

Curriculum Vitae – Valerio Lucarini

Name	Date and Place of birth	Nationality
Valerio Lucarini	11/08/1976, Ancona, Italy	Italian

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Institutional Address

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Primary Affiliation

Department of Mathematics & Statistics, University of Reading, Reading, UK

Other Affiliations

Walker Institute, University of Reading, Reading, UK

CEN – Center for Earth System Research and Sustainability, Institute of Meteorology, University of Hamburg, Germany

Center for Environmental Policy, Imperial College London, UK

Academic Education

2003 PhD, Physics, University of Joensuu (now University of Eastern Finland), Joensuu, Finland

2002 MSc, Climate Physics & Chemistry, Massachusetts Institute of Technology, Cambridge, USA

1999 Diploma, Physics, Scuola Normale Superiore, Pisa, Italy

1999 BSc, Physics, University of Pisa, Pisa, Italy

Recent Professional Employment

2017– Professor of Statistical Mechanics & Director, Centre for the Mathematics of Planet Earth, University of Reading, UK

2011–2016 W3-Professor of Theoretical Meteorology & Vice-Director of the Meteorological Institute, University of Hamburg, DE

2009-2011 Lecturer in Mathematics and Meteorology, University of Reading, UK

2007-2009 Assistant Professor in Earth System Physics, University of Bologna, IT

Recent Teaching Activity

2017-: Statistical Mechanics, Uni. Reading

2016-: Dynamical Systems, Graduate School MPECDT, Imperial College/Uni. Reading

2012-2016: Theoretical Meteorology, BSc, MSc level, Uni. Hamburg

2009-2011: Dynamical Meteorology; BSc, MSc level, Uni. Reading

2009-2011: Topics in Applied Mathematics, BSc level, Uni. Reading

2007-2009: Physics of Climate, BSc, MSc level, Uni. Bologna

2007-2009: Advanced Geophysical Fluid Dynamics, Graduate School CMCC-Ca' Foscari, Venice

Selected Honours

2020 L F Richardson Medal, European Geosciences Union

<https://www.egu.eu/awards-medals/lewis-fry-richardson/2020/valerio-lucarini/>

2019 Gold Medal (Ciriachino d'oro), City of Ancona

<https://www.vivereancona.it/2019/04/30/decise-le-benemerenze-i-ciriachini-doro-a-antonio-centomani-pietro-leoni-e-valerio-lucarini/728058/> (in Italian)

2018 Whitehead Prize, London Mathematical Society

<https://www.lms.ac.uk/news-entry/29062018-1745/2018-lms-prize-winners>

2018 Von Humboldt Connect Fellowship

2017 Top Highlight Paper for the journal Nonlinearity

<https://iopscience.iop.org/journal/0951-7715/page/Highlights-of-2017>

2016 Best Contribution, Frontiers of Nonlinear Physics, Russian Academy of Sciences
2010 Outstanding Young Scientist (now Arne Richter) Award, European Geosciences Union
<https://www.egu.eu/awards-medals/arne-richter/2010/valerio-lucarini/>
2006 Volta Prize, A. Volta Foundation, Como
2003 Best Contribution in Condensed Matter Physics, Conference of the Italian Physical Society.
2001 Global Change Fellowship, American Meteorological Society.
2000 Charney prize, Department of Earth, Atmospheric, and Planetary Science, MIT.
2000 Italian Physical Society Award for Best Young Scientist

