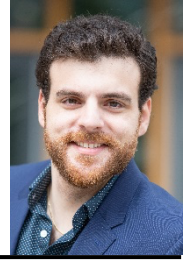


Dr. Antonios Mamalakis



Assistant Professor at the University of Virginia

e-mail: npa4tg@virginia.edu

Tel: +1 9495687339

Education:

University of California, Irvine (UCI) (Sep. 2016 – Sep. 2020)

Irvine, California, USA

PhD in Civil and Environmental Engineering.

Dissertation title: *Links of climate variability and change with regional hydroclimate: Predictability, trends, and physical mechanisms on seasonal to decadal scales*

Advisor: Prof. Efi Foufoula-Georgiou

GPA: 4.0/4.0

University of Patras (UPatras) (Sep. 2014 - Feb. 2016)

Patras, Greece

MSc in Water Resources and Environmental Engineering.

Thesis title: *Modeling Rainfall statistics in a changing climate: Comparing and improving existing approaches.*

Advisor: Prof. Andreas Langousis

GPA: 9.54/10

University of Patras (UPatras) (Sep. 2008 - Feb. 2014)

Patras, Greece

Diploma in Civil Engineering (5-year degree)

Thesis title: *Parameter Estimation in Groundwater models based on PEST algorithm* (in Greek)

Advisor: Prof. Vassilios Kaleris

GPA: 7.93/10 (2nd in the class of 2014)

Academic Appointments:

Assistant Professor (2023 – present)

Charlottesville, Virginia, USA

Department of Environmental Sciences, University of Virginia

School of Data Science, University of Virginia

Graduate Faculty (2023 – present)

Texas, USA

College of Engineering and Computer Science, Texas A&M University

Research Scientist I (2022 – 2023)

Fort Collins, Colorado, USA

Department of Atmospheric Science, Colorado State University

Supervisors: Prof. Elizabeth Barnes and Prof. James W. Hurrell

Postdoctoral Researcher (2020 – 2022)

Fort Collins, Colorado, USA

Department of Atmospheric Science, Colorado State University

Supervisors: Prof. Elizabeth Barnes and Prof. Imme Ebert-Uphoff

Graduate Research Assistant (2016 – 2020)

Irvine, California, USA

Department of Civil and Environmental Engineering, University of California, Irvine.

Supervisor: Prof. Efi Foufoula-Georgiou

Graduate Research Assistant (2014 – 2016)

Patras, Greece

Department of Civil and Environmental Engineering, University of Patras.

Supervisor: Prof. Andreas Langousis

Teaching experience:

- University of Virginia, Charlottesville (2024)** *Charlottesville, Virginia, USA*
Primary Instructor, Fall 2024
Course: *Objective Analysis in Environmental Science* (undergraduate studies)
- Environmental Institute, UVA, Charlottesville (2024)** *Charlottesville, Virginia, USA*
Primary Instructor, September 2024
2-day workshop: [AI for climate research](#)
- University of Virginia, Charlottesville (2024)** *Charlottesville, Virginia, USA*
Primary Instructor, Spring 2024
Course: *Capstones* (graduate studies)
- University of Virginia, Charlottesville (2024)** *Charlottesville, Virginia, USA*
Primary Instructor, Spring 2024
Course: *Environmental Data Science* (graduate studies)
- TAI4ES Summer School (2022)** *virtual*
Lecturer, June 2022
4-day school: *Trustworthy Artificial Intelligence for Environmental Science*
- Colorado State University, Fort Collins (2022)** *virtual*
Lecturer, May 2022
2-day course: *Tutorial: Applied Machine Learning for Earth Scientists*
- Colorado State University, Fort Collins (2022)** *Fort Collins, Colorado, USA*
Teaching Assistant, Winter 2022
Course: *Objective Analysis* (graduate studies)
- University of California, Irvine (2020)** *Irvine, California, USA*
Teaching Assistant, Fall 2020
Course: *Stochastic Hydrology* (graduate studies)
- University of Patras (2014-2015)** *Patras, Greece*
Teaching Assistant, Fall 2014, Fall 2015
Course: *Hydraulic Structures* (5th year of undergraduate studies)

