

Dr. Areidy Beltran-Peña, Ph.D.

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EDUCATION

- Ph.D., Environmental Science, Policy, and Management, University of California, Berkeley** **2023**
Designated Emphasis in Development Engineering
- Secured 7 highly competitive research grants and fellowships from leading institutions, including the U.S. Department of Energy, National Science Foundation, and National Academy of Sciences.
- M.A., Earth and Planetary Science, University of California, Berkeley** **2017**
Emphasis on climate mitigation solutions, carbon capture, and renewable energy systems
- B.A., Environmental Earth Science, University of California, Berkeley** **2015**

RESEARCH EXPERIENCE

- Stanford University, Doerr School of Sustainability Dean's Postdoctoral Fellow, Stanford, CA** **2023 - present**
- Awarded the Dean's Postdoctoral Fellowship (top 1% of applicants) for excellence in STEM research and leadership.
 - Applied high-resolution Earth System Models and CMIP climate models to assess hydroclimate variability and snowpack decline impacts on California's water resources; presented findings to state water managers and at three international conferences.
 - Served as an expert reviewer for 30+ multimillion-dollar grant proposals focused on decarbonization, climate, and the food-energy-water nexus initiatives.
- University of California Berkeley, Graduate Student Researcher and Instructor, Berkeley, CA** **2018 – 2023**
Affiliate Postdoc Scholar at Lawrence Berkeley National Lab & Visiting Scholar at Carnegie Institution for Science
- Published five peer-reviewed publications (three as lead author) on climate risk modeling, collaborating with 12 researchers and gaining 550 citations. *Beltran-Peña et al. (2020)* garnered 35,000 downloads and was cited 47 times the field average.
 - Delivered six invited talks at renowned global forums and organized/co-led climate-focused events, including a 2-hour side event for the Italian Ministry for the Environment at UN COP 25 and a 3-hour workshop at the International Mountain Conference.
 - Taught ~100 undergraduate students foundational research methodologies through two UC Berkeley courses.
 - Awarded the nationally competitive U.S. DOE SCGSR Award (1 of 78 recipients) to conduct Earth system dynamics research at Lawrence Berkeley National Laboratory.

CONSULTING EXPERIENCE

- Boundless Impact Research & Analytics, Life Cycle Assessment Expert Consultant, Stanford, CA** **2025**
- Consulted Boundless Impact Research & Analytics on an ISO-compliant comparative life cycle assessment report of Nitricity's organic fertilizer production and calcium ammonium nitrate fertilizer.
- Environmental Resources Management, Project Scientist, Consultant II, San Francisco, CA** **2018 - 2019**
- Managed Caltrain's Pollution Prevention Permit Compliance Program to ensure adherence to the California Water Resources Control Board's Phase II Small Municipal Separate Storm Sewer Systems Permit requirements.
 - Conducted Phase I and Phase II environmental site assessments for multiple clients, identifying compliance gaps and developing corrective action plans aligned with federal, state, and local regulations.
- Intertek-Professional Service Industries, Environmental and Geotechnical Staff Scientist, Oakland, CA** **2015 - 2016**
- Led environmental due diligence projects for diverse clients, including contamination assessments, remediation services, hazardous materials compliance permitting, and groundwater monitoring.
 - Conducted geotechnical investigations (seismic hazard analysis, foundation evaluations, slope assessments) and independently managed a high-volume workload as the sole staff scientist on the team.

PROFESSIONAL DEVELOPMENT

- National Center for Atmospheric Research, *Community Earth System Model Tutorial*, Boulder, CO** **2023**
- Acquired comprehensive knowledge of the intricate mechanisms underlying CESM, encompassing the intricate processes involved in the creation and integration of atmospheric, terrestrial, oceanic, and sea ice models.
 - Gained proficiency in executing CESM simulations, allowing for Earth system predictions across a range of resolutions.
- NASA Jet Propulsion Laboratory, Center for Climate Science, Pasadena, CA** **2019**
- Selected as one of 25 graduate students and postdocs worldwide to participate in NASA's Summer School on Satellite Observations and Climate Models, an intensive training program on integrating satellite observations with climate models.
 - Gained expertise in global climate models, satellite remote sensing, and climate model diagnostics and evaluation.
 - Conducted a case study on India's depleting water storage using GRACE satellite data, analyzing long-term trends and implications for water resource management.
- Tuck School of Business at Dartmouth College, *Tuck Business Bridge Program*, Hanover, NH** **2017**
- Participated in a summer program taught by world-class MBA faculty providing an in-depth introduction to marketing, strategy, microeconomics, accounting, and finance. The program culminated in a team-based valuation analysis of a Fortune 500 company and a final presentation to industry executives and faculty.

