

Elisabeth A. Holland, Ph.D.

Director & Professor

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Accomplished scientist, complex system and design thinker, diplomat, and educator with 20+ years of solution focused experience in the field of Climate Change Sustainable Development, Oceanography, and Environmental Science. Nobel Peace Prize co-recipient, Aldo Leopold/Earth Leadership Fellow, Fellow of the American Association for the Advancement of Sciences, SOARS Presidential Award for Excellence in Mentoring, Proven ability in developing interdisciplinary and transdisciplinary scientific institutes and programs, successfully builds and maintains relationships with relevant national and international stakeholders to further the organization's goals. Expert in Climate Change, the Ocean, and Sustainable Development in the context of national and international development. Sought-after science communicator, 17 presentations at COP26. Demonstrated success serving as a motivational, innovative, and receptive leader who encourages collaboration, solution focused and action-oriented team development.

Education

Post-doctoral Fellow Department of Biological Sciences
Stanford University, Stanford, CA

Ph. D. Ecology and Environmental Sciences

Colorado State University, Fort Collins, CO

Thesis: Plant Carbon Allocation and Nitrogen Cycling in a Perennial Grassland: The Role of Herbivory

Master of Science Soil Science

Colorado State University, Fort Collins, CO

Thesis: Crop Residue Placement Impacts on Soil Processes

Bachelor of Science Zoology with a Minor in Spanish

Colorado State University, Fort Collins, CO

Selected Achievements

- 2007 Nobel Peace Prize Co-Recipient with Al Gore and the rest of the Intergovernmental Panel on Climate Change.
- Established Locally Managed Climate Change and Adaptation network in more than 120 communities in 15 Pacific Islands countries which include the Cook Islands, Federated States of Micronesia, Fiji, Kiribati, Nauru, Niue, Palau, Papua New Guinea, Republic of the Marshall Islands, Samoa, Solomon Islands, Timor L'este, Tonga, Tuvalu, Vanuatu.
- Advanced the forecasting and research capacity of Pacific Meteorological Services by creating a Pacific Islands World Meteorological Organization Regional Training Center for delivery of Weather Climate Hydrological Atmospheric and Ocean Services.
- Quantified the atmospheric Nitrogen deposition budgets of the U.S. and Western Europe using measurements and models, including establishment of public access data base widely used by chemical transport modeling community and terrestrial biogeochemical models.
- Founding member of the Max Planck Institute of Biogeochemistry, Jena Germany, one of 18 institutes established in former East Germany following German reunification.
- Quantified the impact of coupling of the global nitrogen and carbon cycles in a pioneering series of papers, as well as the importance of many aspects of heterotrophic respiration in the carbon budgets, including 2 papers in Nature.
- Spearheaded the first focus on the global nitrogen cycle for Chapter 8, Coupled Biogeochemical Cycles, in the IPCC Fourth Assessment Report, The Physical Science Basis.
- Aided in the successful negotiation of the Paris Agreement by utilizing scientific research and data to persuade the nations present at the UNFCCC to undertake ambitious efforts to combat Climate Change and adapt to its effects.

Professional Experience

Professor Ocean and Climate Change (2021-current day) & Director (2012-current day) Pacific Centre for the Environment and Sustainable Development, University of the South Pacific (USP), Suva, Fiji

Oversaw all aspects of strategic planning, fund raising, grant writing, Human Resources and financial management, project development and implementation, across the University and regional coordination, ensuring each part of the Center ran smoothly and efficiently. Promoted education and communication on Climate Change and Climate Science through internal and external outreach and communication. Participating in UNFCCC negotiations on Climate Change.

- Implemented more than 50M FJD\$ of projects focused on climate adaptation, capacity building, applied research and community development at Pacific Centre for Environment and Sustainable Development at the University of the South Pacific, furthering student's understanding of Climate Change and Climate Science.
- Spearheads a Pacific Islands team to create a world class Climate Change program for post-graduate studies and research at the University of the South Pacific. Since this program began, six Ph.D.'s, 35+ Master of Science degrees, and 250+ post-graduate diplomas in climate change have been awarded to Pacific Island students.

Norway-Pacific Chair Ocean and Climate USP Fiji, and University of Bergen, Norway, 2019 – 2021

As the Norway-Pacific chair developed research and Science Diplomacy focused at the Ocean-Climate Nexus. Established a strong foundation for Pacific research capacity, furthering research opportunities for scientists and research organizations. Authored multiple peer reviewed publications, dealing with Climate Change and Oceanography. Participated in and Chaired numerous UNFCCC negotiations.

- Secured 24 Norway Pacific Ocean and Climate PhD scholarships for students, advancing not only their education but their careers as scientists and researchers.
- Wrote and published 17 peer reviewed papers, including *The use of Copernicus Marine Service products to describe the State of the Pacific Ocean around the Islands: A case study* and *Seagrasses and seagrass habitats in Pacific small island developing states: Potential loss of benefits via human disturbance and climate change*.
- Established a strong Pacific focused research and science basis for the Sustainable Development Goals, specifically SDG 13 on Climate Change and SDG 14 on the Ocean.

