

VICTORIA W. KEENER, PH.D.

Research Fellow
East-West Center
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EDUCATION

- PhD Agricultural & Biological Engineering**, University of Florida 2010
Emphasis: hydroclimatological modeling and time series analysis
- Earth & Environmental Engineering**, Columbia University 2006
(Visiting PhD Graduate Scholar)
Emphasis: regional climate analysis
- BSc Bioengineering**, Rice University 2002

PROFESSIONAL EXPERIENCE

- Commissioner** (appointed) 2018 – present
City & County of Honolulu Climate Change Commission
- Gather the latest science and data on projected climate impacts to the City & County of Honolulu, and translate it into actionable information;
 - Hold public meetings according to the Hawaii Sunshine Law and solicit feedback from city departments (12 meetings since Feb. 2018);
 - Provide requested climate information and impacts to City sub-committees and groups;
 - Advise the City Office of Climate Change, Sustainability, & Resiliency, the Mayor, the City Council, and the executive departments.

- Research Fellow** 2011 – present
Environment Program, East-West Center
- Conduct policy relevant interdisciplinary and Pacific Islands focused climate adaptation research, secure independent research grant funding and manage a team of five researchers and staff;
 - Represent the East-West center in regional and international briefings for various organizations such as U.S. Indo-Pacific Command, Asia Development Bank, and the United Nations, in sectors such as water resources and drought, climate change, and security;
 - Lead Investigator (since 2013) of the NOAA Pacific Regional Integrated Sciences & Assessments (Pacific RISA) research program, an interdisciplinary team working in Hawaii and the US-Affiliated Pacific Islands with freshwater stakeholders to translate climate science into natural resource management, better understand risk, and inform policy.

- Affiliate Graduate Faculty** 2013 – present
University of Hawaii at Mānoa: Department of Geology and Geophysics & the Water Resources Research Center (WRRC)
- Serve on graduate committees as appropriate, review grant proposals, guest lecture in classes, and participate in seminar series.

- Post-Doctoral Researcher** 2010 – 2011
Department of Biological and Agricultural Engineering, University of Florida
- Serve as link between the University of Florida Southeast Climate Consortium (SECC) and the Florida Water & Climate Alliance;
 - Analyze potential to use downscaled climate projections for water resources planning.

PUBLICATIONS

Keener, V.W., Helweg, D.A., Asam, S., Balwani, S., Burkett, M., Fletcher, C., Giambelluca, T., Grecni, Z., Nobrega-Olivera, M., Polovina, J., Tribble, G. (2018). Ch. 27: Hawai'i and U.S. Affiliated Pacific Islands : The Fourth National Climate Assessment. U.S. Global Change Research Program, Washington, DC. <https://nca2018.globalchange.gov/chapter/hawaii-pacific/>

City and County of Honolulu Climate Change Commission, (Adopted: June 2018). Sea Level Rise Guidance. Resilient Oahu, <https://www.resilientoahu.org/s/Sea-Level-Rise-Guidance-483k.pdf>

