

Dr. Roger Cremades

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EDUCATION

- 2019 - 2021 *Dataquest Labs, Inc.*
Data Scientists; Data Engineer.
- 2019 *Bruno Kessler Foundation, Italy.*
VI Mediterranean School of Complex Networks.
- 2018 *MIT Media Lab and Data-Pop Alliance, USA.*
Leveraging Big Data for Sustainable Development.
- 2018 *Lake Como School of Advanced Studies, Italy.*
Complex Networks: Theory, Methods, and Applications.
- 2013 - 2016 *Max Planck Institute for Meteorology and Hamburg University, Germany.*
Ph.D. Assessment of policy and climate variability impacts on food, water and energy in the Asian monsoon region under diverse adaptation scenarios.
- 2010 - 2012 *Cranfield University, United Kingdom.*
M.Sc. Economics for Natural Resource and Environmental Management.
- 2011 *Beijing University of Technology (北京工业大学), China.*
Engineering Program for International Students.
- 2007 - 2011 *Polytechnic University of Valencia, Spain.*
B.Sc. Environmental Science.
- 2003 - 2006 *Polytechnic Universities of Catalonia and of Valencia, Spain.*
Certificate of Pedagogic Aptitude, and Technology Teaching Certificate.
- 1995 - 2001 *Polytechnic University of Valencia, Spain*
B.Sc. Forestry Engineering.
- 2000 *University of Padova, Italy.*
Erasmus Scholar. Remote sensing data for vegetation indices.

PROFESSIONAL EXPERIENCE

- 2019 to date *University of Freiburg (Germany).*
Guest Lecturer on Climate Change Economics.
- 2018 to date *Cranfield University (UK).*
Guest Lecturer on Complexity and Global Change.
- 2014 to date *GERICS, Climate Service Center Germany (Helmholtz-Zentrum Geesthacht).*
Leading Principal Investigator since 2017, earlier Research Associate.
- 2013, 2017 *Intergovernmental Panel on Climate Change (IPCC).*
Expert Reviewer: AR6 (FOD), AR5 (SOD) and SR15 (FOD).
- 2013 - 2016 *Hamburg University, Germany.*
Research associate.
- 2012 *University of East Anglia, United Kingdom.*
Research agreements as consultant in ADMIT project.
- 2011 *Centre for Chinese Agricultural Policy, Chinese Academy of Sciences, China.*
Visiting Researcher.
- 2008 - 2012 *Independent professional activity, Valencia, Spain.*
Urban Sustainability Consultant (Agenda 21).
- 2004 - 2010 *Governments of Valencia and Catalonia, Spain.*
High School Teacher in Education Department.
- 2003 - 2004 *Municipality of Gandia, Valencia, Spain.*
Urban Sustainability Trainee (Agenda 21).
- 2002 *CADMAX, Madrid, Spain.*
Geographic Information Systems Engineer.
- 1998 - 2001 *Herbarium of Gandia, Polytechnic University of Valencia.*
Plant Collector and Teaching Assistant.

TEN SELECTED ARTICLES IN SCIENTIFIC JOURNALS (2015-2020)

[Impact factor >4 marked with *, and >8 with **; h-index (June 2020): scopus, 7; google, 9]

- **Otto, I., Donges, J., **Cremades, R.**, et al. (2020). Social tipping dynamics for stabilizing Earth's climate by 2050. *PNAS*, 117(5), 2354-2365. <https://doi.org/10.1073/pnas.1900577117>.
- *Otto, I. M., Wiedermann, M., **Cremades, R.**, et al. (2020). Human agency in the Anthropocene. *Ecological Economics*, 167, 106463. <https://doi.org/10.1016/j.ecolecon.2019.106463>.
- ***Cremades, R.**, Mitter, H., Tudose, N. C., Sanchez-Plaza, A., Graves, A., ... & Cheval, S. (2019). Ten principles to integrate the water-energy-land nexus with climate services. *Science of The Total Environment*, 133662. <https://doi.org/10.1016/j.scitotenv.2019.133662>.
- ***Cremades, R.** & Sommer, P. (2019). Computing Climate-Smart Urban Land Use with the Integrated Urban Complexity Model (IUCm 1.0). *Geosci. Model Dev.*, 12, 525-539. <https://doi.org/10.5194/gmd-2018-89>.
- ****Cremades, R.**, Surminski, S., Mániz Costa, M., Hudson, P., Shrivastava, P. & Gascoigne, J. (2018). Using the adaptive cycle in climate-risk insurance to design resilient futures. *Nature Climate Change* 8, 4–7. <https://doi.org/10.1038/s41558-017-0044-2>.
- *Carmona, M., Mániz Costa M., Andreu, J., Pulido-Velazquez, M., (...) & **Cremades, R.** (2017). Assessing the effectiveness of Multi-Sector Partnerships to manage droughts: The case of the Jucar river basin. *Earth's Future* 5(7), 750–770. <https://doi.org/10.1002/2017EF000545>.
- ***Cremades, R.**, Rothausen, S., Conway, D., Zou, X., Wang, J. & Li, Y. (2016). Co-Benefits and Trade-Offs in the Water-Energy Nexus of Irrigation in China. *Environmental Research Letters* 11(5). <https://doi.org/10.1088/1748-9326/11/5/054007>.
- *Li, X. Philp, J., **Cremades, R.**, Roberts, A., He, L., Li, L. & Yu, Q. (2016). Agricultural vulnerability over the Chinese Loess Plateau in response to climate change: Exposure, sensitivity, and adaptive capacity. *Ambio* 45(3), 350-360. <https://doi.org/10.1007/s13280-015-0727-8>.
- **Hasselmann, K., **Cremades, R.**, Filatova, T., Hewitt, R., Jaeger, C., Kovalevsky, D., Voinov & A., Winder, N. (2015). Free-riders to forerunners. *Nature Geoscience* 8, 895–898. <https://doi.org/10.1038/ngeo2593>.
- ***Cremades, R.**, Wang, J. & Morris, J. (2015). Policies, Economic incentives and the adoption of modern irrigation technology in China. *Earth System Dynamics* 6(2), 399-410. <https://doi.org/10.5194/esd-6-399-2015>.

