

Yannick Oswald

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Research areas

Ecological Economics
Complexity Economics
Climate and Sustainability
Social Simulation
Computational Methods

EMPLOYMENT

2024–present	PostDoc, University of Lausanne Climate economics and complexity economics
2022–2023	PostDoc, University of Leeds Agent-based modelling and data assimilation

EDUCATION

2018–2022	PhD, University of Leeds, Ecological Economics Thesis: Inequality, (re)distribution and luxury-taxation of international household energy and carbon footprints <i>Graduated with no corrections and recognition of research excellence</i>
2015–2018	M.Sc., University of Graz, International Sustainable Development Semesters abroad at Utrecht University, NL and TERI University, IN Specialization tracks: Energy, Economics, System science <i>Graduated with distinction</i>
2012–2015	B.A., Karlshochschule, International Energy Management Semester abroad at UPAEP, MX

PUBLICATIONS

Working papers and in progress (selection)

open	Lorenz, J. Engljaehrig, H., Oswald, Y., Zhong, Q. Wealth dynamics, taxation, and inequality misperceptions in an agent-based model. In Review
open	Oswald, Y. Scaling-up democratic ecological planning - insights on challenges and opportunities from data-driven opinion dynamics. In Preparation
open	Oswald, Y. and Mellacher, P. Wealth taxation, Entrepreneurial State and Innovation in an agent-based Schumpeterian model. In Preparation

- open Oswald, Y. and Millward-Hopkins, J. The Carbon Emissions of Global Income Convergence Scenarios. In Review. Working Paper available at <https://serval.unil.ch>
- open Chen, X..., Oswald, Y., & Hubacek, K. A global just transition through carbon taxation and revenue recycling. In Review.

Journal Articles

- 2025 Oswald, Y. (2025). Artificial Utopia: Simulation and artificially intelligent agents for exploring Utopian and democratized futures. *Futures*, 103695. DOI
- 2025 Oswald, Y., Suchak, K., & Malleson, N. (2025). Agent-based models of the United States wealth distribution with Ensemble Kalman Filter. *Journal of Economic Behavior & Organization*, 229, 106820. DOI
- 2024 Asher, M., Oswald, Y., & Malleson, N. (2024). Understanding pedestrian dynamics using machine learning with real-time urban sensors. *Environment and Planning B: Urban Analytics and City Science*. DOI
- 2024 Suchak, K., Kieu, M., Oswald, Y., Ward, J. A., & Malleson, N. (2024). Coupling an agent-based model and an ensemble Kalman filter for real-time crowd modelling. *Royal Society Open Science*, 11(4), 231553. DOI
- 2024 Oswald, Y., Malleson, N., & Suchak, K. (2024). An agent-based model of the 2020 international policy diffusion in response to the COVID-19 pandemic with particle filter. *Journal of Artificial Societies and Social Simulation*, 27(2), Article 3. DOI
- 2023 Oswald, Y., Millward-Hopkins, J., Steinberger, J. K., Owen, A., & Ivanova, D. Luxury-focused carbon taxation improves fairness of climate policy. *One Earth*, 6(7), 884-898. DOI
- 2023 Millward-Hopkins, J., & Oswald, Y. Reducing global inequality to secure human wellbeing and climate safety: a modelling study. *The Lancet Planetary Health*, 7(2), e147-e154. DOI
- 2021 Millward-Hopkins, J., & Oswald, Y. (2021). 'Fair' inequality, consumption and climate mitigation. *Environmental Research Letters*, 16(3), 034007. DOI
- 2021 Oswald, Y., Steinberger, J. K., Ivanova, D., & Millward-Hopkins, J. (2021). Global redistribution of income and household energy footprints: a computational thought experiment. *Global Sustainability*, 4, e4. DOI
- 2020 Millward-Hopkins, J., Steinberger, J. K., Rao, N. D., & Oswald, Y. Providing decent living with minimum energy: A global scenario. *Global Environmental Change*, 65, 102168. DOI
- 2020 Oswald, Y., Owen, A., & Steinberger, J. K. Large inequality in international and intranational energy footprints between income groups and across consumption categories. *Nature Energy*, 5(3), 231-239. DOI