Funding and Projects:

- **Climate Fellowship Program, Environmental Institute, UVA** *USA, 2024*
Role: Co-Investigator
Project title: Using Explainable Artificial Intelligence and Counterfactual Reasoning to Attribute Observed Precipitation Extremes to Global Warming and Improve Policy Making
Funds: \$112,500
Environmental Institute, UVA (internal funds)
- **Spark Program, Environmental Institute, UVA** *USA, 2024*
Role: Co-Investigator
Project title: Blueprints for AI Equity and Transparency in Climate Science
Funds: \$31,700
Environmental Institute, UVA (internal funds)
- **Climate Fellowship Program, Environmental Institute, UVA** *USA, 2023*
Role: Principal Investigator
Project title: Using Advanced AI for Simultaneous Bias-Correction and Downscaling of Climate Model Projections for Localized Policy Relevance
Funds: \$112,500
Environmental Institute, UVA (internal funds)

- **TRIPODS+X:RES: Data Science Frontiers in Climate Science** USA, 2019
 Role (uncredited):
 I participated in the proposal preparation and was an active researcher in the project
 Funds: \$300,000
 Awarded by NSF; DMS-1839336
- **Doctoral Fellowship in UCI (Henry Samueli Endowed Fellowship)** USA, 2018
 Funds: *award amounts vary*
- **Research Seed Funding in UCI** USA, 2017
 Role (uncredited):
 I participated in the proposal preparation and was an active researcher in the project
 Funds: \$150,000

Professional Activities:

Editorial Service

Associate Editor, *Artificial Intelligence for the Earth Systems* (2022 – present)

Associate Editor, *Stochastic Environmental Research and Risk Assessment* (2020 – present)

Referee Service

Proposal Reviewer: *National Science Foundation (NSF)*

Journal Reviewer: *Nature Climate Change, Nature Machine Intelligence, Scientific Reports, Science Advances, Geophysical Research Letters, Earth's Future, Journal of Climate, Water Resources Research, Artificial Intelligence for the Earth Systems, Journal of Advances in Modeling Earth Systems, Advances in Water Resources, Journal of Hydrology, Journal of Hydrometeorology, Stochastic Environmental Research and Risk Assessment, Hydrology and Earth System Sciences, Remote Sensing, Weather and Forecasting*

Outstanding Student Presentation Award; OSPA Judge

AGU Fall Meeting 2022

Honors and Awards:

- Best Paper award in Health and Environment Category (IEEE, SIEDS, 2024)
- Most engaging data story award in a capstone project (mentor; Capstones course in SDS, UVA, 2024)
- Most innovative analytical solution award in a capstone project (mentor; Capstones course in SDS, UVA, 2024)
- Paper included in [Editors' highlights](#) (Nature Communications, 2023)
- Top downloaded article (Geophysical Research Letters; 2021)
- Paper included in [the 50 most read articles](#) (Nature Communications, 2018)
- Henry Samueli Endowed [Fellow](#) (2018-2019)
- Outstanding Reviewer, Journal of Hydrology (January 2018)
- Paper included in [Editors' highlights](#) (Water Resources Research, 2017)

Science communication – Media and press coverage:

- Participation in Panel Discussion: PFF (Preparing Future Faculty) Graduates Panel at University of California Irvine, May 2024. (virtual; invited)
- Participation in Panel Discussion: College foundation board session on AI, UVA, Oct 2023.
- Participation in Panel Discussion: Model Interpretability in the Earth and Space Sciences, 10th International Conference on Learning Representations (ICLR), April 2022.
- Interview with the AGU precipitation technical committee: [Precip Folks, January 2022](#).
- Media coverage for the study “Zonally contrasting shifts of the tropical rain belt in response to climate change” by Mamalakis et al. (2021).

