Christina Karamperidou **BioSketch as of May 2020**

CONTACT INFORMATION

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RESEARCH INTERESTS

Climate Dynamics & Modeling, Paleoclimate Modeling and Model-Proxy Synthesis, ENSO Dynamics & Predictability, Mid-latitude Atmospheric Circulation, Dynamical Systems Theory, Model Optimization

EDUCATIONAL BACKGROUND

PhD	Columbia University	Earth & Environmental Engineering	2012
MPhil	Columbia University	Earth & Environmental Engineering	2011
MSc	A.U.Th.	Environmental Protection & Sustainable Development	2007
Diploma (combined BSc & MSc)	Aristotle University of Thessaloniki (A.U.Th.)	Civil & Environmental Engineering	2006

HONORS & AWARDS

Public Service Commendation Medal, Department of the Army	2020
PhD title awarded with Distinction, Columbia University	2012
NASA Earth and Space Science Fellow (NESSF)	2009-2012
Outstanding Student Paper Award, Atmospheric Sciences Section, AGU Fall Meeting	2010
Fellow, Alexander S. Onassis Public Benefit Foundation	2009-2012

APPOINTMENTS

Assistant Professor, Department of Atmospheric Sciences, U. of Hawaii	8/2016-date
Assistant Researcher, Department of Atmospheric Sciences, U. of Hawaii	12/2014-8/2016
Postdoctoral Researcher, Department of Meteorology, U. of Hawaii	09/2012-11/2014
Adjunct Associate Research Scientist, Columbia University	09/2012-date
Research & Teaching Assistant, Columbia University	2008-2012
Research Assistant, Aristotle University of Thessaloniki, Greece	2005-2007

FUNDED PROJECTS

- **Title:** NSF AGS-1902970-P2C2: High-Resolution Dynamical and Statistical Downscaling of El Niño-Southern Oscillation (ENSO) Response in Proxy-Critical Locations across the Tropical Pacific. **Funding Agency:** National Science Foundation. **Performance Period:** 09/01/2019-08/31/2022. **Amount:** $**531,727**. **PI:** C. Karamperidou

- **Title:** NASA 19-EARTH19-0189: The Impact of ENSO Flavors on Atmospheric Blocking Occurrence and Interhemispheric Atmospheric Pathways. **Funding Agency:** National Aeronautics and Space Administration (NASA) Future Investigators in NASA Earth and Space Science and Technology. **Performance Period:** 09/01/2019-08/31/2022. **Amount:** $**132,543**. **PI:** C. Karamperidou; **Future Investigator:** M. McKenna.

- **Title:** NSF AGS-1602097-Collaborative Research: P2C2-The Role of El Niño/Southern Oscillation (ENSO) Nonlinearities and Asymmetries in Modulating Tropical Pacific Climate. **Funding Agency:** National Science Foundation. **Performance Period:** 05/15/2016-04/30/2019. **Amount:** $**430,283**. **PI:** C. Karamperidou; **co-PIs:** J. Conroy, F.-F. Jin

- **Title:** NSF AGS-1304910-P2C2: Understanding changing ENSO flavors in the mid-Holocene laboratory. **Funding Agency:** National Science Foundation. **Performance Period:** 09/01/2013- 08/31/2017. **Amount:** $**439,605**. **PI:** C. Karamperidou; **co-PIs:** P.N. DiNezio, F.-F. Jin

- **Title:** Open Education Research Grant: Merging Mathematical and Conceptual Representations of Atmospheric Science - an OER text with Custom Ancillary and Supporting Materials. **Funding Agency:** Outreach College, University of Hawaii. **Performance Period:** 04/2017-04/2018. **Amount:** $**9,600**. **co-PIs:** A.Nugent, C. Karamperidou, J. Griswold

- **Title:** Dynamics of the Hydrological Cycle in a Changing Climate: Interactions of Low Frequency Climate Mechanisms and Hydrologic Extremes. **Funding Agency:** National Aeronautics and Space Administration. **Performance Period:** 09/01/2009-08/31/2012. **Amount:** $**90,000. Earth and Space Science Fellow:** C. Karamperidou.