Conference contributions

- 2023 Asher, M., Oswald, Y., & Malleson, N. Predicting Pedestrian Counts using Machine Learning. *AGILE: GIScience Series*, 4, 18 DOI

- 2023 Oswald, Y., & Schmickl, T. Ultimate Ecology: How a socio-economic game can evolve into a resilient ecosystem of agents. In 2017 IEEE Symposium Series on Computational Intelligence (SSCI) (pp. 1-8). IEEE. DOI
- 2015 Elsland, R., Klingler, A. L., Degner, P., Oswald, Y., & Wietschel, M. Are current regionalisation approaches sufficient to decompose electricity demand?-A German case study. In 10th Conference on Energy Economics and Technology (ENERDAY). DOI

Dissertation

- 2022 Oswald, Y. L. Inequality,(re) distribution and luxury-taxation of international household energy and carbon footprints (Doctoral dissertation, University of Leeds). LINK

Book chapters

- 2022 Malerba, D., & Oswald, Y. To Grow or Not to Grow? Revisiting Economic Growth as a Sustainable Development Goal in Light of the Degrowth Debate. In Governing the Interlinkages between the SDGs (pp. 140-157). Routledge. LINK
- 2022 Oswald, Y. France: International Resources for a Sustainable, Inclusive, and Innovative Future? In A Triple Bottom Line Analysis of Global Consumption (pp. 131-139). Jenny Stanford Publishing.

Policy reports

- 2022 Malerba, D., Chen, X., Feng, K., Hubacek, K., & Oswald, Y. The impact of carbon taxation and revenue redistribution on poverty and inequality (No. 11/2022). IDOS Policy Brief. LINK
- 2021 Lorek, S., Gran, C., Lavorel, C., Tomany, S., & Oswald, Y. Equitable 1.5-Degree Lifestyles. IDOS Policy Brief.
- 2020 Nakicenovic, N., Grubler, A., Leininger, J., Zimm, C., Clarke, G., Ebi, K., ... & Oswald, Y. Innovations for Sustainability: Pathways to an efficient and post-pandemic future. LINK

Popular science

- 2021 Oswald, Y. (2021). Why a more equal world would be easier to decarbonize. The Conversation. LINK
- 2020 Oswald, Y. (2020). What do we use energy for? Behind the Paper. Behavioural and social sciences at Nature. LINK
- 2019 Vogel, J., Millward-Hopkins, J., Oswald, Y. (2019). We can't expand airports after declaring a climate emergency – let's shift to low-carbon transport instead. The Conversation. LINK

PhD Supervision

2024– Co-supervision of Suryadepto Nag. Thesis: Labour inequalities and international exchange
Now

M.Sc. Supervision

2023 2× M.Sc. theses in Consumer Analytics and spatial machine-learning models.

Courses and lectures

- 2025 *Ongoing*: Lead for developing new course "Computational modelling for the sustainability sciences", University of Lausanne.
- 2023 Agent-based modelling lecturer in predictive analytics module | Spring 2023. Slides available at https://yannickoswald.github.io/sub_pages/teaching_page/teaching_page.html
- 2021 Predictive analytics | Demonstrating spatial analytics and ABMs.
- 2020 Foundations in mathematics and statistics | Demonstrating basic algebra and statistics
- 2020 Economics and Sustainability | Seminar leader
- 2020 Modelling and Simulation for Ecological Economics | Demonstrator
- 2020 Soft Skills Seminar Series | seminar designed and taught on effective PowerPoint presentations for Graduate Students.
- 2019 Economics and Sustainability | Seminar leader.
- 2019 Modelling and Simulation for Ecological Economics | Demonstrator
- 2018 Spreadsheet models in Ecological Economics | Demonstrator