Climate change could shift Earth's tropical rain belt, threatening food security for billions, [Science alert](#), January 2021.

Climate Change will cause a shift in Earth's tropical rain belt – threatening water and food supply for billions, study says, [CBS News](#), January, 2021.

Climate Change will alter the position of the Earth's tropical rain belt, [Science Daily](#), January 2021.

Food Security for billions threatened by shifting tropical rain belt, climate change to blame, [Energi Media](#), February 2021.

Full list of all (43) news outlets can be found [here](#).

Video summary of the study can be found [here](#).

- Media coverage for the study “A new interhemispheric teleconnection increases predictability of winter precipitation in southwestern US” by Mamalakis et al. (2018).

To forecast winter rainfall in Los Angeles, look to New Zealand in the summer, [NSF News Release](#), June 2018.

To forecast winter rainfall in the Southwest, look to New Zealand in the summer, [UCI News](#), June 2018.

Full list of all (13) news outlets can be found [here](#).

Publications:

Under review or in revision

Papalexiou, S. M., **A. Mamalakis**, Machine Unlearning: Bias correction in Neural Network Downscaled Storms, *under review*.

Krell, E., **A. Mamalakis**, et al., The influence of correlated features on neural network attribution methods in geoscience, *in revision*.

Journal articles and Book Chapters

23. Navarra G. G., **et al.**, Forecasting Southern Ocean Surface Nutrients Using Explainable Neural Networks, *Journal of Geophysical Research - Machine Learning and Computation*, (*accepted*).
22. Mamalakis, M., **A. Mamalakis**, et al. (2024), Solving the enigma: Enhancing faithfulness and comprehensibility in explanations of deep networks, *AI Open*, (*accepted*).
21. Papalexiou, S. M., **et al.** (2024), Sustainability Nexus AID: storms, *Sustainability Nexus Forum*, 33(1), <https://doi.org/10.1007/s00550-024-00544-y>.
20. Materia, S., **et al.** (2024), Artificial Intelligence for climate prediction of extremes: State of the art, challenges and future perspectives, *WIREs Climate Change*, **15**(6), e914.
19. **Mamalakis, A.**, E.A. Barnes and J.W. Hurrell, (2023) Using eXplainable Artificial Intelligence to Quantify “climate distinguishability” after Stratospheric Aerosol Injection, *Geophysical Research Letters*, <https://doi.org/10.1029/2023GL106137>.
18. McGovern, A., **et al.** (2023) Trustworthy Artificial Intelligence for Environmental Sciences: Summer School Meeting Report, *BAMS*, **104**(6), <https://doi.org/10.1175/BAMS-D-22-0225.1>.
17. Le, V.V.P., **et al.** (2023) Climate-driven changes in the predictability of seasonal precipitation, *Nature Communications*, **14**, 3822, <https://doi.org/10.1038/s41467-023-39463-9>. (included in [Editors' highlights](#))

