurring\_climate\_extremes\_in\_east\_africa", [Data set], Zenodo DOI: 10.5281/zenodo.10970524.
- Maraun, D., Knevels, R., Mishra, A.N., Truhetz, H., **Bevacqua, E.**, Proske, H., Zappa, G., Brenning, A., Petschko, H., Schaffer, A., Leopold, P., and Puxley, B.L. (2022). "Data for: A severe landslide event in the Alpine foreland under possible future climate and land-use changes", [Data set], Zenodo DOI: 10.5281/zenodo.6036814.
- Ribeiro, A. F. S., Vignotto, E., van der Wiel, K., Zhang, T., Rivoire, P., **Bevacqua, E.**, and Zscheischler, J. (2021). "A large-ensemble simulation of yields and meteorological drivers to evaluate spatial compounding crop failures in Europe" [Data set]. Zenodo, DOI: 10.5281/zenodo.5113280.
- **Bevacqua, E.**, Watson, P., Sparrow, S., and Wallom, D. (2020). "Multi-thousand-year simulations of December-February precipitation and zonal upper-level wind", (Version 1.0.0) [Data set], Zenodo, DOI: 10.5281/zenodo.4311221.
- **Bevacqua, E.** (2017). "CDVineCopulaConditional: an R package for conditional sampling from multivariate copula decomposed via C- or D-vines". R-package, DOI: 10.13140/RG.2.2.28442.85445.

### PhD Thesis

- **Bevacqua, E.** (2018). "Multivariate statistical modelling and analysis of compound events". PhD thesis, University of Graz, Graz, Austria.

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### Grants and Awards

- 2024 Grant awarded. PI of the project "SEESAW: Societal and Environmental impacts of complex ExtremeS in a chAnging World", funded by the Helmholtz Centre for Environmental Research - UFZ. The project supports a cohort of four PhD students, with one directly supervised and another co-supervised by me (~ 500,000 €).
- 2023 Grant awarded. Main PI of the project "ADVANCE: ADVancing the Investigation of Compound Events via large ensemble climate model simulations", from the *Emmy Noether Programme*, funded by the Deutsche Forschungsgemeinschaft (DFG) (~ 1,500,000 €). This DFG programme gives exceptionally qualified early career researchers the chance to qualify for the post of professor at a university by leading an independent junior research group for a period of 6 years.
- 2019 Grant awarded. For a *Short-term scientific mission* funded by the COST action DAMOCLES (CA17109) (~ 800 €).
- 2018 Grant awarded. Secondary proposer of the funded COST Action "DAMOCLES: UnDerstanding And Modeling cOmpound CLimate and weather EventS", CA17109 (~ 500,000 € for a period of 4 years).

- 2018 Winner of the *Outstanding Student Poster and PICO (OSPP) Award contest* of the EGU General Assembly 2018 (Fee waiver for the EGU General Assembly and a publication in an EGU journal).
- 2017 Winner of the *SWGEM-Hydro conference young scientist travel support*, awarded to only one student (~ 800 €).
- 2014 Winner of scholarship for merit *John R. Mott Scholarship Foundation* (~ 1,200 €).
- 2013 Grant awarded. Selected international graduate student for attending the TOSCA training School *Impact of Solar Variability on Climate* (~ 250 € and accomodation).
- 2012 Winner of scholarship for merit *John R. Mott Scholarship Foundation* (~ 1,200 €).
- 2006 Winner at the regional stages of the *Olympics of mathematics*. Participation by invitation in the national stage of the *Olympics of mathematics*, obtaining an *Honourable Mention*.

## Teaching and Supervision

### Habilitation for Professorship

- 03/2025 Italian National Scientific Habilitation for Full Professor.  
Disciplinary field of 02/C1 - *Astronomy, astrophysics, Earth and planetary physics*.

### Teaching

- 09/2024 Lecturer at the "3rd Como Training School on Compound climate-related Events", Lake Como School of Advanced Studies, Como, Italy. Lecture: "Introduction to Compound weather and climate events" .
- 09/2022 Lecturer (Invited) at the "2nd Training School on Compound Events", Lake Como School of Advanced Studies, Italy. Lecture: "Introduction to Compound weather and climate events: definitions, fundamentals, and case studies" .
- 07/2022 Lecturer (Invited) at the "Training School on Dynamical Modelling of Compound Events", Budapest, Hungary. Lecture: "Compound weather and climate events: definitions, fundamentals, and case studies".
- 06/2022 Lecturer at the training School "Artificial Intelligence for Detection and Attribution of Climate Extremes" (smr 3717), ICTP Trieste, Italy. Lecture: "Compound weather and climate extreme events".
- 02/2020 Contribution to the course "MTMG05: Professional Skills module" of the Master in Meteorology at the University of Reading. Supervision and organisation of the group project "Present and future changes in tropical cyclone translation speeds", undertaken by five master students (Chun Hay Brian Lo, Chun Hang Tony Chau, Sophie Harbord, Emma Freda Patmore, and Ho Lun Curtis Wong). .
- 10/2019 Lecturer (Invited) at the "Training School on Statistical Modelling of Compound Events", Como, Italy. Lecture: "Physical processes driving compound flooding and its future changes".