Professor of Climate Change, 2012 – 2019

Established a Pacific research program in Climate Change educating University students in all facets of Climate Change., Maintained high-quality and consistency of instruction in post graduate courses in Climate Change and Tropical Meteorology serving as a Course Coordinator. Developed climate change course curricula, preparing course material for students, grading student work, and advising students on their education and career path. Supervised multiple research students, mentoring them and educating them in the field. Wrote and published multiple peer reviewed papers.

- Taught a Massively Open On-Line Course on Climate Change in the Pacific Islands to 1600 students in 51 countries.
- Selected to be the Delegate representing Fiji and Solomon Islands governments for United Nations Framework Convention on Climate Change (UNFCCC) Conference of Parties (COP18-25).

Fellow Bjerknes Centre for Climate Research, University of Bergen, Norway, 2011 and 2018

Conducted Climate Change research focused on land and ocean biogeochemistry, as well as addressing the role of the Ocean in supporting the SDGs. Collaborated with multiple nations to address common Climate Change and marine science problems, fostering constructive international partnerships. Authored numerous peer reviewed publications pertaining to Climate Change research.

- Built and cultivated strong ties between the University of the South Pacific and the University of Bergen at the Ocean - Climate Change Nexus resulting in Student Exchanges, a Norway-Pacific Chair in Ocean and Climate, and the Norway-Pacific Scholarship Program. This partnership was recognized as a successful voluntary commitment towards SDG 14 under the United Nations Ocean Conference.

National Center for Atmospheric Research (NCAR), Boulder, 2006 – 2012

Director of the Biogeosciences Program and the Integrated Studies Program, 2008 – 2010

Directed internal and external research coordination, overseeing multiple research projects and scientists. Managed all strategic planning and fund raising for the NCAR, ensuring projects were completed on time and had the necessary funding. Served as a Grant Manager for the NCAR, distributing grants to worthy candidates.

- Provided innovative leadership and scientific vision for the NCAR Biogeosciences Program, managing the Total program budget annual budget of approximately \$2.7M. The Program involved 5 divisions and was a cornerstone in the establishment of TIIMES and Integrated Science Programs at NCAR.

Senior Scientist, 2006 – 2012

Conducted internationally recognized research on utilizing both models and observations to understand the global nitrogen cycle and interactions with the carbon cycle, atmospheric chemistry and climate change and securing research funding, peer reviewed publication. Became a leader in the Global Nitrogen Cycle and Coupled Biogeochemical Cycles.

- Lead Author of the IPCC Fourth Assessment Report, as a member of the IPCC team that won the 2007 Nobel Peace Prize. Received the prize for efforts to expand and distribute greater knowledge about man-made climate change and its work in laying the foundations for the measures that are needed to counteract Climate Change.

Additional Career Experience

Director of Biogeosciences Program, The Institute for Integrative and Multidisciplinary Earth Studies (TIIMES), National Center for Atmospheric Research (NCAR), Boulder, CO, 2005 – 2008

Management Committee, The Institute for Integrative and Multidisciplinary Earth Studies (TIIMES), National Center for Atmospheric Research (NCAR), Boulder, CO, 2004 – 2008

Leader of the NCAR's Biocomplexity Program, National Center for Atmospheric Research (NCAR), Boulder, CO, 2004 – 2005
Scientist III of the Atmospheric Chemistry Division, National Center for Atmospheric Research (NCAR), Boulder, CO
Scientist II of the Atmospheric Chemistry Division, National Center for Atmospheric Research (NCAR), Boulder, CO
Fellow of the Institute of Arctic and Alpine Research, University of Colorado, Boulder, CO
Scientist I of the Atmospheric Chemistry Division, National Center for Atmospheric Research (NCAR), Boulder, CO
Post-Doctoral Fellow of the Department of Biological Sciences, Stanford University, Stanford, CA
Graduate Research Assistant, NREL, Colorado State University, Fort Collins, CO
Undergraduate Research Assistant, NREL, Colorado State University, Fort Collins, CO
Naturalist, Todd Sanctuary, Audubon Society of Western Pennsylvania

Awards

Fellow, American Association for the Advancement of Sciences, 2019
Best Paper Award 2017: International Journal of Climate Change: Impacts and Responses
Woman of Achievement, Zonta Foothills Club of Boulder County, 2007-2008
Nobel Peace Prize, Awarded to the Intergovernmental Panel on Climate Change and Al Gore, 2007
Aldo Leopold/Earth Leadership Fellow, 2005
Presidential Award for Excellence in Mentoring Significant Opportunities in Atmospheric Research, NCAR

Affiliations

- **American Association for the Advancement of Science, American Geophysical Union, American Meteorological Society,**
- **Gamma Sigma Delta, Honor Society of Agriculture**, Member
- **Ecological Society of America's Committee on Women and Minorities**, former Member
- **Bjerknes Centre for Climate Research**
- **Pacific Islands World Meteorological Organization Regional Training Center**
- **Max Planck Institute of Biogeochemistry**
- **National Center for Atmospheric Research (NCAR) Leadership Academy**, Class of 2003
- **University of Bergen**
- **University of Colorado**
- **Stanford University**
- **Colorado State University**