Selected Funding

2019-2021 Co-PI (one of 3) EPSRC project Applied Nonautonomous Dynamical Systems (300 k£)
2019-2023 Co-PI (one of 16) EU Horizon2020 Project TiPES (8 M€)
2017-2019 PI (individual grant) Royal Society/RFBR UK-Russia Bilateral Grant (30 k£)
2016-2019 Co-PI (one of 4), Belmont Forum Project BITMAP (1.4 M€)
2015-2019 Co-PI (one of 40), EU Horizon2020 Project Blue Action (8 M€)
2016-2020 Co-PI (one of 25), SFB/Transregio DFG Energy Transfers in Atmos. & Ocean (10 M€)
2015-2019 Co-PI, one of 25) EU Horizon2020 Project CRESCENDO (13 M€)
2015-2018 PI of the DFG Project MERCI (150 K€)
2015-2018 Co-PI, (one of 4) Climate-KIC project WINNERS (2.0 M€)
2015-2019 Co-PI (one of 3) DWD Ertel Center on Atmospheric Convection ARCS (900 k€)
2015-2018 PI (sole beneficiary) FP7 Marie Curie project SPARCS (280 k€)
2012-2017 Co-PI (one of 25) of the German DFG Cluster of Excellence CLISAP2 (33M€)
2012-2015: Co-PI BMBF project CLASH, 90 K€
2012-2015: Co-PI BMBF project CARBIOCIAL, 90 K€
2010-2015 PI for ERC Starting Investigator Award, FP7-ERC Grant NAMASTE (1.4 M€)
2006-2007 PI (one of 11) of the EU INTERREG IIIB project HYDROCARE (2.5 M€)

Main Scientific Achievements

- New rigorous physical and mathematical interpretation of climatic tipping points using thermodynamics, statistical mechanics, and the theory of edge states;
- Theoretical contributions to response theory for non-equilibrium systems and application to climate change and climate variability;
- Interpretation of atmospheric instabilities and blockings through the formalism of covariant Lyapunov vectors, Lyapunov exponents, and Unstable Periodic Orbits;
- New statistical mechanics-based general strategy for parametrization of multiscale systems;
- New theory of extreme value laws for deterministic and stochastic dynamical systems and applications in geosciences;
- Theory of nonequilibrium thermodynamics of climate & planetary atmospheres; definition of efficiency and entropy production;
- Evaluation of performance of global climate models in the Himalayan region;
- Definition of equivalent nonequilibrium statistical mechanical ensembles;
- New dispersion relations and sum rules for nonlinear optics;

Dissemination Activities

- 123 peer reviewed publications, 2 books, 8 book chapters; >50 1st author, incl. 12 sole author
- h-index 38 with >4300 citations (google scholar).
- Review papers: Reviews Modern Physics, Reviews of Geophysics, Bulletin American Meteorological Society, Atmospheric Research, Rivista del Nuovo Cimento, Current Climate Change Reports, Communications in Computational Physics, WIRES Climate Change, Symmetry
- Edited special issues for Tellus; Earth System Dynamics; Chaos, Solitons & Fractals; J. Statistical Physics
- In Preparation: book "Statistical Mechanics of Climate" (CUP).
- >70 invited seminars: e.g.: Uni. Oxford, Uni. Cambridge, Uni. Aberdeen, Uni. Exeter, Imperial College, Uni. Edinburgh, Heriot-Watt Uni, QMUL, Uni. Loughborough, Uni. Utrecht, Uni. Amsterdam, Uni. La Sapienza, Uni. Tor Vergata, Uni. Firenze, Uni. Torino, Uni. Trento, Uni.

Genova, SNS, SISSA, Lomonosov Uni., Russian Hydrometeo. State Uni., ENS-Lyon, ENS-Paris, MIT, Rutgers, Uni. Washington, ETH, Uni. Bern, Eötvös Uni., Uni. Wien, Uni. Frankfurt, Uni Bonn, Uni Mainz, Uni. Marburg, Frei Uni. Berlin, NTU, JNU, Delhi Uni, IIT-Delhi, NYU-Abu Dhabi, CEA, CNRS, CNR, ECMWF, CMCC, RMI, WMO, CNRS, GFDL, Institute of Numerical Mathematics – Rus. Academy Sci., Institute of Applied Physics– Rus. Academy Sci., Institute Atmos. Sci – Chinese Academy Sci., IITM-Pune, NORDITA, ICIMOD, Lorentz Centre, I. Newton Institute, PIK-Potsdam, ZiF-Bielefeld, CLISAP, MPI Complex Systems, Institut Poincaré, Centre Physique Theorique-Marseille, Banff Research Station, ICTP

- Organizer/co-organizers of >60 international conferences/workshops/sessions.