FUNDING AND FUNDING APPLICATIONS

- 2025 *Awarded* Educational stimulus fund; co-recipient in internal University of Lausanne funding call (FIP) for the development of a course in "Computational Modelling for the Sustainability Sciences" 58'400.- CHF
- 2025 *Rejected* International Collaboration with a Team of British and Indian Researchers on Pre-proposal to Schmidt Sciences
- 2024 *Rejected* ERC Starter Grant application.
- 2018 Full Scholarship for PhD studies at the University of Leeds within the 'Living Well Within Limits' projects funded through the Leverhulme Trust
- 2016 Erasmus Scholarship for studies at the Utrecht University

AWARDS AND RECOGNITION

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| 2022 | Recognition of research excellence in PhD thesis by examiner's board |
| 2020 | Sustainable Innovation Award by the University of Leeds Sustainability Services for activity of the Climate Entrepreneurs Club. I was co-chair of the volunteer committee which received the award. |
| 2020 | Best Postgraduate Researcher Publication Prize by the University of Leeds for Oswald, Y., Owen, A. & Steinberger, J.K. 2020 Nature Energy |
| 2019 | Best poster and presentation award at IIASA-RITE energy demand workshop/conference, including fellowship stipend (€10 000) |

INVITED TALKS

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| 2025 | <i>upcoming 1st of Nov.</i> Lecture on Ecological Economics and Complexity Economics, Rethinking Economics Switzerland |
| 2025 | GenAI Research Retreat 2025, Brussels, on "Artificial Utopia: Simulation and Intelligent Agents for a Democratised Future" |
| 2024 | IIASA Institute, Vienna on "Global convergence of incomes in a climate-constrained world" |
| 2023 | University of Maryland on "Climate policy in a chaotic and dangerous world" (online) |
| 2021 | World Inequality Conference, organized by Paris School of Economics, on "International energy inequality" (online) |
| 2021 | University of Duisburg-Essen for the Research Seminar at Institute for Socio-economics on "International energy inequality and redistribution" (online) |
| 2020 | University of Graz, COLIBRI Initiative, "Inequality of energy consumption for biologists" (online) |

ORGANISATIONAL AND VOLUNTARY WORK

- 2024–
now Co-chair of the Lausanne Ecological Economics Lab (LEEL), a research group within the Geography and Sustainability Institute at the University of Lausanne. Responsibilities include organizing seminars, coordinating regular meetings, and hosting interdisciplinary events.
- 2024–
now Member of the Coffee Team at the Geography and Sustainability Institute, University of Lausanne. Duties involve managing the institute’s coffee supplies and fostering a welcoming environment for colleagues.
- 2019–
2020 Co-chair of the Leeds chapter of the Climate Entrepreneurship Club (2019–2020). This role focused on organizing workshops and training sessions to support staff and students in developing sustainable entrepreneurship initiatives.
- 2014 English teacher for an afternoon community class in Puebla, Mexico, providing instruction to learners over a semester-long term.
- 2013 Social internship in Barranquilla, Colombia, teaching English to elementary school children for six weeks.

REVIEW SERVICES

Nature Energy, Nature Sustainability, French National Research Agency, Ecological Economics, Global Sustainability, Journal of Cleaner Production, Environmental Research Letters, World Development, Journal of Artificial Societies and Social Simulation, Frontiers in Big Data

FURTHER QUALIFICATIONS (A SELECTED FEW)

- 2023 Santa Fe Institute (SFI) Summer School on Complex Systems
- 2021 Santa Fe Institute (SFI) Complexity Interactive (online winter school)

SKILLS

Languages: German (native), English (fluent), Spanish (intermediate), French (basic)

Programming: Python (focus language), Matlab, R (basics), Pascal (basics), L^AT_EX

Tools: Git/GitHub, VScode, Overleaf, Spyder