Languages

English, Native Speaker
Spanish, Fluent
French, Fluency Level
German, Fluency Level
Italian, Novice
Portuguese, Novice
Fijian, Novice

Community Activities and Volunteer Work

- **Paddler, Pacific Islanders Va'a Paddling team** Pacer, seats 2 & 5 2016-current day.
- **Open water swimming and USP triathlon team** Occasional competitor
- **Fund raiser** Burning Rock Bike and Tri Club, Vatuwaqa, Fiji.
- **Certified Scuba diving** : research and jo, 2012-current day
- **Participant**, Roundtable on Climate Change on Native Lands: Opportunities for NCAR and Tribal Colleges to Work Together, NCAR, Boulder, CO, 09/26/2011
- **Participant**, Roundtable on Roundtable on Private, Public, and Tribal Collaboration on Workforce and Supply Chain Opportunities in Energy organized by International Indigenous Institute for Resource Management, Consolidated Tribes of the Umatilla Reservation, Wildhorse Casino, Pendleton, OR, 09/7/2011–09/8/2011
- **Organizer**, Navajo training workshop on Climate Change, Air Pollution, and Renewable Energy, for 13 students from Dine College, held at NCAR, University of Colorado, and National Renewable Energy Laboratory, Boulder, CO, 07/18/2011–07/22/2011
- **Co-organizer**, Navajo training workshop for 18 students from Dine College, Shiprock, NM held at NCAR, Boulder, CO, 07/5/2010–07/8/2010
- **Participant and Climate Change Speaker**, Community Meeting, Hardrock Senior Center, Navajo Reservation, Hardrock, AZ, 03/13/2010

- **Participant and Climate Change Speaker**, Earth Day Celebration, Pinon Elementary School, Navajo Reservation Pinon, AZ, 04/23/2010–04/24/2010
- **Speaker and Participant**, Environmental Education Forum, Navajo Reservation, St. Michaels, AZ, 04/19/2010
- **Speaker and Participant**, Making Connections: An Autumn Eco-forum, organized by Cornell American Indian Program and Cornell Indigenous Graduate Students Association, Cornell University, Ithaca, NY, 10/23/2009–10/25/2009
- **Climate Change Resource Expert**, National Congress of American Indians, 2008-Present
- **Co-organizer and Keynote speaker**, Planning for Seven Generations: Indigenous & Scientific Approaches to Climate Changes, Boulder, CO, 03/19/2008 – 03/21/2008
- **Co-Organizer**, American Physical Society Study on the Status of Women Scientists at NCAR
- **Organizer**, sub-committee of Boulder’s Women in Atmospheric Science (WIAS) to address, amend and implement changes to NCAR’s maternity and family leave policies
- **Board member**, Soaring Society of Boulder,

Honors, Leadership and Diplomacy

- **USP Governing Council elected as professorial representative 2021-2023**
- **UN GESAMP Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection UN System**
- **UN GESAMP Coordinator Climate Change Task Team**
- **UN GESAMP Member WG 45: "Climate Change and Greenhouse Gas Related Impacts on Contaminants in the Ocean.**
- **International Advisory Board Naturalis Biodiversity Center**, Lieden, The Netherlands, 2022-2026
- **International Advisory Board Leibnitz Centre for Tropical Marine Research**, Bremen, Germany, 2021-2024
- **Board Member, Sustainable Sea Transport Initiative**, 2020-current day.
- **International Advisory Board Priestley International Centre for Climate**, University Leeds, UK, 2018-Present
- **USP Senate Member**, University of South Pacific, 2015-2016, 2019-present day.
- **Keeling Invited Lecture**, Scripps Institute of Oceanography, University of California, San Diego, 2018
- **USP Representative**, Pacific Islands Aviation Weather Panel of the Pacific Meteorological Council, 2015-Present
- **USP Representative**, Pacific Islands Education, Training and Research Panel of the Pacific Meteorological Council, 2015-Present
- **Chair of the Board**, Pacific Environment and Climate Exchange, Suva Fiji, 2014-Present
- **Delegate Representing Fiji, Federated States of Micronesia, Nauru, Tuvalu and Solomon Islands Governments**, United Nations Framework Convention on Climate Change (UNFCCC) Conference of Parties (COP18-27), & IPCC 2012–Present
- **IPCC Lead Author, Contributing Author, and Reviewer**, the 2nd, 3rd, 4th, 5th, & 6th IPCC Assessment Reports as US, German Fiji, and EU ACP Representative; AR6 Special Report on Oceans and Cryosphere in a Changing Climate & WGII report, 1992-2022
- **Chair**, Working Arm on Resilience Development on Climate Change Working Group for the Pacific Island Forum, 2014-2015
- **USP Representative**, Sustainable Development Working Group of the Pacific Island Forum, 2012–2016
- **Friends of the Chair Committee & Senior Officials Committee**, Pacific Islands Development Forum, 2013-2015
- **Occasional Advisor**, USP Executive for Council of Regional Organizations Executives Meeting, 2014-2016
- **Member**, Steering Committee of the Pacific Islands Roundtable Forum on Climate Change, 2013-2016
- **Pacific Negotiator**, Joint Policy Positions for EU and Africa, Caribbean, and Pacific for UNFCCC COP20-COP24 and Sustainable Development Committee of ACP, 2014-2018
- **2014 Core Team tasked with development of Green Growth Framework, Fiji Government**
- **Technical Working Group for Fiji Climate Change Policy Implementation and Advisor**, the National Climate Change Summits for Fiji, 2012–2015
- **Member**, USP University Research Committee, 2013-current day
- **Chair**, USP Strategic Research Theme on Climate Change, Environment and Sustainable Development, 2013-2015
- **USP Representative**, PIFS Task Force on Sustainable Development, 2015-2017
- **Chair**, USP Climate Change Research Cluster, 2012
- **Member** Energy Security Board, Los Alamos National Laboratory, 2011-2012.
- **Member** Commission on Atmospheric Chemistry and Global Pollution, 2002-2010
- **Member** International Advisory Board, Quantifying and Understanding the Earth System (QUEST), Natural Environment Research Council, UK, 2005-2009
- **Member** Scientific Council on Problems of the Environment (SCOPE) Project on Interactions of the Major Biogeochemical Cycles,