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- City and County of Honolulu Climate Change Commission**, (Adopted: June 2018). Climate Change Brief. Resilient Oahu, <https://bit.ly/2UpiDm5>
- [Edited by Frazier, A.] Deeni, J., Fujii, N, Funderburk, G., Giambelluca, T., Giardina, C., Helweg, D., **Keener, V.W.**, Mair, A., Marra, J., McDaniel, S., Ohye, L., Oki, D., Parsons, E., Strauch, A., Trauernicht, C. (2019, *forthcoming*) Chapter 5: Management Options in Response to Drought: Hawaii and US Pacific Islands. USFS General Technical Report.
- Helweg, D.A. & **Keener, V.W.** (2017). Applications of Climate Downscaling in the Main Hawaiian Islands: Balancing Climate Modelers' Products and Impact Modelers' Expectations. Report on a Workshop held April 11-12, 2017. East-West Center, Honolulu, HI. <https://doi.org/10.21429/C9CW4R>
- Brewington, L., **Keener, V.W.**, Finucane, M., & Eaton, P. (2017). Participatory Scenario Planning for Climate Change Adaptation Using Remote Sensing and GIS. In S. Walsh (Ed), Remote Sensing for Societal Benefits. Amsterdam: Elsevier.
- Hawai'i Climate Change and Health Working Group** (2016). Report to the 28th Legislature, State of Hawai'i: 2016 Preliminary Report and Recommendations from the Hawai'i Climate Change & Health Working Groups. Access at: <http://www.hawaiipublichealth.org/resources/HCR108%20SLH2015%20Climate%20Change%20and%20Health%20Working%20Group%20122715.pdf>
- Helweg, D.A., **Keener, V.**, & Burgett, J.M. (2016). Climate downscaling and its application in high Hawaiian Islands, September 16–17, 2015: U.S. Geological Survey Open-File Report 2016–1102, 25 p., <http://dx.doi.org/10.3133/ofr20161102>. ISSN: 2331-1258
- Ferguson, D.B., Finucane, M.L., **Keener, V.W.**, Owen, G. (2016). *Evaluation to Advance Science Policy: Lessons from Pacific RISA and CLIMAS*. In Garfin, G. & Parris, A. Climate in Context. West Sussex, England: Wiley.
- Annamalai, H., **Keener, V.W.**, Widlansky, M.J., Hafner, J. (2015) El Niño Strengthens in the Pacific: Preparing for the Impacts of Drought. AsiaPacific Issues, No. 122, December 2015.
- Corlew, L.K., **Keener V.W.**, Finucane, M.L., Brewington, L., Nunn, R. (2015) Using Social Network Analysis to Assess Communications and Develop Networking Tools Among Climate Change Professionals Across the Pacific Islands Region. Psychosocial Intervention, 24, pp 133-146.
- Finucane, M.L., **Keener, V.W.** (2015): Understanding the climate sensitive decisions and information needs of island communities, Journal of the Indian Ocean Region, DOI: 10.1080/19480881.2015.1021181
- Finucane, M.L., Miller, R., Corlew, K., **Keener, V.W.**, Burkett, M., Grecni, Z. (2013). Understanding the climate-sensitive decisions and information needs of fresh water resource managers in Hawai'i. *Climate, Weather and Society*, 5(4): 293-308.
- V.W. Keener**, K. Hamilton, S.K. Izuka, K.E. Kunkel, L.E. Stevens, L. Sun. (2013) Regional Climate Trends and Scenarios for the U.S. National Climate Assessment: Part 8. Climate of the Pacific Islands. NOAA Technical Report, NESDIS, 142-8, Washington, DC.
- V.W. Keener**, S.K. Izuka, & Anthony, S. (2012). Freshwater and Drought on Pacific Islands. In: V.W. Keener, Marra, J. J., Finucane, M. L., Spooner, D., & Smith, M. H. (Eds.), *Climate Change and Pacific Islands: Indicators and Impacts*. Report for the 2012 Pacific Islands Regional Climate Assessment (PIRCA). Washington, DC: Island Press.
- V.W.Keener**, Marra, J. J., Finucane, M. L., Spooner, D., & Smith, M. H. (Eds.). (2012). *Climate Change and Pacific Islands: Indicators and Impacts*. Report for The 2012 Pacific Islands Regional Climate Assessment. Washington, DC: Island Press.
- V.W. Keener**, G.W. Feyereisen, U. Lall, J.W. Jones, D.D. Bosch, R. Lowrance. (2010). El-Niño/Southern Oscillation (ENSO) influences on monthly NO₃ load and concentration, stream flow and precipitation in the Little River Watershed, Tifton, GA. *J. Hydrology*. 381: 352–363.
- V.W. Keener**. (2010). *Hydro-Climatic Influences of El-Niño/Southern Oscillation on Nutrient Loads in the Southeast United States*. PhD Dissertation, Department of Agricultural and Biological Engineering, University of Florida.
- V.W. Keener**, K.T. Ingram, B. Jacobson, J.W. Jones. (2007). Effects of El Niño/Southern Oscillation on simulated phosphorus loading in south Florida. *Tr. ASABE*. 50(6): 2081-89.