Scientific Visits/Residencies

École Normale Supérieure (Paris, FR), CNR (Bologna, IT); Institute of Numerical Mathematics – Rus. Ac.. Sci. (Moscow, RU); Indian Institute of Technology - Delhi (Delhi, IN); Indian Institute of Tropical Meteorology (Pune, IN); Eötvös University (Budapest, HU); Institute Atmos. Sci– Chinese Ac. Sci. (Beijing, PRC); NORDITA (Stockholm, SE); Russian Hydrometeo. State Uni. (St. Petersburg, RU); ICIMOD (Kathmandu, NP); NORDITA (Stockholm, SE); Lorentz Centre (Leiden, NL), I. Newton Institute (Cambridge, UK), PIK (Potsdam, DE), ZiF (Bielefeld, DE) MPI Complex Systems (Dresden, DE), Institut Poincaré (Paris, FR), Centre Physique Theorique (Marseille, FR), CLISAP (Hamburg, DE), Banff Research Station (Banff, CA), ICTP (Trieste, IT)

Supervisions and Co-supervisions

2005- 10 PostDoc scientists; 10 Ph.D. students, 15 Research BSc and MSc students

2011- Grad. Schools Board: IMPRS (Hamburg); MPECDT (London/Reading); CRITICS (EU ITN)

Former graduate students have been awarded the European Space Agency Young Graduate Trainee Fellowship (A. Nikolaou), the European Geosciences Union (EGU) Early Career Researcher Award (D. Faranda), and the American Geophysical Union (AGU) Turcotte award (M. Galfi).

Former PostDocs have been awarded NOAA Fellowship (S. Pascale), Marie Curie and Axa Fellowships (J. Wouters), IBS Busan Young Scientist Fellowship (T. Bodai)

Selected community services

2019 - Editor, section nonlinear processes in geosciences, Springer book series “Physics of Earth and Space Environments”

2017 - Editor, section Weather, Climate, Oceans, Springerbriefs book series “Mathematics of Planet Earth”

2017- Leader for the subdivision of Mathematics of Planet Earth, EGU

2013: London Mathematical Society representative for Mathematics of Planet Earth Programme

2010- Editorial Board: Nonlinear Processes in Geophysics; Mathematics of Climate and Weather Forecasting; European Physical Journal Plus, Earth System Dynamics (Since 2013: Chief Editor).

2005- Research Committees & PhD panels in >10 countries on physics, mathematics, & geosciences

2001- Reviewer for many peer-reviewed journals & >10 book ideas in physics, mathematics, geosciences, and interdisciplinary sciences

Fellow: Royal Meteorological Society, Institute of Mathematics and Applications.

Member: Society for Industrial and Applied Mathematics London Mathematical Society, European Geosciences Union, American Geophysical Union, American Physical Society, Italian Physical Society, Institute of Physics

Selection of recently/forthcoming organised events

2020 SIAM-MPE Minisymposium Climate Variability and Change – A Mathematical Perspective, Orange County, USA

CIMPA Summer School on Mathematics of Climate Science, Kigali, RW

2019 LMS/IMA Joint Meeting, University of Reading, UK

Programme, The mathematics of climate and environment, I. Poincaré, Paris, FR

School, Physics & Mathematics of Turbulent Flows at Different Scales, Les Houches, FR

Short Course at the Annual Assembly of the European Geosciences Union, Vienna, AT