- **Chair** NATO Advanced Study Institute on Soils and Global Change: Carbon Cycle, Trace Gas Exchange and Hydrology,
- **Member** Committee on Strategic Guidance for NSF's Support of the Atmospheric Sciences, National Academies of Science and Engineering,
- **Member** External advisory committee Bio-Atmosphere Research Training Grant, University of Michigan, and University of Colorado
- **Member** Ecological Society of America, Coupled Biogeochemical Cycles Committee, 2009-2010
- **Member** NOAA Global Change Post-doctoral Fellowship Selection Committee-
- Chair, American Meteorological Society's Committee on Atmospheric Biogeosciences
- **Member** U.S. Nitrogen Science Plan Development Committee
- **Member** Interdisciplinary Graduate Education Research and Training (IGERT), Carbon, Climate, Society, University of Colorado
- **Member** National Ecological Synthesis Center, Global Carbon Cycle Activity
- **Member** National Science Foundation Integrated Assessment Program
- **Member** NASA's Distributed Active Archive Center-Oak Ridge National Laboratory for *In Situ* Data sets (ORNL DAAC UWG)
- **Member** U.S. Trace Gas Network, part of IGAC/IGBP project 5.2- Trace Gas Exchange between Mid-Latitude Terrestrial Ecosystems and Atmosphere

Publications

SCOPUS #7101810384, [Google Scholar](#), [ORCID](#), [Researchgate](#)

Citation Summary (Google Scholar): Total citations: >71,256; H index: 61; and i10 index: 92.

Refereed Journal Articles, * indicates students

- 1) Metherall N., **E.A. Holland**, S. Beavis · A.M. Dr. Vinaka. 2021.Characterisation of pH variations along the Ba River in Fiji utilising the GEF R2R framework during the 2019 sugarcane season *Environ Monit Assess* (2021) 193: 828Vol.:(0123456789) <https://doi.org/10.1007/s10661-021-09423-1>
- 2) Dobush, B.J. N D. Gallo, M. Guerra, B. Guilloux, **E.A. Holland**, S. Seabrook & L. A. Levin (2022) A new way forward for ocean-climate policy as reflected in the UNFCCC Ocean and Climate Change Dialogue submissions, *Climate Policy*, 22:2, 254-271, [DOI: 10.1080/14693062.2021.1990004](https://doi.org/10.1080/14693062.2021.1990004)
- 3) von Schuckmann, K, **E. Holland**, P. Haugen, P. Thomson. 2020. Ocean science, data, and services for the UN 2030 Sustainable Development Goals. *Marine Policy*, Volume 121, 104154, <https://doi.org/10.1016/j.marpol.2020.104154>.
- 4) Heinz, Christoph, Thorsten Blenckner, Helena Martins, Dagmara Rusiecka, Ralf Döscher, Marion Gehlen, Nicolas Gruber, **Elisabeth Holland**, Øystein Hov, Fortunat Joos, Robin Matthews, Rolf Rødvenj and Simon Wilson. 2021. [The quiet crossing of ocean tipping points](#)'. *Proceedings of the National Academy of Sciences*.
- 5) Brodie, G., **Holland, E.**, N'Yeurt, A.D.R., Soapi, K., Hills, J. 2020. Seagrasses and seagrass habitats in Pacific small island developing states: Potential loss of benefits via human disturbance and climate change. *Marine Pollution Bulletin*, Volume 160, November 2020.
- 6) **Holland, Elisabeth Ann**. 2020. Dispatch from the Pacific. [When Tropical Cyclone Harold meets the Novel Corona Virus](#). *Pacific Journalism Review*. updated from Asia Pacific Report.
- 7) Anderson, Giulia, **Elisabeth A. Holland**, & Ciro Rico. 2019. Meta-analysis of factors influencing population differentiation in yellowfin tuna (*Thunnus albacares*). *Reviews in Fisheries Science & Aquaculture* Manuscript ID: 1633270 (BRFS-2019-0018.R1).
- 8) **Holland, E.A.** Karina von Schuckmann, Maeva Monier, Jean-François Legeais, Silvia Prado, Shubha Sathyendranath, C. Dupouy. 2019. Chapter 3. The use of Copernicus Marine Service products to describe the State of the Pacific Ocean around the Islands: A case study. [The Copernicus Marine Environment Monitoring Service Ocean State Report #3](#). *Journal of Operational Oceanography*. Volume 12.
- 9) **Iese, V.**, Halavatau, S., N'Yeurt, A. D. R., Wairiu, M., **Holland, E.**, Dean, A., Veisa, F., Patolo, S., Havea, R., Bosenaqali, S., Navinicagi, O. 2019. Agriculture Under a Changing Climate. In L. Kumar (ed.), *Climate Change and Impacts in the Pacific*, Springer Climate. Springer Nature Switzerland. https://doi.org/10.1007/978-3-030-32878-8_9