LEADERSHIP

- International Mountain Conference, Innsbruck, Austria** **2022**
- Designed and co-led a 3-hour synthesis workshop, "*Future Mountains with Low-to-No Snow and Ice (L2NS) – A Community Perspective*," in collaboration with an international team of scientists. Facilitated discussions among researchers and stakeholders on the challenges of L2NS emergence, sharing regional successes and failures while addressing uncertainties in warming projections and time horizons.
- United Nations Framework Convention on Climate Change Conference of Parties 25, Madrid, Spain** **2019**
- Organized a 2-hour side-event for the Italian Ministry for the Environment, Land and Sea, engaging a diverse global audience on climate change challenges. Delivered a comprehensive presentation on "Climate Change and the Global Water-Energy-Food Nexus," fostering interdisciplinary dialogue.
- University of California Office of the President, *Carbon Neutrality Initiative Fellow*, Oakland, CA** **2016 - 2017**
- Developed the first sustainability educational objectives for the University of California system, which served as a guiding framework for nine UC campuses in shaping their campus-wide sustainability learning outcomes and contributed to five campuses achieving a Gold rating and two earning the prestigious Platinum rating (the highest distinction) under the Association for the Advancement of Sustainability in Higher Education's Sustainability Tracking, Assessment, and Rating System.
 - Designed and launched the Carbon Neutrality Fellows website, creating a platform for resource sharing and communication among fellows across universities to enhance collaboration and idea exchange.
- Fundación Cántaro Azul, *Pachamama Project Team Lead*, Chiapas, Mexico** **2014**
- Collaborated with Fundación Cantaro Azul to identify and implement enhancements to an ultraviolet water filtration system aimed at improving access to clean water, sanitation, and hygiene in rural indigenous communities.
- Community Water Center, *Engineering Intern*, Visalia, CA** **2014**
- Led a team of four engineering undergraduate students on a project in collaboration with the nonprofit organization, Community Water Center, in the Central Valley. We tested and monitored the water quality (for nitrate contamination) of 40 households in Visalia, CA dependent on domestic wells for drinking water and provided residents with real-time evidence regarding their household water quality.

SELECTED PUBLICATIONS

- Beltran-Peña A, Rhoades A, Burakowski E, Giroto M, Michalak A, Diffenbaugh N, Inda-Diaz H, D'Odorico P (2025)** Future Implications of Enhanced Hydroclimate Variability and Reduced Snowpack on California's Water Resources. *Environmental Research Water*. <https://doi.org/10.1088/3033-4942/ade7aa>

- Beltran-Peña A** and D’Odorico P (2022). Future food security in Africa under climate change. *Earth’s Future*. 10, e2022EF002651. <https://doi.org/10.1029/2022EF002651>. Featured in an [EOS Research Spotlight](#).
- Beltran-Peña A**, Rosa L, D’Odorico P (2020). Global food self-sufficiency in the 21st century under sustainable intensification of agriculture. *Environmental Research Letters*. <https://doi.org/10.1088/1748-9326/ab9388>.
- Rosa L, Chiarelli DD, Sangiorgio M, **Beltran-Peña A**, Rulli MC, D’Odorico P & Fung I (2020). Potential for sustainable irrigation expansion in a 3°C warmer climate. *Proceedings of the National Academy of Sciences*. Cited in the [2023 U.S. Economic Report of the President](#).
- Jenkins W, Rosa L, Schmidt J, Band L, **Beltran-Peña A**, Clarens A, Doney S, Glassie A, Quinn J, Rulli MC, Shobe W, Szeptycki L, D’Odorico P. Values-based scenarios of water security: rights to water, rights of water, and commercial water rights (2021). *BioScience*, 20, pp. 1-14. <https://doi.org/10.1093/biosci/biab088>