2018 IUTAM Workshop Stochastic Approaches to Transitions in Fluid Flows, Ithaca, USA

- Workshop on Nonequilibrium systems in Physics, Geosciences, & Life sciences, ICTP, Trieste, IT
 CliMathNet Conference, Reading, UK
 32nd IUGG Conference on Mathematical Geophysics, Nizhny Novgorod, RU
 Royal Society Workshop, Frontiers of Science, Dorking, UK
 Short Course at the Annual Assembly of the European Geosciences Union, Vienna, AT
 2017 School of Physics Diversity of planetary circulation regimes, in our Solar system and beyond, Les Houches, FR
 CliMathNet Conference, Reading, UK
 2016 DAMES Conference, Hamburg, DE
 Short Course at the Annual Assembly of the European Geosciences Union, Vienna, AT
 2015 Summer School, Statistical and mathematical tools for climate extremes, Cargese, FR
 Session at German Mathematical Society 2015 Assembly, Hamburg, DE
 Session at Dynamic Days 2015, Exeter, UK
 2014 DE/RU Workshop, Instabilities & Fluctuations in Geophysical Flows, Hamburg, DE.
 Workshop, Mathematics for the Fluid Earth, London Mathematical Society, London, UK.
 2013 Scientific Programme, Mathematics of Fluid Earth, I. Newton Institute, Cambridge, UK
 Conference, Statistical Mechanics & Theory of Extremes in Earth Science, Reading, UK

Selection of Recent Invited Presentations at Workshops and Conferences

- 2021 Workshop Linear Response: Rigorous Results and Applications, Geneva, CH (forth.)
 2020 Phase space analysis in complex system, Dresden, DE (forth.) (keynote)
 SIAM Uncertainty Quantification Conference, Munich, DE (forth.)
 ICTAM 2020, Milan, IT (forth.) (keynote)
 EGU 2020 – L.F. Richardson Medal Lecture, Vienna, AT (forth.) (keynote)
 Mathematical validation of climate studies, Pisa, IT (forth.) (keynote)
 Critical Transitions in Complex Systems, Shanghai, PRC (forth.)
 2019 Dynamical Systems and Beyond, University of Pisa, Pisa, IT (keynote)
 Dynamical Systems and Thermodynamic Formalism, CIRM, Marseille, FR (keynote)
 2018 Dynamics Days 2018, Loughborough, UK
 European Geosciences Union, Vienna, AT
 Barbican Art Centre, London, UK
 2017 Statistical Mechanics Conference, Rutgers University, New Brunswick, USA (keynote)
 Workshop, Transport in Unsteady Flow, Banff International Research Station, CA
 Advanced School on Climate Extremes, TERI University, New Delhi, IN (keynote)
 Workshop Random Dynamical Systems, Lorenz Center, Leiden, NL (keynote)
 WMO Workshop, Geneva, CH
 2016 American Physical Society March Meeting, Baltimore, USA
 Workshop “Multistability and Tipping”, MPI-Complex Systems, Dresden, DE (keynote)
 Chaos Conference, London, UK (keynote)
 American Institute of Mathematical Sciences Meeting, Orlando, USA
 Solvay Institute, Nonequilibrium & nonlinearity in statistical mechanics, Bruxelles, BE
 Workshop, Thermodynamic analysis for atmospheric and oceanic flows, Abu Dhabi, UAE
 2015 Statistical Mechanics Conference, Rutgers University, New Brunswick, USA (keynote)
 International Conference for Marchuk’s 90th Birthday, Moscow, RU (keynote)
 Theoretical Advances in Planetary Flows & Climate, Les Houches, FR (keynote)
 Workshop “Mathematical approaches to climate sensitivity, Utrecht, NL (keynote)
 Spanish Conference of Statistical Physics, Badajoz, ES (keynote)
 2014 International Symposium Topical Problems of Nonlinear Wave Physics, N. Novgorod, RU (keynote)
 Workshop, Theory of Climate, Lorenz Center, MIT, Boston, USA (keynote)
 German Physical Society Advanced School, Bonn, DE (keynote)
 German Astronomical Society Annual Conference, Hamburg, DE (keynote)
 Italian Physical Society Annual Meeting, Pisa, IT (keynote)
 2013 IMA Mathematics 2013, London, UK (keynote)
 ICMS Workshop, Edinburgh, UK (keynote)
 AGU Meeting of the Americas, Cancun, MX