- 10) Keremama, Milton, **Elisabeth Holland**, MGM Khan, David Hiriasia, Lloyd Tahni, [Air temperature trends, variability, and extremes across the Solomon Islands: 1951-2011](https://doi.org/10.26021/892). 2019. Pacific Dynamics, Journal of Interdisciplinary Research 3:15-32. <http://dx.doi.org/10.26021/892>
- 11) *Ha'apio, Michael O., Morrison, Keith, Gonzalez, Riccardo, Wairiu, Morgan. & Holland, Elisabeth (2018). [Limits and Barriers to Transformation: A Case Study of April Ridge Relocation Initiative, East Honiara, Solomon Islands](#).. Climate Change Management. Springer International Publishing.
- 12) *Iese, Viliamu and **Holland, Elisabeth A.** and Wairiu, Morgan and Havea, Robin S. (2018) [Facing food security risks: The rise and rise of the sweet potato in the Pacific Islands](#). Global Food Security, 18. pp. 48-56. ISSN 2211-9124
- 13) Burnside-Lawry , Judy, Rosa Franquet, Morga Wairiu, **Elisabeth A. Holland**, and Sarika Chand(2017) [Communication, Collaboration, and Advocacy: A Study of Participatory Action Research to Address Climate Change in the Pacific](#). The International Journal of Climate Change: Impacts and Responses, 9 (4). pp. 11-33. ISSN 1835-7156.
- 14) *Ha'apio, Michael .O; González J, Riccardo; Wairiu, Morgan; Morrison, K; **Holland, E.** 2017. *Assessing the potential role of education as a tool for adaptation to climate change in two rural communities in Solomon*. *Directions: Journal of Educational Studies*, Vol 33: no 6
- 15) **Holland, E.**, Iese, V., Maeke, J., ...Wairiu, M., Naidu, S. 2016 *Farming adaptations to the impacts of climate change and extreme events in Pacific Island countries: Case study of Bellona Atoll, Solomon Islands*. *Natural Resources Management: Concepts, Methodologies, Tools, and Applications* 2-2, pp. 852-875
- 16) *Riddick, S.N. D. S. Ward, P. Hess, N. Mahowald, R. S. Massad, and **E. A. Holland**. 2015. *Estimate of changes in agricultural terrestrial nitrogen pathways and ammonia emissions from 1850 to present in the Community Earth System Model* *Biogeosciences Discuss.*, 12, 15947-16018, doi:10.5194/bgd-12-15947-2015.
- 17) *Ha'apio, M., W.L. Filho, R. Gonzalez, **Holland, E.**, & Wairiu, M. (2014). *Mapping the economic costs and benefits of Coral Triangle Initiative (CTI) and Mangrove Rehabilitation Projects (MRP) in Solomon Islands: a study of two MPAs and one MRP*. *International Journal of Sustainable Development & World Ecology*, 21(5), 414-421.
- 18) Iese, V*, Maeke, J*, **Holland, E.**, Wairiu, M., and Naidu, S. (2014) *Farming adaptations to the impacts of climate change and extreme events in Pacific Island Countries: Case study of Bellona atoll, Solomon Islands*. In Ganpat, W.G and Isaac, W. P (eds) *Impacts of Climate Change on Food Security in Small Island Developing States*. IGI Global.
- 19) **Holland, E.**, Nuttall, P., Newell, A., Prasad, B., Veitayaki, J., Bola, A. and* Kaitu'u, J. (2014) *Connecting the Dots: Policy Connections between Pacific Island Shipping and Global Carbon Dioxide and Pollutant Emission Reduction*. *Carbon Management* 5(1) 99-105.
- 20) Nuttall, P., Newell, A., Prasad, B., Veitayaki, J. and **Holland, E.** (2014) *A review of sustainable sea-transport for Oceania: Providing context for renewable energy shipping for the Pacific*. *Marine Policy* Vol. 43 (Jan 2014), 283-287
- 21) Prasad, B., Veitayaki, J., **Holland, E.**, Nuttall, P., Newell, A., Bola, A. and Kaitu'u, J. (2013) *Sustainable Sea Transport Research Programme: Toward a Research-based Programme of Investigation for Oceania*. *Journal of Pacific Studies* (33), 78-95
- 22) Lamarque, J.-F., L. Emmons, P.G. Hess, D. Kinnison, S. Tilmes, F.M. Vitt, C.L. Heald, **E. Holland**, P.H. Lauritzen, J. Neu, J.J. Orlando, P.J. Rasch, and G.S. Tyndall, 2012: CAM-chem: Description and evaluation of interactive atmospheric chemistry in the Community Earth System Model. *Geoscientific Model Development*, 5, 369-411, DOI: 10.5194/gmd-5-369-2012, cited by 372
- 23) **Holland, E.A.** *The role of soils and biogeochemistry in the Climate and Earth System*. 2011. *In Sustaining Soil Productivity in Response to Global Climate Change*, Thomas Sauer, John Norman eds. Wiley-Blackwell, New York, USA.
- 24) Finzi, A.C., J. Cole, S. C. Doney, **E. A. Holland**, and R. B. Jackson. 2011. *Research Frontiers in the Analysis of Coupled Biogeochemical Cycles*. *Frontiers in Ecology and the Environment*, 2011; 9(1): 74–80, doi:10.1890/100137
- 25) Schlesinger, W.H. J. Cole, A.C. Finzi and **E.A. Holland**. 2010. *Coupled Biogeochemical Cycles*. *Frontiers in Ecology and the Environment*, 2011; 9(1): 5–8, doi:10.1890/090235