PRESENTATIONS

- **Beltran-Peña A** et al., (2024) “Hydroclimate Variability and Snowpack in California's Sierra Nevada under +1.5°C, +2.0°C, and +3.0°C Warming Levels”, *Invited Talk*, American Geophysical Union, Washington D.C.
- **Beltran-Peña A** (2024) “Implications of enhanced hydroclimate variability & reduced snowpack on California’s water resources in a changing climate”, *Invited Seminar*, U.S. Department of Energy HyperFACETS project. Online.
- **Beltran-Peña A** (2024) “Climate change impacts on water resources and food security”, *Invited Talk*, Co-creating Useful and Usable Climate Intervention Simulations Workshop, Arizona State University, Tempe, AZ.
- **Beltran-Peña A** (2024) “Future implications of hydroclimate variability in the Sierra Nevada on California’s water availability and agriculture”, *Invited Seminar*, Stanford University Hydrology Seminar Series, Stanford, CA.
- **Beltran-Peña A** et al., (2023) “Climate change impact assessment on water resources and agriculture – A global to regional perspective with insights from Africa and California”, *Invited Talk*, American Geophysical Union, San Francisco, CA.
- **Beltran-Peña A** and D’Odorico P. (2023) “Global food self-sufficiency under climate change and sustainable irrigation expansion”. *Poster*, World Climate Research Program Open Science Conference, Kigali, Rwanda. *Sponsored by NASA, NOAA, NSF*.
- **Beltran-Peña A** (2022) “Assessing the impacts of climate change on Sierra Nevada snow hydrology and California's agricultural systems”, *Oral Presentation*, International Mountain Conference, Innsbruck, Austria.
- **Beltran-Peña A** (2022) “Evaluating the hydrological impacts of climate change on food systems through integrated assessment models”, *Invited Seminar*, Carnegie Institution for Science, Stanford, CA.
- **Beltran-Peña A** and D’Odorico P. (2021) “The future of food security in Africa under climate and societal change”, *Poster Presentation*, American Geophysical Union, Online.
- **Beltran-Peña A** and Rosa L. (2019) “Climate change and the global water-energy-food nexus”, *Oral Presentation*, United Nations Framework Convention on Climate Change Conference of Parties 25, Madrid, Spain
- **Beltran-Peña A** et al., (2019) “Evaluating the effects of climate change and sustainable irrigation intensification on global food security”, *Oral Presentation*, American Geophysical Union, San Francisco, CA.
- **Beltran-Peña A** et al., (2019) “An investigation of land water storage variability as a function of climate change and human activities over India using satellite remote sensing”, *Oral Presentation*, NASA Jet Propulsion Laboratory Center for Climate Sciences, Pasadena, CA.
- **Beltran-Peña A** (2017) “The implications of geologic properties and seismic activity in the Arctic region on undiscovered oil and gas field exploration”, *Oral Presentation*, UC Berkeley Department of Earth and Planetary Science, Berkeley, CA.
- **Beltran-Peña A** (2017) “Introduction of UC Sustainability Learning Outcomes”, *Poster Presentation*, California Higher Education Sustainability Conference, UC Santa Cruz, Santa Cruz, CA.

SKILLS AND INTERESTS

- **Technical Skills:** Statistical analysis, data visualization, map design, climate modeling, geospatial data science, and inter-sectoral data-driven modeling. Proficient in Python, Unix/Linux shell scripting, ArcGIS Pro, Google Earth Engine, Microsoft Excel, PowerPoint, and Tableau.
- **Languages:** English (native), Spanish (native), Italian (fluent, certified CELI 2 B1), French (elementary)
- **Interests:** Passionate about world travel, hiking scenic trails, landscape photography, and language learning—curiosity-driven pursuits that broaden my global perspective.