- **Title:** How can the contribution of climate variability, water release patterns, and hydrologic performance indices towards ecological restoration measures at the Everglades National Park be best quantified and predicted? **Funding Agency:** National Park Service. **Amount:** $**151,721**. **PI:** U. Lall. **Author of proposal & Graduate Research Assistant:** C. Karamperidou.

PUBLICATIONS (** indicates a student first author*).

Book Chapters (peer-reviewed):

2. Karamperidou, C., Stuecker M.F., Timmermann, A., Yun, K.-S., Lee, S.-S., Jin, F.-F., Santoso, A., McPhaden, M.J., and Cai, W., 2020: ENSO in a changing climate: Challenges, Paleo-Perspectives, and Outlook, In El Niño-Southern Oscillation in a Changing Climate, (eds: M.J. McPhaden, A. Santoso, W. Cai). American Geophysical Union, in press.

1. Jin, F.-F., Chen, H.-C., Zhao, S., Hayashi, M., **Karamperidou, C.**, M.F. Stuecker, and R.Xie, 2020: Simple ENSO Models, In El Niño-Southern Oscillation in a Changing Climate, (eds: M.J. McPhaden, A. Santoso, W. Cai). American Geophysical Union, in press.

Journal Articles (peer-reviewed):

Accepted:

18. *D. Allie Wyman, J.L. Conroy, and **C. Karamperidou**: *The tropical Pacific ENSO-mean state relationship in climate models and paleoclimate data over the last millennium*, accepted (minor revisions), Journal of Climate.

Published:

17. F.S.R. Pausata, D. Zanchettin, **C. Karamperidou**, R. Caballero, and D.S. Battisti: *ITCZ shift and extra-tropical teleconnections drive ENSO response to volcanic eruptions*, Science Advances, in press.

16. Cai, W., McPhaden, M.J., Grimm, A.M., Rodrigues R.R., Taschetto A.S., Garreaud R.D., Dewitte B., Poveda G., Ham, Y.-G., Santoso A., Ng B., Anderson W., Wang G., Geng T., Jo, H.-S., Marengo, J.A., Alves, L.M., Osman, M., Li, S., Wu, L., **Karamperidou, C.**, Takahashi, K., and Vera., C, 2020: Climate impacts of the El NioSouthern Oscillation on South America. Nature Reviews Earth Environment 1, 215231 (2020). https://doi.org/10.1038/s43017-020-0040-3

15. Conroy, J.L, **C. Karamperidou**, D.A. Grimley, and W.R. Guenthner: *Westerly winds across eastern and mid-continental North America during the Last Glacial Maximum: A new data-model assessment*, Quaternary Science Reviews, 220, pp 14-29, doi: https://doi.org/10.1016/j.quascirev.2019.07.003

14. *Kiefer, J. and **C. Karamperidou**, 2019: *High-resolution modeling of ENSO-induced precipitation in the tropical Andes: implications for proxy interpretation.*, Paleoceanography and Paleoclimatology, 34, pp 217-236. https://doi.org/10.1029/2018PA003423

13. *Hou, Z., J. Li, R. Ding, **C. Karamperidou**, W. Duan, T. Liu, and J. Feng, 2018: *Asymmetry of the predictability limit of the warm ENSO phase.* Geophysical Research Letters, 45, pp 7646-7653. https://doi.org/10.1029/2018GL077880

12. Takahashi, K., **C. Karamperidou**, and B. Dewitte, 2018: *A theoretical model of strong and moderate El Niño regimes.*, Clim Dyn, 52 (12), pp 7477-7493, https://doi.org/10.1007/s00382-018-4100-z

