

JONATHAN SPINONI, PhD (Climate Physics)

PROFILE

Climate scientist with 18 years of experience and 50+ publications on environmental, climate, and atmospheric sciences. Co-author of the UNCCD-COP16 Report and contributing author for the IPCC-AR6 report.

Experienced programmer with large datasets, remote sensing, and multi-source information. Experienced with code writing, data analysis, and visualization.

Motivated to work in small and large groups, trained to work under pressure and respect deadlines. Proactive with problem solving and delivering results to technical and non-technical audience.

Current research: climate extremes (focus on drought), data integration and visualization

RESEARCH SKILLS

Research planning and management, able to lead small projects and coordinate small to medium groups. Highly experienced scientific writer, including science for policy briefs and technical reports for scientific and non-scientific audience.

Experienced in writing research and project proposals, including the search for funds at European level. Currently collaborating with many national and international institutions, including the UNCCD and the IPCC group.

Long-term experience as peer-reviewer, including Nature, Associate editor for a scientific journal and convener for the European Meteorological Society.

Current research on climate and socio-economic scenarios, historical climate extremes and impacts, global population and land-use exposure to natural hazards.

TECHNICAL AND IT

Experienced programmer with large datasets, robust skills in software as R, python, C++ based (including new packages). Able to write codes for large processes in supercomputers and Integrated Assessment Models. Robust experience on spatio-temporal analysis, including remote sensing and geo-statistical applications.. Highly experienced with ArcGis and QGis. Experienced in cartographic analysis, including validation and delineation of areas at risk using multi-layered data source. Basic experience with Google Earth engine.

Flexible and keen on learning new program languages or improving the skills for specific requests. Limited experience – but theoretical knowledge of the methodology - of deep learning, artificial intelligence, and cloud computing.

Experienced with Windows environment. Experienced user of commercial software as the Office and OpenOffice packages. Previous experience with Unix, and Linux environments, able to be back on these environments with short training. Average experience with LaTeX.

LANGUAGE SKILLS

Italian (mother tongue)

English (C2)

French (B2)

CURRENT JOB

Euro-Mediterranean Center on Climate Change (CMCC Foundation)

Institute of Climate Resilience, REMHI Division (Caserta, IT)

Senior Research Administrator (06/2025 – present)

Research on Climate Extremes over Italy, EU projects focusing on NBS (MedIREN, TICC4Danu, SystR, LiquidICE), Data visualization and integration (DataCline platform)

WORK EXPERIENCE

Polytechnic University of Milan

Department of Management, Economics and Industrial Engineering (Milan, IT)

Research Fellow (05/2023 – 05/2025)

Research on deep uncertainties in climate and socio-economic scenarios (ERC EUNICE)

RFF-CMCC – EIEE (Milan, IT)

Affiliated Scientist (06/2023 – 05/2025)

Climate extremes, modelling, and scenarios

UNCCD (Bonn, DE)

Scientific Advisor (Part-time Paid Consultancy; 08/2023 – 08/2024)

Past/future desertification trends and biophysical impacts

European Commission – DG JRC (Ispra, IT)

Researcher (05/2017 – 04/2023)

Global past and projected drought and desertification risk

Data Scientist (Consultant ; GFT Srl Italy ; 01/2015 – 04/2017)

Copernicus EMS and vegetation ecosystems

Post-doc Grant-holder (11/2011 – 10/2014)

Drought in Europe and climate extremes in the Carpathian Region

University of Milan – Physics Department (Milan, IT)

Post-doc Research Fellow (04/2011 – 10/2011)

Solar radiation modelling for Italy

PhD Student (11/2007 – 11/2010)

Historical climate reconstruction for Italy and Central Europe

Junior Research Fellow (05/2007 - 07/2007 and 09/2007-10/2007)

Temperature and precipitation secular records over Italy and the Alps

EDUCATION

University of Milan – Physics Department (Milan, IT)

PhD (Climate Physics) – 11/2007 – 12/2010

Master Degree in Atmospheric Physics – 10/2004 – 04/2007 ; 110/110 with honours

Bachelor Degree in applied Physics 10/2001 – 02/2005 ; 110/110

SELECTED PAPERS
(Scopus H-index: 28;
Scholar H-index: 39)

Vicente-Serrano, S. M., Pricope, N. G., Toreti, A., Morán-Tejeda, E., Spinoni, J., Ocampo-Melgar, A., ... & Alibakhshi, S. (2024). **The United Nations Convention to Combat Desertification report on rising aridity trends globally and associated biological and agricultural implications.** *Global Change Biology*, 2024; 30:e70009. <https://doi.org/10.1111/gcb.70009>

Forzieri, G., ..., Spinoni, J., Somasundaram, D., Feyen, L., & Cescatti, A. (2024). **Ecosystem heterogeneity is key to limiting the increasing climate-driven risks to European forests.** *One Earth*, 2024.