PUBLICATIONS

Preprints

- a) V. Lembo, **V. Lucarini**, F. Ragone, Beyond Forcing Scenarios: Predicting Climate Change through Response Operators in a Coupled General Circulation Model, arXiv:1912.03996 submitted to Scientific Reports (2019)
- b) V. Eyring,, ..., **V. Lucarini**, ..., ESMValTool v2.0 – Extended set of large-scale diagnostics for quasi-operational and comprehensive evaluation of Earth system models in CMIP, Geosci. Model Dev. Discuss. in review (2019)

Books

- I. **V. Lucarini**, D. Faranda, A. Freitas, J. Freitas, M. Holland, T. Kuna, M. Nicol, M. Todd, S. Vaienti, Extremes and Recurrence in Dynamical Systems, Wiley, 2016
- II. **V. Lucarini**, J. Saarinen, K-E. Peiponen, E. Vartiainen, Kramers-Kronig relations in Optical Materials Research, Springer, 2005.

Publications in Peer-reviewed Journals

2020

1. **V. Lucarini**, T. Bodai, Global Stability Properties of the Climate: Melancholia States, Invariant Measures, and Phase Transitions, Nonlinearity, accepted (2020)
2. M. Ghil, **V. Lucarini**, The Physics of Climate Variability and Climate, Rev. Modern Physics, accepted (2020)
3. T. Bodai, **V. Lucarini**, F. Lunkeit, Can We Use Linear Response Theory to Assess Geoengineering Strategies?, Chaos 30, 023124 (2020)
4. M. Santos Gutierrez, **V. Lucarini**, Response and Sensitivity Using Markov Chains, J. Stat. Phys. <https://doi.org/10.1007/s10955-020-02504-4> (2020).

2019

5. **V. Lucarini**, Stochastic resonance for nonequilibrium systems, Phys. Rev. E 100, 062124 (2019)
6. T. Bódai, G. Drótos, M. Herein, F. Lunkeit, and **V. Lucarini**, The forced response of the El Niño–Southern Oscillation-Indian monsoon teleconnection in ensembles of Earth System Models J. Climate, doi: 10.1175/JCLI-D-19-0341.1 (2019)
7. **V. Lucarini**, T. Bodai, Transitions across Melancholia States in a Climate Model: Reconciling the Deterministic and Stochastic Points of View, Phys. Rev. Lett. 122,158701 (2019) **[Editor’s suggestion; featured in Physics]**
8. G. Hu, T. Bodai, **V. Lucarini**, Effects of Stochastic Parametrization on Extreme Value Statistics, Chaos **29**, 083102 (2019) **[Editor’s Choice; featured in Scilight]**
9. P. Ruti, ..., **V. Lucarini**, ..., Advancing Research for Seamless Earth System Prediction. Bull. Amer. Meteor. Soc, doi: 10.1175/BAMS-D-17-0302.1 (2019)
10. V. Galfi, **V. Lucarini**, J. Wouters, A Large Deviation Theory-based Analysis of Heat Waves and Cold Spells in a Simplified Model of the General Circulation of the Atmosphere, J. Stat. Mech. 033404 doi: 10.1088/1742-5468/ab02e8 (2019)
11. **V. Lucarini**, A Gritsun, A New Mathematical Framework for Atmospheric Blocking Events, Climate Dynamics, doi: 10.1007/s00382-019-05018-2 (2019)
12. V. Lembo, F. Lunkeit, **V. Lucarini**, TheDiaTo (1.0) - A new diagnostic tool for water, energy and entropy budgets in climate models, Geosci. Model Dev. doi:10.5194/gmd-12-3805-2019
13. M. Carlu, F. Ginelli, **V. Lucarini**, A. Politi, A.: Lyapunov analysis of multiscale dynamics: the slow bundle of the two-scale Lorenz 96 model, Nonlin. Proc. Geophys. 26, 73-89 (2019)
14. V. Lembo, G. Messori, R. Graversen, **V. Lucarini**, Spectral decomposition and extremes of atmospheric meridional energy transport in the Northern Hemisphere midlatitudes, Geophys. Res. Lett. 46, 7602–7613 (2019)
15. R. Boschi, **V. Lucarini**, Water Pathways for the Hindu-Kush-Himalaya and an Analysis of Three Flood Events. Atmosphere 10, 489 (2019)
16. I. Gómez-Leal, L. Kaltenegger, **V. Lucarini**, F. Lunkeit, Climate sensitivity to ozone and its