16. **Mamalakis, A.**, E.A. Barnes and I. Ebert-Uphoff, (2023) Carefully choose the baseline: Lessons learned from applying XAI attribution methods for regression tasks in geoscience, *Artificial Intelligence for the Earth Systems*, 2(1), <https://doi.org/10.1175/AIES-D-22-0058.1>.
15. **Mamalakis, A.**, E.A. Barnes and I. Ebert-Uphoff, (2022) Investigation of the fidelity of explainable artificial intelligence methods in applications of convolutional neural networks in geoscience, *Artificial Intelligence for the Earth Systems*, 1(4), <https://doi.org/10.1175/AIES-D-22-0012.1>.
14. **Mamalakis, A.**, I. Ebert-Uphoff and E.A. Barnes, (2022) “Explainable Artificial Intelligence in Meteorology and Climate Science: Model fine-tuning, calibrating trust and learning new science” in *Beyond explainable Artificial Intelligence* by Holzinger et al. (Editors), Springer Lecture Notes on Artificial Intelligence, open access at: https://link.springer.com/chapter/10.1007/978-3-031-04083-2_16
13. **Mamalakis, A.**, I. Ebert-Uphoff and E.A. Barnes, (2022) Neural network attribution methods for problems in Geoscience: A novel synthetic benchmark dataset, *Environmental Data Science*, DOI: 10.1017/eds.2022.7.
12. **Mamalakis, A.**, A. AghaKouchak, J.T. Randerson and E. Foufoula-Georgiou, (2022) Hotspots of Predictability: Identifying regions of high precipitation predictability at seasonal timescales from limited time series observations, *Water Resources Research*, 58(5), e2021WR031302.
11. Le, V.V.P., C. Guilloteau, C., **A. Mamalakis** and E. Foufoula-Georgiou (2021) Underestimated MJO variability in CMIP6 models, *Geophysical Research Letters*, 48, e2020GL092244, <https://doi.org/10.1029/2020GL092244> (**Top downloaded article, 2021**)
10. **Mamalakis, A.**, J.T. Randerson, J.-Y. Yu, M.S. Pritchard, G. Magnusdottir, P. Smyth, P.A. Levine, S. Yu and E. Foufoula-Georgiou (2021) Zonally contrasting shifts of the tropical rain belt in response to climate change, *Nature Climate Change*, 11, 143-151. <https://doi.org/10.1038/s41558-020-00963-x>
9. Guilloteau, C., **A. Mamalakis**, L. Vulis, T. Georgiou and E. Foufoula-Georgiou (2020) Rotated spectral principal component analysis (rsPCA) for identifying dynamical models of variability in climate systems, *J. Climate*, doi: <https://doi.org/10.1175/JCLI-D-20-0266.1>.
8. Stevens A., R. Willett, **A. Mamalakis**, E. Foufoula-Georgiou, J. Randerson, P. Smyth, S. Wright and A. Tejedor (2020) Graph-guided regularized regression of Pacific Ocean climate variables to increase predictive skill of southwestern winter US precipitation, *J. Climate*, doi: <https://doi.org/10.1175/JCLI-D-20-0079.1>.
7. **Mamalakis, A.**, J.-Y. Yu, J.T. Randerson, A. AghaKouchak, and E. Foufoula-Georgiou (2019) Reply to: A critical examination of a newly proposed interhemispheric teleconnection to Southwestern US winter precipitation, *Nature Communications*, <https://doi.org/10.1038/s41467-019-10531-3>
6. **Mamalakis, A.** and V. Kaleris (2019) Estimation of seawater retreat timescales in homogeneous and confined coastal aquifers based on dimensional analysis, *Hydrological Sciences Journal*, doi:10.1080/02626667.2018.1552787
5. **Mamalakis, A.** and E. Foufoula-Georgiou (2018) A multivariate probabilistic framework for tracking the intertropical convergence zone: Analysis of recent climatology and past changes, *Geophysical Research Letters*, doi:10.1029/2018GL079865
4. **Mamalakis, A.**, J.-Y. Yu, J.T. Randerson, A. AghaKouchak, and E. Foufoula-Georgiou (2018) A new interhemispheric teleconnection increases predictability of winter precipitation in southwestern US, *Nature Communications*, doi: 10.1038/s41467-018-04722-7 ([50 most read articles](#))

3. **Mamalakis A.**, A. Langousis, R. Deidda and M. Marrocu (2017) A parametric approach for simultaneous bias correction and high-resolution downscaling of climate model rainfall, *Water Resour. Res.*, doi: 10.1002/2016WR019578 ([included in Editors' highlights](#)).
2. Langousis A., **A. Mamalakis**, M. Puliga and R. Deidda (2016) Threshold detection for the generalized Pareto distribution: Review of representative methods and application to the NOAA NCDC daily rainfall database *Water Resour. Res.*, doi: 10.1002/2015WR018502.
1. Langousis A., **A. Mamalakis**, R. Deidda and M. Marrocu (2016) Assessing the relative effectiveness of statistical downscaling and distribution mapping in reproducing rainfall statistics based on climate model results, *Water Resour. Res.*, doi:10.1002/2015WR017556.