- 26) Vitousek, P.M., R. L. Naylor, T. Crews, M. B. David, L. E. Drinkwater, E.A. Holland, P. J. Johnes, J. Katzenberger, L. A. Martinelli, P. A. Matson, G. Nziguheba, D. Ojima, C. A. Palm, G. P. Robertson, P. A. Sanchez, A. R. Townsend, F. S. Zhang. 2009. [Nutrient Imbalances Along Trajectories of Agricultural Development](#). Science Policy Forum. Science 324: 1519-1520, **Cited by 1279**
- 27) Vitousek, P.M., R. L. Naylor, T. Crews, M. B. David, L. E. Drinkwater, E.A. Holland, P. J. Johnes, J. Katzenberger, L. A. Martinelli, P. A. Matson, G. Nziguheba, D. Ojima, C. A. Palm, G. P. Robertson, P. A. Sanchez, A. R. Townsend, F. S. Zhang. 2009. Response Science 2009, 326(5953), pp. 665–666
- 28) Del Grosso, S.J., W.J. Parton, A.R. Mosier, **E.A. Holland**, E. Pendall, D.S. Schimel, and D.S. Ojima, 2005. *Modeling soil CO₂ emissions from ecosystems*. Biogeochemistry 73, 71-91.
- 29) **Holland, E.A.**, A. Guenther, and J. Lee-Taylor, S. B. Bertman, M. A. Carroll, P. B. Shepson, and J. P. Sparks, 2005: *U.S. Nitrogen Science Plan Focuses Collaborative Efforts*. EOS Transactions, American Geophysical Union, 86(27): 253-260.
- 30) **Holland, E. A.**, B. H. Braswell, J. Sulzman, and J. F. Lamarque, 2005: *Nitrogen deposition onto the United States and Western Europe: A synthesis of observations and models*. Ecological Applications, 15(1)38-57.
- 31) Knorr, W., I. C. Prentice, J. I. House, and **E. A. Holland**, 2005: *Long-term sensitivity of soil carbon turnover to warming*. Nature, 433, 298, doi: 10.1038/nature03226.
- 32) Lamarque, J. F., J. Kiehl, G. Brasseur, T. Butler, P. Cameron-Smith, W. D. Collins, W. J. Collins, C. Granier, D. Hauglustaine, P. Hess, **E. Holland**, L. Horowitz, M. Lawrence, D. McKenna, P. Merilees, M. Prather, P. Rasch, D. Rotman, D. Shindell and P. Thornton, 2005: *Assessing future nitrogen deposition and carbon cycle feedback using a multi-model approach. Part 1: Analysis of nitrogen deposition*. J. Geophys. Res., D19303, doi: 10.1029/2005JD005825. Cited by 315
- 33) Galloway, J. N., F. J. Dentener, D. G. Capone, E. W. Boyer, R. W. Howarth, S. P. Seitzinger, G. Asner, C.C. Cleveland, P.A. Greene, **E. Holland**, D. M. Karl, A. F. Michaels, A. R. Townsend, C.J. Vörösmarty, 2004: *Nitrogen cycles: past, present and future*. Biogeochemistry, 70,153-226. Cited by 5593
- 34) Hauglustaine, D. L., F. Hourdin, L. Jourdain, M.-A. Filiberti, S. Walters, J.-F. Lamarque, **E. A. Holland**, 2004: *Interactive chemistry in the Laboratoire de Meteorologie Dynamique general circulation model: Description and background tropospheric chemistry evaluation*. J. Geophys. Res., 109, D4, DO4314, doi: 10.1029/2003JD003957. Cited by 419
- 35) *Throop, H., **E.A. Holland**, W.J. Parton, D.S. Ojima, C.A. Keough, 2004: *Effects of nitrogen deposition and insect herbivory on patterns of ecosystem-level carbon and nitrogen dynamics: Results from the CENTURY model*. Global Change Biology 10, 1092–1105, doi: 10.1111/j.1365-2486.2004.00791.x.
- 36) Tie, X.X., A. Guenther, and **E. A. Holland**, 2003: *Biogenic methanol and its impacts on Tropospheric Oxidants*. Geophys. Res. Lett. 30 (17), 1881, doi: 10.1029/2003GL017167.
- 37) Townsend, A.R., R.W. Howarth, M.S. Booth, C.C. Cleveland, S.K. Collinge, A.P. Dobson, P.R. Epstein, **E.A. Holland**, D.R. Keeney, M.A. Mallin C.A. Rogers, P. Wayne, and A.H Wolfe, 2003: *Human health effects of a changing global nitrogen cycle*. Frontiers in Ecology and the Environment 5(1), 240-246, cited by 556
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Data Sets and Documentation