### Supervision

- 09/2024- Present Supervision of the PhD student Emilie Gauthier (plan, 3 years). Topic: Wildfire danger in Europe in a changing climate.

- 01/2024- Present Supervision of the PostDoc Ji Li (plan, 2 years). Topic: Changes in soil moisture droughts.
- 11/2023- 11/2027 Supervision of the PhD student Yu Meng (plan, 4 years). Topic: Compounding effects behind renewable energy dynamics.
- 10/2022- 03/2024 Supervision of the PhD student Sifang Feng during a research stay (18 months). Topic: Impact of spatially compounding events on global crop yield.
- 06-08/2022 Supervision of the PhD student Luis Gimeno-Sotelo during a research stay (3 months). Topic: Compound drivers of changes in daily precipitation extremes.
- 07/2022- Present Supervision and organisation of the group project "The influence of modes of climate variability and their interplay on compound events", undertaken by a group of seven PhD students (Katharina Kuepfer, Ahmet Yavuzd, Bastien Francois, Khalil Teber, Louise Brett, Richard Leeding, and Luis Gimeno-Sotelo) at the "Training School on Dynamical Modelling of Compound Events" (together with Prof. Daniela Domeisen). The project is continuing after the training school.
- 09/2019- 06/2021 Supervision and organisation of the group project "Model evaluation of bivariate relationships with copulas", undertaken by a group of six among PhD students and early Postdocs (Roberto Villalobos-Herrera, Andreia Ribeiro, Graeme Auld, Laura Crocetti, Bilyana Mircheva, and Minh Ha11) at the "Training School on Statistical Modelling of Compound Events" (together with Prof. Carlo De Michele). The project continued after the training school up to the publication of a paper.

## Management roles and Memberships

- 2021-2023 Leader of the Working Group 4 ("New statistical approaches for model development and evaluation") of the COST action DAMOCLES (CA17109).
- 2021-Present Affiliate member of the WCRP Safe Landing Climates Lighthouse Activity (scientific theme: Understanding High-risk Events theme).
- 2019-2023 Management Committee (MC) member for the United Kingdom in the COST action DAMOCLES.
- 2019-2020 Manager, Group Workspace "storycc" on the JASMIN computing infrastructure, United Kingdom.
- 2018-2019 Management Committee (MC) member substitute for Austria in the COST action DAMOCLES.
- 2013-2015 Student representative, Physics Department, University of Calabria, Italy.

## Organisation of Scientific Events

### Organisation of Workshops, Conference sessions, and training schools

- 04/2025 Co-convener of the session "Compound weather and climate events", European Geosciences Union 2024 General Assembly, Vienna, Austria.
- 09/2024 Co-Organiser of the "3rd Como Training School on Compound climate-related Events", Lake Como School of Advanced Studies, Como, Italy, 24/09/2024-04/10/2024.

- 04/2024 Main convener of the session "Compound weather and climate events", European Geosciences Union 2024 General Assembly, Vienna, Austria.
- 11/2023 Co-organiser, workshop "Compound events' research: next steps", Karlsruhe Institute of Technology, Karlsruhe, Germany; November 14-16th, 2023.
- 02/2023 Co-organiser, workshop "Compound event attribution" funded by the COST action DAMOCLES, Helmholtz Centre for Environmental Research - UFZ, Leipzig, Germany; February 24-25th, 2023.
- 04/2023 Co-convener of the session "Compound weather and climate events" European Geosciences Union 2023 General Assembly, Vienna, Austria.
- 06/2022 Co-Director of the training school "Artificial Intelligence for Detection and Attribution of Climate Extremes | (smr 3717)", ICTP Trieste, Italy, 20/06/2022-01/07/2022.
- 05/2022 Main convener of the session "Compound weather and climate events" (NH10.2/AS4.10/CL5.3.8/HS13.7), European Geosciences Union 2022 General Assembly, Vienna, Austria.
- 02/2022 Convener of the session "Boosting (and/or rare event sampling) of compound events and global storylines" within a virtual workshop organised by the international project XAIDA.
- 10/2021 Organiser, workshop "Large ensemble simulations for compound event research" funded by the COST action DAMOCLES, Paris, France, October 6-8 2021.
- 11/2020 Organiser, workshop "Bottom-up identification of key elements of compound events" funded by the COST action DAMOCLES, Tirana, Albania (*held virtually due to Covid*), November 3-6 2020.
- 10/2020 Co-organiser, workshop "Using and reconciling statistical and process-based approaches for modelling compound events" funded by the COST action DAMOCLES, Malta (*held virtually due to Covid*), October 21st, 22nd, and 27th, 2020.