11. Karamperidou, C., F.F. Jin, and J.L. Conroy, 2017: *The Importance of ENSO Nonlinearities in Tropical Pacific Response to External Forcing.*, Clim Dyn, 49 (7-8), pp 2695-2704 —doi:10.1007/s00382-016-3475-y

10. F.S.R. Pausata, **C. Karamperidou**, R. Caballero and D.S. Battisti, 2016: *ENSO response to high-latitude volcanic eruptions: the role of the initial conditions*, Geophys. Res. Lett., 43 (16), pp 8694-8702. https://doi.org/10.1002/2016GL069575

9. Karamperidou, C., P.N. Di Nezio, A. Timmermann, F.-F. Jin, and K.M. Cobb, 2015: *The response of ENSO flavors to mid-Holocene climate: Implications for proxy interpretation*, Paleoceanography 30(5), pp 527-547. https://doi.org/10.1002/2014PA002742

8. *Schollaen, K., **C. Karamperidou**, P. Krusic, E.R. Cook, and G. Helle, 2015: *ENSO flavors in a tree-ring 18O record of Tectona grandis from Indonesia.* Climates of the Past, 11, pp 1325-1333, 2015cp-2014-118. https://doi.org/10.5194/cp-11-1325-2015

7. C. Karamperidou, M.A. Cane, U. Lall, A.T. Wittenberg, 2013: *Intrinsic modulation of ENSO predictability viewed through a local Lyapunov lens.*, Climate Dynamics, 42:253, doi: 10.1007/s00382-013-1759-z

6. C. Karamperidou, V. Engel, E. Stabenau, U. Lall and T. Smith III, 2013: *Implications of multi-scale sea level and climate variability for coastal resources: a case study for south Florida and Everglades National Park, USA.*, Regional Environmental Change, 13 (1), pp 91-100, doi: 10.1007/s10113-013-0408-8.

5. C.Karamperidou, F. Cioffi, and U. Lall, 2012: *Surface Temperature Gradients as Diagnostic Indicators of Midlatitude Circulation Dynamics*, *J. Climate*, 25, 4154-4171. https://doi.org/10.1175/JCLI-D-11-00067.1

4. D. Chavas, E. Yonekura, **C. Karamperidou**, N. Cavanaugh, K. Sherafin, 2012: *US Hurricanes and economic damage: an extreme value perspective.*, *Nat. Haz. Rev., doi: 10.1061/(ASCE)NH.1527-6996.0000102*

3. C.Karamperidou, M.Vafeiadis, and K.L. Katsifarakis, 2010: *Groundwater Resources Management Optimization by means of Artificial Neural Networks.*, *Tech. Chron. Sci. J., Technical Chamber of Greece Editions, No 2, pp. 25-32, 2010*.

2. S.Arvanitidou, **C.Karamperidou**, and K.L. Katsifarakis, 2009: *Optimal Hydrodynamic Control of a Contaminant Plume. Proceedings of the Joint Conference of the Hellenic Hydraulic Union, and the Greek Committee for Water Resources Management*, Volos, Greece, 27-30/05/2009

1. C.Karamperidou, E.Karamperidou, and K.L. Katsifarakis, 2007: *Seawater intrusion into the aquifer of Eleftherae-N. Peramos, Kavala, Greece.' WIT Transactions on Ecology and the Environment 104*, pp. 3-10, 2007.

Invited Talks at International Conferences

- AGU Fall Meeting 2019, Dec 9-13, 2019, San Francisco, CA, USA, Session PP013: ENSO in the Pacific Basin: Insights from Proxy Records, Modelling Experiments, and Modern Climatology: *Reconciling eastern and central Pacific paleo-ENSO proxies: the role of coastal El Niño events.* ***(Invited)***
- ENSO Science Symposium, Jan 29-Feb 2, 2019: Hobart, Australia: *Multi-resolution hierarchical modeling of ENSO flavors and their impacts.* ***(Keynote)***
- AGU Fall Meeting 2018, Dec 10-14, 2018, Washington D.C., Session PP33B: Paleoclimatic History of El Niño-Southern Oscillation: *A multi-resolution approach to paleo-ENSO diversity in models and data.* ***(Invited)***