White papers, datasets, tutorials, etc

Arcodia, M., **et al.** (2022) Applied Machine Learning Tutorial for Earth Scientists, Zenodo: <https://doi.org/10.5281/zenodo.6686879>. Github: https://github.com/eabarnes1010/ml_tutorial_csu.

Mamalakis A., I. Ebert-Uphoff and E. A. Barnes (2022) CSU Synthetic Attribution Benchmark Dataset, Version 1.0, Radiant MLHub. <https://doi.org/10.34911/rdnt.8snx6c>

Invited talks or Lectures

Mamalakis, A., (2024) [AI for climate research](#), 2-day workshop, Environmental Institute, UVA, Charlottesville, VA, USA, September, 2024 (invited).

Mamalakis, A., (2024) AI Attribution Benchmarks: Do we gain the correct insights when employing Explainable AI tools?, SIAM, Conference on Mathematics of Planet Earth, MEP24, Portland, Oregon, USA, June, 2024 (invited talk).

Participation in Panel Discussion: PFF (Preparing Future Faculty) Graduates Panel at University of California Irvine, May 2024. (virtual; invited)

Participation in panel discussion: College foundation board session on AI, UVA, Oct 2023.

Mamalakis, A., (2023) Explainable Artificial Intelligence for Hydroclimatic Research, Institute of Science and Technology Austria (ISTA), Vienna, Austria, April, 2023 (invited job talk).

Mamalakis, A., (2023) Introduction to explainable artificial intelligence for climate applications, National Renewable Energy Laboratory, (virtual) April, 2023.

Mamalakis, A., (2023) Explainable Artificial Intelligence for Hydroclimatic Research, Massachusetts Institute of Technology, MIT, USA, March, 2023 (invited job talk).

Mamalakis, A., (2023) Explainable Artificial Intelligence for Hydroclimatic Research, University of Virginia, UVA, USA, March, 2023 (invited job talk).

Mamalakis, A., (2023) Explainable Artificial Intelligence for Hydroclimatic Research, University of Oklahoma, UO, USA, February, 2023 (invited job talk).

Mamalakis, A., (2023) A brief introduction to explainable artificial intelligence, KI-Forum Deutscher Wetterdienst, (virtual) February, 2023.

Mamalakis, A., (2022) Best practices and pitfalls of for explainable artificial intelligence in climate research, Vrije Universiteit Amsterdam, Netherlands, December, 2022 (invited job talk).

Mamalakis, A., (2022) Explainable Artificial Intelligence for Deep Learning, Trustworthy Artificial Intelligence for Environmental Science (TAI4ES), Summer School, (virtual) June, 2022.

Mamalakis, A., (2022) Explainable Artificial Intelligence for Environmental Science: Using idealized attribution benchmarks to derive best practices, Seminar at the journal club for LEAP, Columbia University, (virtual) June, 2022.

Participation in Panel Discussion: Model Interpretability in the Earth and Space Sciences, 10th International Conference on Learning Representations (ICLR), April 2022.

Mamalakis, A., (2022) Lecture on: Methods of Explainable Artificial Intelligence (XAI) for Artificial Neural Networks (ANNs), Lecture for Course ATS 780A7: Machine Learning for Atmospheric Sciences, Colorado State University, March, 2022.

Mamalakis, A., (2021) [Assessing methods of explainable artificial intelligence \(XAI\) by using attribution benchmark datasets](#), 2nd Workshop on Knowledge Guided Machine Learning (KGML2021, virtual), August, 2021.