relevance on the habitability of Earth-like planets, *Icarus* 321, 608-618 (2019)

2018

17. **V. Lucarini**, Revising and Extending the Linear Response Theory for Statistical Mechanical Systems: Evaluating Observables as Predictors and Predictands, *J. Stat. Phys.* 173, 1698–1721 (2018)
18. I. Gómez-Leal, L. Kaltenecker, **V. Lucarini**, and F. Lunkeit, Climate Sensitivity to Carbon Dioxide and the Moist Greenhouse Threshold of Earth-like Planets under an Increasing Solar Forcing, *The Astrophysical Journal* 869, 129 (2018)
19. L. De Cruz, S. Schubert, J. Demaeyer, **V. Lucarini**, and S. Vannitsem, Exploring the Lyapunov instability properties of high-dimensional atmospheric and climate models, *Nonlin. Proc. Geo.* 25, 387-412, (2018)
20. L. Biferale, M. Cencini, M. De Pietro, G. Gallavotti, **V. Lucarini**, Equivalence of Non-Equilibrium Ensembles in Turbulence Models, *Phys. Rev. E* 98, 012202 (2018)
21. G. Vissio, **V. Lucarini**, Evaluating a stochastic parametrization for a fast–slow system using the Wasserstein distance, *Nonlin. Processes Geophys.*, 25, 413-427, (2018)
22. A. Tantet, **V. Lucarini**, H. A. Dijkstra, F. Lunkeit, Crisis of the chaotic attractor of a climate model: a transfer operator approach, *Nonlinearity* 31 2221 (2018)
23. A. Tantet, **V. Lucarini**, H. A. Dijkstra, Resonances in a Chaotic Attractor Crisis of the Lorenz Flow, *J Stat Phys* (2018) 170: 584 (2018)

2017

24. **V. Lucarini**, T. Bodai, Edge States in the Climate System: Exploring Global Instabilities and Critical Transitions, *Nonlinearity* 30, R32 (2017) **[Top Highlight paper for Nonlinearity]**
25. **V. Lucarini**, F. Lunkeit, F. Ragone, Predicting Climate Change Using Response Theory: Global Averages and Spatial Patterns, *J. Stat. Phys.* 166, 1036 (2017)
26. **V. Lucarini** J. Wouters, Response formulae for n-point correlations in statistical mechanical systems and application to a problem of coarse graining, *J. Phys. A* 50 355003 (2017)
27. V. M. Gálfi, T. Bódai, **V. Lucarini**, Convergence of Extreme Value Statistics in a Two-Layer Quasi-Geostrophic Atmospheric Model, *Complexity*, doi:10.1155/2017/5340858 (2017)
28. G. Vissio, and **V. Lucarini**, A proof of concept for scale-adaptive parametrizations: the case of the Lorenz '96 model, *Q. J. Royal Met. Soci.* 144, 63-75 (2017)
29. A. Gritsun, **V. Lucarini**, Fluctuations, Response, and Resonances in a Simple Atmospheric Model, *Physica D* 349, 62 (2017)
30. V. Baladi, T. Kuna, **V. Lucarini**, Linear and fractional response for the SRB measure of smooth hyperbolic attractors and discontinuous observables, *Nonlinearity* 30 1204 (2017) – Corrigendum: *Nonlinearity* 30 C4 (2017)
31. S. Hasson, J. Böhner, **V. Lucarini**, Prevailing climatic trends and runoff response from Hindukush–Karakoram–Himalaya, upper Indus Basin, *Earth Syst. Dynam.*, 8, 337–355 (2017)
32. M. Zahid, R., Blender, **V. Lucarini**, M. C. Bramati, Return levels of temperature extremes in southern Pakistan, *Earth Syst. Dynam.*, 8, 1263–1278 (2017)
33. J. Berner, ..., **V. Lucarini**, ..., Stochastic parameterization toward a new view of weather and climate models, *Bulletin of the American Meteorological Society* 98 565-587 (2017)