- AGU Fall Meeting 2018, Dec 10-14, 2018, Washington D.C., GC42D: Untangling ENSO Complexity: From the Ancient Past to the Far Future I : *A hierarchy of models for ENSO diversity in past, present and future.* ***(Invited)***
- IV International Conference on El Niño Southern Oscillation: ENSO in a warmer Climate, Oct 16-18, 2018, Guayaquil, Ecuador: *A hierarchy of models for ENSO diversity in past, present and future.****(Invited)***

Invited Seminars (departmental, regional)

- SEAS Colloquium in Climate Science (SCiCS), March 14, 2019, Columbia University in the City of New York.
- School of Marine and Atmospheric Sciences, Stony Brook University, Mar 13, 2019
- National Climate Center, Chinese Meteorological Agency, Beijing, China, May 16, 2018
- Nanjing University of Information Science & Technology, Nanjing, May 17, 2018
- Forum Math for Industry 2017: Responding to the Challenges of Climate Change: Exploiting, Harnessing and Enhancing the Opportunities of Clean Energy, 2017
- University of Texas Institute for Geophysics (UTIG), 2017
- UH Department of Civil & Environmental Engineering Seminar Series, 2016
- Workshop on Using High Resolution Paleoclimate Reconstructions Since AD 1500 in Support of Research on Environmental/Societal Change in Hawaii, sponsored by the Climate Impacts Research Center of Hawaii & Pacific Islands Climate Change Cooperative, 2017
- UCSB Interdepartmental Graduate Program in Marine Science (IGPMS) Seminar Series, Santa Barbara, 2015
- The Tropics Rule: a symposium honoring Mark Cane's contribution to climate science, Lamont-Doherty Earth Observatory of Columbia University, 2014
- The Subtropical Frontier: A summer school on climate trends, variability and extremes in the subtropics, Navarino Enviromental Observatory, Greece, 2013: Invited instructor and lecturer.
- *Bias or Uncertainty: Following the bias cascade in precipitation projections.*, Workshop "Climate Change and Water Cycle, and Communicating Uncertainty, Princeton University, March 2012.
- Geology, Earth & Oceanography Series (GEOS), City University of New York (CUNY), February 2012.

Teaching

- **Instructor & Course Developer**, *ATMO449: Climate Modeling, Data Analysis and Applications*, Department of Atmospheric Sciences/Civil and Environmental Engineering, University of Hawaii
- **Instructor & Course Developer**, *ATMO640: Paleoclimate Model-Proxy Synthesis*, Department of Atmospheric Sciences, University of Hawaii
- **Instructor**, *ATMO101: Introduction to Weather and Climate*, Department of Atmospheric Sciences, University of Hawaii
- **co-Instructor**, *OCN105: Sustainability in a Changing World*, Department of Oceanography, University of Hawaii
- Guest Instructor, *ATMO752: Dynamics of the El Niño-Southern Oscillation Phenomenon*, Department of Meteorology, University of Hawaii, Fall 2014
- Instructor, *The Subtropical Frontier: A summer school on climate trends, variability and extremes in the subtropics*, Navarino Enviromental Observatory, Messinia, Greece, June 23-July 3, 2013
- Guest Lecturer, *River & Coastal Hydrodynamics*, Instructors: U. Lall & F. Cioffi, Department of Earth & Environmental Engineering, Columbia University, Spring 2011

Student Advising

- **Thesis Advisor:** Jil Kiefer (PhD, 2021 expected), Madeline McKenna (PhD, 2022, expected), Jan van Der Veken (MS, 2020, expected), Zachary Menzo (PhD, 2023, expected)
- **Undergraduate Thesis Advisor:** Nicholas Modar (BS, 2019)
- **MS and PhD Thesis Committee Member:** and **Undegraduate Advisor** for over 18 students