Mamalakis, A., (2021) [Tutorial: A benchmark for Explainable AI method](#), Trustworthy Artificial Intelligence for Environmental Science (TAI4ES), Summer School (virtual) July, 2021.

Mamalakis, A., (2021), [Explainable AI for Environmental Science: Insights on strengths and weaknesses of different neural network attribution maps](#), Follow-up lecture on the XAI for Environmental Science short course (virtual), June, 2021.

Foufoula-Georgiou, E. and **A. Mamalakis** (2020) SWUS Seasonal Precipitation Prediction & the New Zealand Index (NZI), 2020 Colorado River Hydrology Research Symposium webinar series, October, 2020.

Mamalakis, A., J.-Y. Yu, J.T. Randerson, A. AghaKouchak, and E. Foufoula-Georgiou (2019) Drivers of winter precipitation variability over the southwestern US: Interdecadal changes and new physical mechanisms, Data Analytics for Climate and Earth (DANCE): Causality, patterns and prediction, March, 27-29, 2019, Arrowhead, CA (USA).

Mamalakis, A., J.-Y. Yu, J.T. Randerson, A. AghaKouchak, and E. Foufoula-Georgiou (2018) Interdecadal changes in the climatic drivers of regional hydroclimatology in southwestern US: A new inter-hemispheric teleconnection increases predictability of winter precipitation, American Geophysical Union, AGU Fall Meeting, Washington D.C., USA, December 2018.

Mamalakis, A. (2018) A newly identified inter-hemispheric teleconnection increases predictability of winter precipitation, Water Student Forum, UCI, October 2018.

Conferences

Krell, E., **A. Mamalakis**, S. King, P. Tissot, and I. Ebert-Uphoff (2024) Influence of correlated features in geospatial data on neural network attribution methods, American Geophysical Union, AGU Fall Meeting, USA, December 2024.

Zhang, S., **A. Mamalakis** and S. Pusede (2024). Downscaling OMI NO₂ using TROPOMI and a suite of generative adversarial networks to describe multi-year trends in neighborhood-level NO₂ inequalities, American Geophysical Union, AGU Fall Meeting, USA, December 2024.

Boppudi, A., R. Lipps, N. McIntire, K. O'Hara, B. Puglisi and **A. Mamalakis**, (2024) Optimizing ALMA research proposal process with machine learning, IEEE, SIADS, Charlottesville, VA, USA, May 2024.

Chiado, A., K. Olsson, L. Rohlwing, M. Vaden and **A. Mamalakis**, (2024) Predicting winter California precipitation with Convolutional Neural Networks, IEEE, SIADS, Charlottesville, VA, USA, May 2024. (**Best Paper Award**)

Connolly, C., **A. Mamalakis**, E. A. Barnes, and J.W. Hurrell (2024) Early stages of building AI emulators to predict the atmospheric response to SAI scenarios, Gordon Research Seminar (GRS) for Climate Engineering, Lucca, Italy, February 2024.

Krell, E., S. King, P. Tissot, **A. Mamalakis**, and I. Ebert-Uphoff (2024) Using grouped features to improve explainable AI results for atmospheric AI models that use gridded spatial data and complex machine learning techniques, American Meteorological Society, 104th Annual Meeting, Baltimore, MA, USA, January 2024.

Krell, E., **A. Mamalakis**, I. Ebert-Uphoff, P. Tissot and S. King (2023) Exploring the influence of correlated features on Geoscience AI models to improve the scientific insights gained from using explainable AI techniques for feature attribution, American Geophysical Union, AGU Fall Meeting, San Francisco, CA, USA, December 2023.

Navarra, G., C. Deutsch, A. Margolskee and **A. Mamalakis**, (2023) Using Explainable AI to further investigate NO₃ variability in the Southern Ocean, American Geophysical Union, AGU Fall Meeting, San Francisco, CA, USA, December 2023.