SELECTED EDITED BOOKS, BOOKS AND BOOK CHAPTERS

- Yamagata, Y., (...) **Cremades, R.**, & Neumann, D. (2020). Case studies toward smart communities. In *Urban Systems Design* (pp. 257-288). Elsevier.
- Froelich, C., Gioli, G., **Cremades, R.** & Myrntinen, H. (Eds.). (2017). *Water security across the gender divide*. New York: Springer.

HONOURS, PRIZES AND FUNDING

- 2019 German Sustainability Committee, support for workshop: **€15,000**.
- 2017 **Seal of Excellence** Marie Skłodowska-Curie (European Commission).
- 2017 JPI Climate ERA4CS, Leading Principal Investigator of the CLISWELN project: €550,688 of funds managed at GERICS, entire project over **€1,000,000**.
- 2013 Centre for a Sustainable University (Hamburg U.), project support grant: **€5,000**.
- 2013 Max Planck Institute for Meteorology, Doctoral Stipend: **€45,840**.
- 2011 Polytechnic University of Valencia, B.Sc. **thesis honoured with a special mention**.
- 2011 Polytechnic University of Valencia, PROMOE Programme: **€5,000**.
- 2010 - 2012 Polytechnic University of Valencia, Cranfield MSc fees (est. **€10,690**) plus €2,800.
- 2005 CEIC “Alfons el Vell”, Municipal Research Grant: **€1,500**.
- 2000 European Union, Erasmus Scholar: **€2,500**.

SELECTED SCIENTIFIC OUTREACH IN CONFERENCES AND WORKSHOPS

2020: *GCP (Future Earth) seminar* at University of Tokyo; talk at CLIMALERT (UFZ, Germany). **2019:** two talks at CCS 2019 (Singapore); **organiser of session** “The Water-Energy-Land Nexus Under Climate Change”, *ECCA 2019* (Portugal). **2018:** **organiser of session** “The Climate-Water-Energy-Land-Food Nexus”, *Adaptation Futures 2018* (South Africa). **2016:** **panel discussion** “Socio-economic & biophysical dynamics of the humanity-nature nexus”, *Future Earth & SDSN Foresight Workshop* (Italy). **2013:** **chaired** "Agriculture II: Ecosystems and Water" at *BIOECON* (UK).

LEADERSHIP AND SUPERVISORY RESPONSIBILITIES

Co-chair of Development Team at Future Earth’s Finance & Economics KAN: Setting goals and organizing activities. **Leading PI at GERICS:** setting deadlines and goals for excellence compliant with institutional vision, organizing and overseeing workflow and ensuring that team members understand duties and delegated tasks, providing constructive feedback, coaching and training, coordinating proposals and funded projects. **Expert reviewer:** reviewer activities for funding agencies (DFG), reports for international bodies (IPCC), and article reviews for multiple journals (>20). **Visiting lecturer at several universities:** co-supervising PhD students, MSc students and trainees.

ECONOMIC MODELLING, MATHEMATICAL AND COMPUTING SKILLS

Models: spatially-explicit, optimization, agent-based, networks, cellular automata, system dynamics, water-energy-land nexus, statistical and econometric, cost-efficiency, partial equilibrium, integrated assessment. **Languages:** Proficient in Python, NetLogo, R, and GAMS; user knowledge of SQL, Stata ado, Julia, Java and Fortran. **Software:** IUCm (iucm.readthedocs.io); urban nexus model (*in preparation*).

SELECTED NETWORKS AND MEMBERSHIPS OF SCIENTIFIC SOCIETIES

Since 2020 Member, **International Association for the Study of the Commons**.
Since 2018 **Complex Systems Society**, elected Council member 2019-2022.
Since 2017 *Future Earth*. **Finance & Economics KAN**, Co-chair of Development Team 2020-22.
Since 2015 *The Earth League*. **Earth-Doc programme until 2019 and Alumni afterwards**.
Since 2013 Member, **European Association of Environmental and Resource Economists**.

ACADEMIC AND COMMUNITY SERVICES

Co-founder of Scientific Writing Group at the Hamburger “*Klimacampus*” (2014). Capacity building across world regions: China, India, Nicaragua. Student representative at the IMPRS-ESM Graduate School (2013-2014). Dissemination of urban sustainability issues in newspapers and advice to environmental NGOs (2005-2009).

LANGUAGES OTHER THAN ENGLISH (FLUENT)

Catalan and Spanish: fluent. **German and Italian:** intermediate level.
Chinese (普通话): official test HSK 2 passed (basic/intermediate).

PERSONAL INTERESTS

Mountaineering (6,000 m). Birdwatching. Surfing. Diving (-30 m). Emergent patterns.