2016

34. S. Vannitsem, **V. Lucarini**, Statistical and dynamical properties of covariant Lyapunov vectors in a coupled atmosphere-ocean model—multiscale effects, geometric degeneracy, and error dynamics. *J. Phys. A* 49 224001 (2016)
35. F. Ragone, **V. Lucarini**, F. Lunkeit, A new framework for climate sensitivity and prediction: a modelling perspective. *Clim. Dyn.* 46, 1459–1471 (2016)
36. S. Pascale, **V. Lucarini**, X. Feng, A. Porporato, S. ul Hasson, Projected changes of rainfall seasonality and dry spells in a high greenhouse gas emissions scenario, *Climate Dynamics* 46, 1331-1350 (2016)
37. S. Hasson, **V. Lucarini**, S. Pascale, J. Böhner, Seasonal cycle of precipitation over major river basins in South and Southeast Asia: A review of the CMIP5 climate models data for present climate and future climate projections, *Atmospheric Research* 180, 42-63 (2016)

38. J. Wouters, S. I. Dolaptchiev, **V. Lucarini**, U. Achatz, Parameterization of stochastic multiscale triads, *Nonlin. Processes Geophys.*, 23, 435–445 (2016)
39. S. Schubert, **V. Lucarini**, Dynamical analysis of blocking events: spatial and temporal fluctuations of covariant Lyapunov vectors. *Q.J.R. Meteorol. Soc.* 142: 2143 (2016)
40. A.S. von der Heydt, ..., **V. Lucarini**, ..., Lessons on Climate Sensitivity From Past Climate Changes, *Curr. Clim. Change Rep.* 2: 148 (2016)