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Nonrefereed Publications

- 128) **Holland, Elisabeth A.** (2016) [*Shocking: The World's Largest Association of Earth Scientists Is Funded by Climate-Denying Exxon- The American Geophysical Union should be standing up for climate science and scientific integrity—not Exxon.*](#) AlterNet.
- 129) **Holland, Elisabeth A.** (2017) [*Embracing Hope- and a Carbon Tax.*](#) Biographic, published by the California Academy of Sciences.
- 130) McNamara, K.E., Hemstock, S.L. and **Holland, E.A.** (2012) Practices of Climate Change Adaptation in the Pacific: Survey of Implementing Agencies (Phase II). Final report to the European Union – Global Climate Change Alliance. Pacific Centre for Environment and Sustainable Development, University of the South Pacific, Suva, Fiji (35pp.)

Research Grants (selected)

- New Zealand MFAT's award to undertake 'Protecting Our Pacific in a Climate Emergency: A Climate and Ocean Assessment (ACT-0101226)' a partnership between University of Canterbury and University of the South Pacific. 4.6 million NZD 2021-2024.
- Belmont Forum Award, [*Pacific Ocean Pathways*](#) in Support of Sustainable Development: an Integrated Approach in response to the Pathways 2020 call. PI Alexandre Ganachaud partnered with USP. Duration 2021-2023. Funded by German Research Foundation, Germany, French National Research Agency, France, US National Science Foundation.
- Grant Agreement to Support the European Union's Global Climate Change Alliance Plus-Scaling Up Pacific Adaptation - USP component (ENV/2017/40482) in partnership with the Secretariat for the Pacific Community (SPC) and the Secretariat of the Regional Environmental Program (SPREP): 2.1 million EUR to USP, 2019-2024.