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ACADEMIC GRANTS

- 2018 Co-Investigator, NOAA International Research and Applications Project (IRAP). "Climate, Health, and Human Migration in the Pacific Islands" (\$477,079)
- 2017 Lead Investigator, DOI Pacific Islands Climate Adaptation Science Center (PI-CASC). "Pacific Islands Regional Climate Assessment Sustained Assessment Specialist" (\$79,463)
- 2016 Co-Investigator, DOI Pacific Islands Climate Adaptation Science Center (PI-CASC). "Analyzing Correlations and Effects of Human Migration of Marshallese Islanders" (\$267,720)
- 2015 Lead Investigator, NOAA Regional Integrated Sciences and Assessments Program (RISA). "Pacific Islands Regional Integrated Sciences and Assessments" (\$4,246,800) NA15OAR4310146
- 2015 Co-Investigator, Water Resources Foundation. "Impacts of Climate Change on Honolulu Board of Water Supply and Planning Strategies for Mitigation" (\$25,686)
- 2015 Lead Investigator, DOI Pacific Islands Climate Adaptation Science Center (PI-CASC). "The Pacific Islands Regional Climate Assessment Sustained Assessment Specialist" (\$96,990) G15AC00509
- 2013 Co-Investigator, Department of Defense Strategic Environmental Research Development Program (SERDP). "Water Resources on Guam: Potential Impacts and Adaptive Response to Climate Change for Department of Defense Installations" (\$2,279,191) RC-2340
- 2013 Lead Investigator, NOAA Regional Integrated Sciences and Assessments Program (RISA). "Pacific Islands Regional Integrated Sciences and Assessments (Pacific RISA Phase II)" (\$4,020,748) NA10OAR4310216
- 2012 Lead Investigator, NOAA Climate Program Office. "Mapping the Flow of Climate and Water Resource Information in the Pacific Islands" (\$150,785) NOAA-OAR-CPO-2012-2003304
- 2012 Lead Investigator, USGS. "The Pacific Islands Regional Climate Assessment Forum" (\$25,000) G12AS20008

SELECTED NON-REFEREED PUBLICATIONS AND MEDIA

Keener, V.W. "Climate Change: Redraw policies to adapt" Star Advertiser Editorial, Sunday, December 2, 2018. <https://www.staradvertiser.com/2018/12/02/editorial/insight/climate-change-redraw-policies-to-adapt-2/>

V.W. Keener, M.L. Finucane, L. Brewington (2011-2016). "Climate Matters" Video documoments, available online at <http://www.pacificrisa.org/education-outreach/documoments>.

- Climate Matters for Pacific Island Ecosystems
- Climate Matters for Island Environments
- Climate Matters for Waikiki Beach
- Climate Matters for Ranchers in Hawai'i
- Climate Matters for Pacific Island Decision Makers

Keener, VW, Gingerich, SB, Finucane, ML. April, 2015. Climate Trends and Projections for Guam. East West Center information sheet, Honolulu, HI.

Pacific Islands Regional Climate Assessment (PIRCA), Pacific Islands Climate Science Center (PICSC) and Pacific RISA, 2016. Expert Consensus on Downscaled Climate Projections for the Main Hawaiian Islands. PIRCA Information Sheet, Honolulu, HI.

USA Today (July 2018) "How climate change is threatening the Navy's footprint in the Pacific" <https://www.usatoday.com/story/news/politics/2018/06/28/climate-change-threatening-navys-bases-pacific-guam/710979002/>

New York Times, "North Korea Aside, Guam Faces Another Threat: Climate Change" (August 11, 2017) <https://www.nytimes.com/2017/08/11/world/asia/guam-north-korea-climate-change.html>

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Asia Dialogue, the online magazine of the University of Nottingham Asia Research Institute. Adapting to climate change in the U.S. Pacific Islands December, 2017

<http://theasiadialogue.com/2017/12/06/adapting-to-climate-change-in-the-u-s-pacific-islands/>

Guest on Hawaii Public Radio (HPR) "The Conversation", March 6, 2017. Discussion about the Fourth U.S. National Climate Assessment . <http://hawaiipublicradio.org/post/conversation-monday-march-6th-2017>

PBS "Insights" TV show, February 14, 2013 – Panel discussion on the impacts of climate change in Hawaii: http://www.youtube.com/watch?feature=player_embedded&v=7ghy7ArhCvg

Honolulu Weekly, January 2, 2013 - "Climate Change in Hawaii – It's Here"

<http://honoluluweekly.com/cover/2012/12/climate-change-in-hawai%E2%80%98it%E2%80%99s-here/>

Science Writer for: *The Where, the Why and the How: 75 Artists Illustrate Wondrous Mysteries Of Science* (2012). Editors, M. Lamothe, J. Rothman, J. Volvoski. Chronicle Books, San Francisco, California.

- Do rogue waves exist?
- What causes ocean currents, and what could happen if they change?
- Where did life come from?

As reviewed in:

- Science: <http://www.sciencemag.org/content/339/6119/523.summary>
- NPR's Science Friday: <http://sciencefriday.com/blogs/01/18/2013/an-illustrated-guide-to-the-mysterious.html>
- Smithsonian: <http://blogs.smithsonianmag.com/artscience/2012/11/why-do-we-hiccup-and-other-scientific-mysteries-seen-through-the-eyes-of-artists/>

SELECTED TECHNICAL AND PUBLIC PRESENTATIONS

V.W. Keener. *Invited Lecture.* "Projected Climate Impacts in Hawaii and the US-Affiliated Islands". Presentation at the First Annual Hawaii State Climate Change Conference, Honolulu, HI. January 14, 2019.