Service at the University of Hawaii

- SOEST representative (substitute), Graduate Council, U. of Hawaii (Spring 2019-date)
- Member, Curriculum Committee, Department of Atmospheric Sciences, U. of Hawaii (2017-date)
- SOEST Faculty search committees: Department of Oceanography, U. of Hawaii (2018-2019) & Department of Ocean & Resources Engineering, U. of Hawaii (2018-2019)
- Developed Presentations and Activities for Hawaii High school visits to SOEST organized by the Dean's office.
- SOEST Open House exhibitor/volunteer, 2013-2019
- Developed and presented materials on graduate studies in Atmospheric Sciences, UH Grad Fair, 2017-2019
- Instructor, Bridge program between Hawaii community colleges and SOEST: "Mauka to Makai". August 2018 & 2019
- Volunteer mentor in Interview Skills Workshop, organized by the SOEST Professional Development Committee, Sep 2017

Synergistic Activities & Service outside UH

- Outreach: Communicating current science and research news to raise public awareness about the importance of science, technology, climate and weather to the future of Hawaii and the Pacific:
  - *Interview on El Niño and Hawaii Drought, Hawaii Public Radio, 2019*
  - *Pacific Hurricane Awareness Tour event organized by Hurricane Hunters and NHC forecasters, June 1st 2019*
  - *Evening Sky News with Tom Macleod on Sky News Network: Hawaii Hurricane Lane, Aug 2018*
  - *News Views on Olelo Public Access TV: Climate Change 101, Oct 2017*
  - *Jay Fidell's ThinkTech Hawaii Show Is El Niño Changing?, Sep. 2014*, Fall 2014.
  - *Minnesota Public Radio: Climate Scientists trained to be on hot seat.* Aug. 2016
  - *Organizer (in collaboration with the Columbia University Club of South Florida) of the panel discussion and open to the public event: The Future of Water: innovative interdisciplinary approaches for resilient adaptation to climate change in South Florida*, 2011
- Volunteer Mentor and Judge, Hawaii Association of Independent Schools, and Hawaii State Science and Engineering Fair (Hawaii Academy of Sciences)
- Convener of AGU Session on "Atmospheric Teleconnections from the Equatorial Pacific: 50 Years of Progress on the Role of Tropical Oceans in Climate and its Predictability", AGU Fall Meeting 2019
- Convener of AGU Session on "Dynamics and Predictability of Midlatitude Storms in a Changing Climate", AGU Fall Meetings 2011-2016
- Convener of Session on "Understanding and Modeling ENSO in past, present and future climates", AGU Ocean Science Meeting 2014

- Reviewer: NSF proposals, Nature, Nature Geoscience, Science Advances, Journal of Climate, Climate Dynamics, J. of Applied Meteorology & Climatology, Regional Environmental Change, Advances in Water Resources, Weather and Forecasting.

Other academic training

Expert Witness Training Academy, August 2016 & August 2018, Mitchell Hamline School of Law, St. Paul, MN

Dissertations Initiative for the Advancement of Climate Change Research (DISCCRS), VII Symposium, October 12-19, 2013, La Foret Conference Retreat Center, Colorado Springs, CO

Community Earth System Modeling (CESM) Tutorial, 30 July - 03 August 2012, NCAR, Boulder, CO

Statistical Assessment of Extreme Weather Phenomena under Climate Change, NCAR ASP Colloquium, June 6-24, 2011, Boulder, CO, USA

Workshop on Hierarchical Modeling of Climate, International Centre for Theoretical Physics (ICTP), Trieste, Italy, 18 - 22 July 2011.

Summer School on Biogeodynamics and Earth System Sciences (BESS), Venice, Italy, June 11-18 2010.

Professional Societies & Associations

American Geophysical Union (AGU), American Meteorological Society (AMS), European Geoscience Union (EGU), American Society of Civil Engineers (ASCE), International Association of Hydrogeologists, Technical Chamber of Greece (TEE-TCG)