2011-2015

41. **V. Lucarini**, Response Operators for Markov Processes in a Finite State Space: Radius of Convergence and Link to the Response Theory for Axiom A Systems, *J. Stat. Phys.* 162 312 (2015)
42. M. Linsenmeier, S. Pascale, **V. Lucarini**, Climate of Earth-like planets with high obliquity and eccentric orbits: Implications for habitability conditions, *Planetary and Space Science* 105, 43-59 (2015)
43. M. A. Knietzsch, A. Schröder, **V. Lucarini**, F. Lunkeit, The impact of oceanic heat transport on the atmospheric circulation, *Earth Syst. Dynam.*, 6, 591–615 (2015)
44. T. Bodai, **V. Lucarini**, F. Lunkeit, R. Boschi, Global instability in the Ghil-Sellers model, *Climate Dynamics* 44, 3361-3381 (2015)
45. S. Pascale, **V. Lucarini**, X. Feng, A. Porporato, S. ul Hasson, Analysis of rainfall seasonality from observations and climate models, *Climate Dynamics* 44, 3281-3301 (2015)
46. C. L. E. Franzke, T. J. O'Kane, J. Berner, P. D. Williams, **V. Lucarini**, Stochastic climate theory and modeling WIREs Climate Change <https://doi.org/10.1002/wcc.318> (2015)
47. S. Schubert, **V. Lucarini**, Covariant Lyapunov Vectors of a Quasi-geostrophic Baroclinic Model: Analysis of Instabilities and Feedbacks, *Q. J. R. Met. Soc.* (2015)
48. **V. Lucarini**, D. Faranda, D., T. Kuna, J. Wouters, Towards a General Theory of Extremes for Observables of Chaotic Dynamical Systems, *J Stat. Phys.* 154, 723 (2014)
49. **V. Lucarini**, R. Blender, C. Herbert, S. Pascale, F. Ragone, and J. Wouters, Mathematical and Physical Ideas for Climate Science, *Rev. Geophys.* 50, 809 (2014)
50. G. Gallavotti, **V. Lucarini**, Equivalence of Non-equilibrium Ensembles and Representation of Friction in Turbulent Flows: The Lorenz 96 Model, *J Stat. Phys* 156, 1027-1065 (2014)
51. D. Faranda, **V. Lucarini**, P. Manneville, J. Wouters, On using extreme values to detect global stability thresholds in multi-stable systems: The case of transitional plane Couette flow. *Ch. Sol. & Fr.* 64, 26 (2014)
52. Seasonality of the hydrological cycle in major South and Southeast Asian river basins as simulated by PCMDI/CMIP3 experiments, *Earth Syst. Dynam.*, 5, 67–87 (2014)
53. S. Hasson, **V. Lucarini**, M. R. S. Hasson, **V. Lucarini**, S. Pascale, J. Böhner, Bolch, G. Gioli, Early 21st century snow cover state over the western river basins of the Indus River system, *Hydrol. Earth Syst. Sci.* 18, 4077–4100 (2014)
54. H. Dijkstra, ..., **V. Lucarini**, ..., Numerical Bifurcation Methods and their Application to Fluid Dynamics: Analysis beyond Simulation. *Comm. Computational Physics* 15, 1-45. (2014)
55. M. Colangeli and **V. Lucarini**, Elements of a unified framework for response formulae, *J. Stat. Mech.* (2014) P01002
56. **V. Lucarini**, S. Pascale, Entropy production and coarse graining of the climate fields in a general circulation model, *Clim. Dyn.* 43, 981-1000 (2014)
57. R. Boschi, **V. Lucarini**, S. Pascale, Bistability of the climate around the habitable zone: A thermodynamic investigation, *Icarus* 226, 1724-1742 (2013)
58. S. Hasson, **V. Lucarini**, S. Pascale, Hydrological cycle over South and Southeast Asian river basins as simulated by PCMDI/CMIP3 experiments, *Earth Syst. Dynam.*, 4, 199–217 (2013)
59. S. Pascale, F. Ragone, **V. Lucarini**, Y. Wang, R. Boschi, Nonequilibrium thermodynamics of circulation regimes in optically thin, dry atmospheres, *Plan. Space Science* 84, 48-65 (2013)
60. J. Wouters: **V. Lucarini**, Multi-level dynamical systems: Connecting the Ruelle response theory and the Mori-Zwanzig approach. *J Stat Phys*, 151, 850 (2013)

61. D. Faranda, J. Freitas, **V. Lucarini**, G. Turchetti, S. Vaienti, Extreme value statistics for dynamical systems with noise, *Nonlinearity* 26 2597 (2013) [**Highlight paper for Nonlinearity, 2013**]
62. R. Blender, J. Wouters, **V. Lucarini**, Avalanches, breathers, and flow reversal in a continuous Lorenz-96 model, *Phys. Rev. E* 88, 013201 (2013)
63. R. Blender, **V. Lucarini**, Nambu representation of an extended Lorenz model with viscous heating, *Physica D: Nonlinear Phenomena* 243, 86-91 (2013)
64. R. Deidda, M. Marrocu, G. Caroletti, G. Pusceddu, A. Langousis, **V. Lucarini**, M. Puliga, A. Speranza, Regional climate models' performance in representing precipitation and temperature over selected Mediterranean areas, *Hydrol. Earth Syst. Sci.*, 17, 5041–5059 (2013)
65. **V. Lucarini**, S. Pascale, R. Boschi, E. Kirk, and N. Iro, Habitability and multistability in Earth-like planets. *Astron. Nachr.*, 334, 576–585 (2013)
66. **V. Lucarini**, M. Colangeli, Beyond the linear Fluctuation-Dissipation Theorem: the Role of Causality, *J. Stat. Mech.* P0503 (2012)
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