V.W. Keener. *Invited Lecture.* "Emphasis on regional risks increases relevance for local decision makers" U24A: Highlights from the Fourth National Climate Assessment: Impacts, Risks, and Adaptation in the United States. Presentation and panel discussion at the Fall Meeting of the American Geophysical Union (AGU), Washington, DC. December 11, 2018

V.W. Keener & Jaspers, K. "Perceptions and Use of Downscaled Climate Data by Climate Modelers and Resource Managers in Hawaii" in Session PA33D: Toward More Effective Decision Maker-Scientist Engagement I. Presentation at the Fall Meeting of the American Geophysical Union (AGU). December 14, 2016.

V.W. Keener. *Invited Lecture.* The Pacific RISA: Co-Production of Climate Research for Resource Management in Hawaii and the Pacific Islands. University of Washington at Pullman, Center for Environmental Research, Education, and Outreach (CEREO), March 3, 2015.

V.W. Keener, Marra, J.J., Finucane, M.L., Spooner, D. and Smith, M.H. *The Pacific Islands Regional Climate Assessment (PIRCA). Keynote Lecture* given at the Pacific Islands Regional Climate Forum, Imin International Conference Center, Honolulu, HI. December 10, 2012.

V.W. Keener and Finucane, M.L. "Climate Matters Documoments: Enabling Regionally-Specific Climate Awareness". Lecture given at the Annual Meeting of the American Geophysical Union Session: ED32A. Climate Literacy: Reaching Diverse Audiences through Informal Education Experiences, Public Outreach, and Community Programs II, San Francisco, CA. December 5, 2012.

V.W. Keener and Miller, L. Influence of Climate Variability on Trends in Streamflow Records at Selected Sites in the Pacific Islands Region. Lecture given at the Annual Meeting of the American Geophysical Union, Session: H33O. Regional Streamflow Analysis I, San Francisco, CA. December 5, 2012.

V.W. Keener. *Invited Lecture,* "The PVT Landfill: A Case Study in the Successful Integration of Climate

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Information for Decision Making”. Hawaii Office of Planning, Ocean Resources Management and Planning (ORMP) meeting. NOAA Pacific Services Center, Honolulu, HI. July 7, 2011.

OTHER PROFESSIONAL ACTIVITIES & AWARDS

- 2018 Appointed to the City & County of Honolulu Climate Change Commission
- Gather the latest science and data on projected climate impacts to the City & County of Honolulu, and translate it into actionable information;
 - Provide requested climate information and impacts to City sub-committees and groups;
 - Advise the City Office of Climate Change, Sustainability, & Resiliency, the Mayor, the City Council, and the executive departments.
- 2016 Appointed Lead Author for the Hawaii and Pacific Islands regional chapter of the Fourth U.S. National Climate Assessment, U.S. Global Change Research Program
- Select and coordinate an 11-author team;
 - Write and edit the regional chapter for the NCA4;
 - Meet all federal deadlines, respond to all review comments, create new figures, serve as liaison between the regional author team and the USGCRP Office.
- 2013 Graduate Committee Member (MSc), Duncan McIntosh, RSMAS University of Miami Weather, Climate & Society program
- 2013 Appointed as Affiliate Faculty, University of Hawaii at Manoa, Water Resources Research Center and Department of Geology and Geophysics
- 2013-2016 Pacific Risk Management Ohana (PRiMO) – Navigator’s Councilmember
- 2013 IPCC Working Group II Reviewer for “*Islands*” and “*Australoasia*” regional chapters: The 5th Intergovernmental Panel on Climate Change (IPCC) report
- 2012 Appointed Lead Editor for The 2012 Pacific Islands Regional Climate Assessment (technical report for the 2014 U.S. National Climate Assessment)
- 2011 Honorable Mention in the Universities Council on Water Resources National Ph.D. Dissertation Award competition in the category of ‘Natural Sciences and Engineering’.
http://www.ucowr.org/Awards/2011_UCOWR_Award_Winners_files/2011_UCOWR_Award_Winners.pdf
- ongoing* *Reviewer for:* Climatic Change, Bulletin of the American Meteorological Society, Asia Pacific Perspectives, Journal of Climate Risk Management, Earth Sciences Research Journal, Elsevier Publishing, Journal of Environmental Management, Frontiers in Ecology and the Environment, Weather, Climate and Society, Transactions of the American Society of Agricultural & Biological Engineering.
- Volunteer:* University of Hawaii Institute of Marine Biology (HIMB) Coral Spawning Lab, Honolulu Science Fair Judge (grades 9-12), Oahu Watershed Alliance.