Spinoni J, Barbosa, P, Cherlet M, ..., Dosio A. (2021). **How will the progressive global increase of arid areas affect population and land-use in the 21st century?** *Glob and Plane Change* 205, 103597, 2021.

Spinoni J, Barbosa P, Buccignani E, Cassano J, ..., Zittis G, Dosio A. (2021). **Global exposure of population and land-use to meteorological droughts under different warming levels and SSPs: a CORDEX-based study.** *International Journal of Climatology* 41(15), 6825-6853.

Spinoni J, Barbosa P, ..., & Dosio A. (2020). **Future global meteorological drought hot spots: A study based on CORDEX data.** *Journal of Climate* 33 (9), 3635-3661.

Spinoni J, Barbosa P, ..., Mazzeschi M. (2019). **A new global database of meteorological drought events from 1951 to 2016.** *Journal of Hydrology: Regional Studies* 22, 100593.

Naumann G., ..., Spinoni J, Vogt JV, Feyen, L. (2018). **Global changes in drought conditions under different levels of warming.** *Geophysical Research Letters* 45 (7), 3285-3296.

Spinoni J, Vogt JV, Naumann G, Barbosa P, Dosio A. (2018). **Will drought events become more frequent and severe in Europe?** *International Journal of Climatology* 38 (4), 1718-1736.

Spinoni J, Naumann Gustavo, Vogt JV, Barbosa P. (2015). **European drought climatologies and trends based on a multi-indicator approach.** *Global and Planetary Change* 127, 50-57.

Spinoni J, Szalai S, Szentimrey T, Lakatos M., & Vogt JV. (2015). **Climate of the Carpathian Region in the period 1961–2010: climatologies and trends of 10 variables.** *IJOC* 35 (7), 1322-1341.

FULL LIST

Spinoni J, Naumann G, Carrao H, Barbosa P, Vogt JV. (2013). **World drought frequency, duration, and severity for 1951–2010.** *International Journal of Climatology* 34 (8), 2792-2804.

Google Scholar: <https://scholar.google.com/citations?user=nPKJ8w0AAAAJ&hl=it>

OTHER RELEVANT
PUBLICATIONS

The global threat of drying lands: Regional and global aridity trends and future projections (Co-leading author). UNCCD-SPI Full Report presented at COP16, Riyadh, December 2024.

European State of Climate 2022 (Contributing author) - Copernicus Climate Change Service (C3S). (2023). **European State of the Climate 2022, Full report:** climate.copernicus.eu/ESOTC/2022.

IPCC-AR6 WGI Report (Contributing author) - Seneviratne S, Zhang X, [...]. (2021). **IPCC-AR6 WGI - Chapter 11: Weather and climate extreme events in a changing climate..** In: *Climate Change 2021: ... [Masson-Delmotte V et al. (eds)]. Cambridge University Press, Cambridge, UK and NYw York, NY, USA.*

Erian W, [...], Spinoni J, [...]. (2021). **GAR special report on drought 2021.** *UNDRR Publications, Geneva.*

Feyen L, [...], Spinoni J, [...]. (2020). **Climate change impacts and adaptation in Europe. JRC PESETA IV Final Report.** *Publications Office of the European Union, Luxembourg (LX), JRC119178.*

WAD (3rd edition) (Contributing author) - Cherlet, M., Hutchinson, C., Reynolds, J., Hill, J., Sommer, S., von Maltitz, G. (Eds.). (2018). **World Atlas of Desertification (3rd ed).** *Publication Office of the EU (LUX).*

AWARDS

JRC Excellence Award 2021 (Science for Policy)
IJOC Award 2016 (Best Author)