- Grant Agreement to Support the European Union's Intra-ACP Global Climate Change Alliance Plus- Pacific Adaptation – Pacific Adaptation Climate Change and Resilience USP component (FED/2018/404-364) in partnership with SPREP, SPC and the Pacific Islands Forum Secretariat (PIFS): 2.6 million EUR to USP, 2019-2024.
- TOPFORSK grant, Mare Nullius to to University of Bergen in partnership with University of the South Pacific: 2.6 million EUR, 2019-2024.
- Partnership with Jeunes Equipes Associées à l'IRD program (JEA) and the Laboratoire d'Etude en Géophysique et Océanographie Spatiale (LEGOS), Toulouse unit.for the implementation of the Climate and Oceanography in the Pacific, Risk and Adaptation (COPRA) project funded by the Institut de Recherche pour le Développement (IRD): Total Grant Allocation: 150,000 EUR (3 years). 43,125 EUR and 5,000 EUR scholarship awarded to USP, 2016-2018.
- Partnered with University of Bergen, Norway, Universite D'Aix Marseille, Marsielle France; University Court of the University of Saint Andrews, Edinboro Scotland, The National Research Institute of Papua New Guinea, Stichting Katolieke Unversiteit, Nijmegen, Netherlands to implement the European Consortium for Pacific Studies (ECOPAS), Coordination and Support Action project funded by the European Union under the 7th Framework Programme theme SSH.2012.2.2-4 Climate Change Uncertainties: Policymaking for the Pacific Socio-economic sciences and Humanities. Grant agreement no: 320298: 1.499,997 EUR total 220,420 EUR allocated to USP, 2012-2016
- Implemented Government of the Federal Republic of Germany Grant for the development of a Climate Change Game for the Pacific Island Region to Deutsche Gesellschaft für International Zusammenarbeit (GIZ) GmbH: 40,000 EUR subcontract to USP, 2013-2016
- Partnership with the International Union for the Conservation of Nature (IUCN) International Social Science Council funded Transformations to Sustainability Programme Project: Catalysing the transition to low carbon sea transport futures for Oceania Grant No. T22_PP_255 30,000 EUR allocated to USP, 2014
- Implemented Pacific Islands Climate Services; US Embassy Small Grants Program: 24,992 USD; 2012-2013, and Pacific Islands Climate Services Case Studies; US Embassy Small Grants Program: 24,996 USD; 2013-2015
- Implementing Government of France, Ministry of Foreign Affairs (Permanent Office of the Pacific) and International Development (MAEDI) 1.5 million EUR Economic, Social and Cultural Cooperation Fund for the Pacific or "Pacific Fund" (PF) or "Le Fonds Pacifique" project: Processing and monitoring of Climate Change data for coral reef of Fiji Islands. Grant Agreement SPPN No: 54.1.2012. 20,530 EUR allocated to USP, 2012-2016
- Partnership with School of Media and Communication, Royal Melbourne Institute of Technology (RMIT), the Foundation of the Peoples of the South Pacific Islands (FSPI), the Faculty of Communication, Universitat Autònoma Barcelona to implement the EU funded Pacific Europe Network for Science Technology and Innovation (PACE-NET) Programme to the Association for Commonwealth Universities (ACU) for the project *Communication, Communities and Climate Change: Designing a leadership project for community based climate change practitioners in the region.* 9,992 EUR allocated to USP, 2015-2016.
- Partnership with the Secretariat of the Pacific Community (SPC), and Secretariat of the Regional Environment Programme (SPREP) to support New Zealand Aid (NZ AID) funded capacity building project Pacific Islands Partnerships on Ocean Acidification. Total Award 1.8million NZD 2015. 260,000 allocated to USP. 2015 – 2019.
- Implementing the Costed Extension of the Contribution Agreement between EU and USP to Support the *European Union's Global Climate Change Alliance) through Capacity Building, Community Engagement and Applied research EU-GCCA* (CRIS: 258-661): 1.9 million EUR, 2015-2017.
- Implemented Contribution Agreement between EU and USP to Support the *European Union's Global Climate Change Alliance) through Capacity Building, Community Engagement and Applied research (EU-GCCA* (CRIS: 258-661): 8 million EUR, 2010-2016.
- Implemented *Pacific Technical Vocational Education and Training Project (PacTVET) on Sustainable Energy and Climate Change Adaptation (FED/2014/347-438)* in partnership with the Secretariat for the Pacific Community, 6.1 million EUR 2014-2017.
- Implemented subcontract of USAID's *Coastal Community Adaptation Project (C-CAP)*: total award 24 million USD to Development Alternatives International (DAI). 3.4 million USD subcontract to USP, 2012-2016.
- Implemented AusAID funded Enhancing Climate Adpatation in Rural Communities of Fiji: 391K AUD, 2010-2013 and AusAID Future Climate Leader's Program: 2.9 million AUD; 2009-214.
- Partnership with Direcção Nacional para Alterações Climáticas (National Directorate for International Environmental Affairs and Climate Change (NDCC), Ministério de Comércio, Indústria e Ambiente (Ministry of Commerce, Industry and Environment (MCIA) to implement the European Union (EDF 10 Framework Pacific Regional Envelope) funded Adaptation to Climate Change and Sustainable Energy Program for Deutsche Gesellschaft für International Zusammenarbeit GmbH (GIZ) to the project *Securing Clean water for a Climate Resilient Future in Timor Leste.* Total Award 18.64 Million EUR to GIZ. 499,000 EUR allocated to USP, 2014-2016.
- Partnership with United Nations Development Programme (UNDP) on the *Sustainable Sea Transport Talanoa.* 10,000 FJD allocated to USP July 2014.

- Partnered with the Government of France, Ministry of Foreign Affairs (Permanent Office of the Pacific), Culture Education and Science Division to launch the *Climate Change Adaptation in the Pacific Science Experiences and Perspectives and Culture Week* for the build up to the 30th Nov - 10th December 2015, 21st Conference of the Parties to United Nations Framework Convention on Climate Change (UNFCCC) (COP21). 9,000 FJD Allocated to USP, August 2015.
- Principal Investigator: An Integrated Assessment of Biogeochemical Linkages between the Atmosphere and Terrestrial Ecosystems, funded by the National Science Foundation's Methods and Models for Integrated Assessment Program (Co-PIs: B. H. Braswell, J.-F. Lamarque, E. Matthew, and W. J. Parton)
- Principal Investigator: Nitrogen Deposition and Terrestrial Carbon Storage: Linking Atmospheric Chemistry and the Global Carbon Budget, funded by South-Central NIGEC

References

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