### Organisation of Seminars

- 2016-2019 Organiser, seminar series ("Challenges in Regional Climate Research") for the Reloclim group at the Wegener Center for Climate and Global Change, Austria.
- 2016-12-15 Moderator, T4Science seminar "How to ask good scientific questions? A panel discussion" at the University of Graz, Austria.
- 2012-2014 Co-organiser, seminar series for the CuboRisonante group at the Physics Department of the University of Calabria, Italy.

## Computer and language skills

### Computer

**Programming languages:** R, Bash; previous experience with IDL, Fortran, C, and C++.

**Geophysical models:** experience with the astronomical tide model FES, the regional climate model COSMO-CLM, and the mesoscale Hydrologic Model mHM.

### Languages

Italian (mother tongue), English (fluent), German (intermediate), French (basic).

## Invited oral presentations (selected)

- 11/2023 **Bevacqua, E.**, "Compound weather and climate extreme events: a worst-case perspective", Workshop: Exploring Unprecedented Extremes, Montreal, Montreal, Canada (Talk given online), **(Invited)**.
- 10/2022 **Bevacqua, E.**, "A compound event perspective on extreme weather events", 4th International Atmospheric Rivers Conference (session on Compound events), Santiago, Chile, [https://cw3e.ucsd.edu/iarc2022\\_keynote\\_speakers](https://cw3e.ucsd.edu/iarc2022_keynote_speakers) (Talk given online), **(Invited Keynote)**.
- 05/2022 **Bevacqua, E.**, "Studying diverse types of compound weather and climate events". Webinar organised by the Institute of Oceanology Chinese Academy of Sciences and Chinese Academy of Meteorological Sciences **(Invited)**.
- 03/2022 **Bevacqua, E.**, "Advancing our understanding of summertime and wintertime compound events via SMILEs". Webinar series of the SMILE (Single Model Initial-condition Large Ensemble) community (<https://large-ensemble.github.io>) **(Invited)**.
- 02/2022 **Bevacqua, E.**, "Studying diverse types of compound weather and climate events". RSC4Earth Methods Seminar, Remote Sensing Centre for Earth System Research, Leipzig, Germany (Talk given online) **(Invited)**.
- 02/2022 **Bevacqua, E.**, "Guidelines for studying diverse types of compound weather and climate events". Multi-risk and flood seminar, Institute for Environmental Studies (IVM), Vrije Universiteit Amsterdam, Netherlands (Talk given online) **(Invited)**.
- 09/2021 **Bevacqua, E.**, "A compound event perspective on extreme weather events". Next Generation Challenges in Energy Climate modelling 2021 (NextGenEC21), Online workshop **(Invited)**.
- 02/2021 **Bevacqua, E.**, "Projections of changes in meteorological events that drive compound coastal flooding". Virtual Workshop on Compound Flooding organised by the American Society of Civil Engineers **(Invited)**.
- 11/2020 **Bevacqua, E.**, "Projections of the compound flooding potential from coastal processes and cyclone clusters". Colloquium in Climatology, Climate Impact and Remote Sensing. Institute of Geography, University of Bern (Talk given online) **(Invited)**.
- 10/2020 **Bevacqua, E.**, "More meteorological events that drive compound coastal flooding are projected under climate change at most locations worldwide". Risk-KAN Webinars, Knowledge-Action Network on Emergent Risks and Extreme Events, a joint initiative of the Future Earth, IRDR, WCRP and WWRP programs **(Invited)**.
- 09/2020 **Bevacqua, E.**, "Global projections of meteorological drivers of compound coastal flooding". Workshop on "Mid-Latitude Compound Climate Extremes", Uppsala University, Sweden (*held virtually due to Covid*) **(Invited)**.