Mamalakis, A., Elizabeth A. Barnes and J.W. Hurrell, (2023) Exploring “climate distinguishability” following Stratospheric Aerosol Injection via explainable AI, American Geophysical Union, AGU Fall Meeting, San Francisco, CA, USA, December 2023.

Mamalakis, A., Elizabeth A. Barnes and Imme Ebert-Uphoff (2023) Explainable Artificial Intelligence for Environmental Science: The choice of baseline matters, American Meteorological Society, 103rd Annual Meeting, Denver, CO, USA, January 2023.

Mamalakis, A., Elizabeth A. Barnes and Imme Ebert-Uphoff (2023) Using different XAI baselines to answer different science questions, American Geophysical Union, AGU Fall Meeting, Chicago, IL, USA, December 2022.

Mamalakis, A., Imme Ebert-Uphoff and Elizabeth A. Barnes (2022) Explainable Artificial Intelligence for Environmental Science: Introducing Objectivity into the Assessment of Neural Network Attribution Methods, American Meteorological Society, 102nd Annual Meeting, January 2022.

Le, V.V.P., C. Guilloteau, C., **A. Mamalakis** and E. Foufoula-Georgiou (2022) Underestimated MJO variability in CMIP6 models, American Meteorological Society, 102nd Annual Meeting, January 2022.

Le, V.V.P., C. Guilloteau, C., **A. Mamalakis** and E. Foufoula-Georgiou (2021) Variability of tropical intraseasonal oscillations in CMIP6 models, American Geophysical Union, AGU Fall Meeting, December 2021.

Mamalakis, A., Imme Ebert-Uphoff and Elizabeth A. Barnes (2021) Explainable Artificial Intelligence for Environmental Sciences: A benchmark to assess and compare neural network attribution methods, 3rd NOAA Workshop on Leveraging AI in Environmental Sciences (virtual), September, 2021.

Stevens, A., R., Willett, **A. Mamalakis**, E. Foufoula-Georgiou, P.V.V. Le, A. Tejedor, J. Randerson, S. Wright, P. Smyth (2020) Graph-guided regularized regression to improved predictive skill of precipitation at seasonal timescales, American Geophysical Union, AGU Fall Meeting (virtual), December 2020.

Le, V.V.P., C. Guilloteau, C., **A. Mamalakis** and E. Foufoula-Georgiou (2020) Multi-scale evaluation of dynamical modes of climate variability in CMIP6 models, American Geophysical Union, AGU Fall Meeting (virtual), December 2020.

Foufoula-Georgiou, E., **A. Mamalakis**, A. AghaKouchak and J.T. Randerson (2020) Probabilistic assessment of the practical predictability of extreme wet and dry years in the southwestern US in observed and CMIP6 climates, American Geophysical Union, AGU Fall Meeting (virtual), December 2020.

Mamalakis, A., E. Foufoula-Georgiou, J.T. Randerson, J.-Y. Yu, M.S. Pritchard, G. Magnusdottir, P.A. Levine, S. Yu, and P. Smyth, (2020) Zonally variable response of the intertropical convergence zone and energy flux equator in CMIP6 future climate, American Geophysical Union, AGU Fall Meeting (virtual), December 2020.

Mamalakis, A., E. Foufoula-Georgiou, J.T. Randerson, J.-Y. Yu, M.S. Pritchard, G. Magnusdottir, P.A. Levine, S. Yu, and P. Smyth, (2019) Zonally asymmetric response of the intertropical convergence zone to the RCP8.5, American Geophysical Union, AGU Fall Meeting, San Francisco, CA, USA, December 2019.

Stevens, A., R., Willett, **A. Mamalakis**, E. Foufoula-Georgiou, J. Randerson, S. Wright, P. Smyth and A. Tejedor (2019) Graph-Guided Regularization for Improved Forecasting of Southwestern US Winter Precipitation, American Geophysical Union, AGU Fall Meeting, San Francisco, CA, USA, December 2019.

Mamalakis, A., J.T. Randerson, J.-Y. Yu, M.S. Pritchard, G. Magnusdottir, P. Smyth, P.A. Levine and E. Foufoula-Georgiou (2019) Evidence for diverging regional responses of the intertropical convergence zone under global warming, Large ENSEMBLES (LENS) Workshop, NCAR, Boulder, CO, USA, July 2019.

Stevens, A., R., Willett, **A. Mamalakis**, E. Foufoula-Georgiou, J. Randerson, P. Smyth and S. Wright (2019) Graph-Guided Regularization for Improved Seasonal Forecasting, Large ENSEMBLES (LENS) Workshop, NCAR, Boulder, CO, USA, July 2019.

Mamalakis, A., J.T. Randerson, J.-Y. Yu, M.S. Pritchard, G. Magnusdottir, P. Smyth, P.A. Levine and E. Foufoula-Georgiou (2019) Future response of the intertropical convergence zone under global warming, International Precipitation Conference 12 (IPC12), Irvine, CA, USA, June 2019.

Mamalakis, A. and E. Foufoula-Georgiou (2019) A longitudinally explicit, multivariate probabilistic framework for tracking the Intertropical Convergence Zone on seasonal to multi-decadal scales, European Geosciences Union General Assembly, Vienna, Austria, April 2019.

Mamalakis, A., J.-Y. Yu, J.T. Randerson, A. AghaKouchak, and E. Foufoula-Georgiou (2019) Drivers of winter precipitation variability over the southwestern US: Interdecadal changes and new physical mechanisms, Data Analytics for Climate and Earth (DANCE): Causality, patterns and prediction, March, 27-29, 2019, Arrowhead, CA (USA).

Mamalakis, A. and E. Foufoula-Georgiou (2018) A multivariate probabilistic approach for tracking seasonally and longitudinally the Intertropical Convergence Zone, American Geophysical Union, AGU Fall Meeting, Washington D.C., USA, December 2018.

Mamalakis, A., J.-Y. Yu, J.T. Randerson, A. AghaKouchak, and E. Foufoula-Georgiou (2018) Interdecadal changes in the climatic drivers of regional hydroclimatology in southwestern US: A new inter-hemispheric

teleconnection increases predictability of winter precipitation, American Geophysical Union, AGU Fall Meeting, Washington D.C., USA, December 2018.

Mamalakis, A., J. Vrugt, A. AghaKouchak, and E. Foufoula-Georgiou (2018) A new methodology for fitting time-varying distributions to hydroclimatic extremes using data assimilation techniques, European Geosciences Union General Assembly, Vienna, Austria, April 2018.

Mamalakis, A., J.-Y. Yu, J.T. Randerson, A. AghaKouchak, and E. Foufoula-Georgiou (2018) A newly discovered inter-hemispheric teleconnection increases predictability of precipitation extremes in southwestern US, European Geosciences Union General Assembly, Vienna, Austria, April 2018.

Mamalakis, A., J.-Y. Yu, J.T. Randerson, A. AghaKouchak, and E. Foufoula-Georgiou (2017) A new inter-hemispheric teleconnection increases predictability of winter precipitation in southwestern US, American Geophysical Union, AGU Fall Meeting, New Orleans, USA, December 2017.

Mamalakis, A., A. Langousis, R. Deidda and M. Marrocu (2017) Parametric bias correction and high-resolution downscaling of climate model rainfall, IAHS Scientific Assembly 2017, Port Elizabeth, South Africa, July 2017.

Mamalakis A., A. Langousis, R. Deidda and M. Marrocu (2017) A parametric approach for simultaneous bias correction and high-resolution downscaling of climate model rainfall for practical applications, European Geosciences Union General Assembly, Vienna, Austria, April 2017.

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