AWARDS, FELLOWSHIPS, & CERTIFICATIONS

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- Università per Stranieri di Perugia Certificato di Conoscenza della Lingua Italiana Livello B1 CELI 2, Valutazione “A” 96.3% 2025
 - Stanford Doerr School of Sustainability Dean’s Postdoctoral Fellowship, \$190,000 2023 – 2025
 - U.S. Department of Energy Office of Science Graduate Student Research Program, \$41,900 2022 – 2023
 - National Academy of Science Ford Foundation Dissertation Fellowship, \$28,000 2021 – 2022
 - Foreign Language and Area Studies (FLAS) Fellowship for Italian Language, \$33,000 2020 – 2021
 - UC Berkeley Institute of European Studies Grant for Italian Language and Culture Studies, \$15,000 2020 – 2021
 - NSF Innovations in Food Energy and Water Systems (InFEWS) Fellowship, \$53,400 2019 – 2020
 - The National GEM Consortium University Fellow 2018 – 2019
 - UC Berkeley Department of Environmental Science Policy and Management Starter Grant 2018 – 2019
 - University of California Berkeley Graduate Division GOP Master’s Fellowship, \$28,000 2016 – 2017
 - University of California Office of the President Carbon Neutrality Initiative Fellow 2016 – 2017
 - Hispanic Scholarship Fund Scholar (four-time award winner), \$20,000 2017, -21, -22, -23
 - U.S. Department of State Critical Language Scholarship - Bahasa Indonesia 2015
 - Educational Opportunity Program Achievement Award Scholarship Recipient 2015
 - Cal New Experiences for Research and Diversity in the Sciences (Cal NERDS) Fellow 2012 – 2015
 - UC Berkeley Rudd Family Foundation Big Ideas Third Place Contest 2014
 - IES Abroad Photo Contest 1st Place Winner 2014
 - Institute of International Education 5th Annual Photo Contest Winner 2014
 - U.S. Department of State Benjamin A. Gilman International Scholarship - India 2013
 - International Education Abroad Travel Scholarship Recipient 2013
 - University of California Education Abroad Program Scholarship Recipient 2013
 - Blum Center for Developing Economies Global Poverty and Practice Fellowship 2013
 - National Science Foundation California Alliance for Minority Participation Fellowship 2012 – 2013
 - UC Berkeley’s Earth and Planetary Science Department -Charles H. Ramsden Scholarship 2012 – 2015
 - Award for Outstanding Participation and Service to the Community by The Native American Recruitment and Retention Center and The American Indian Science and Engineering Society 2012
 - Ronald McDonalds House of Charities HACER Scholarship Recipient 2010
 - President of the United States Award for Educational Excellence (signed by President Obama) 2010
 - U.S. Department of Treasury National Financial Capability Challenge Top Scorer Award 2010
 - California Scholarship Federation Life Membership and Highest Honor for Superior Scholarship and Service 2010
 - Academic Excellence First Honors Bishop Amat Memorial High School 2010
 - First Honors French 1, French 2, French 3, and IB French. 2010

SELECTED MEDIA COVERAGE

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- Stanford University Doerr School of Sustainability. “New Cohort of Dean’s Postdoctoral Fellows”. November 29, 2023. <https://sustainability.stanford.edu/news/new-cohort-deans-postdoctoral-fellows>
 - UC Berkeley College of Natural Resources (2023). “Student Spotlight: Areidy Beltran-Peña”. September 14, 2023 <https://nature.berkeley.edu/news/2023/09/student-spotlight-areidy-beltran-pe>
 - Sidder, A. “Food deficits in Africa will grow in a warmer world”, Eos, 103, Published on 5 October 2022. <https://doi.org/10.1029/2022EO220482>
 - New Europe. “Global food security is being exacerbated by the war in Ukraine”. June 22, 2022. (Research highlight)
 - Youth 4 Nature Blog. “Perspectives in Nature and Climate”. June 23, 2021 <https://www.youth4nature.org/blog/areidy-perspectives-in-nature-climate>
 - The Daily Californian. “UC Berkeley doctoral candidate awarded 2 national fellowships”. June 8, 2021 <https://www.dailycal.org/2021/06/08/uc-berkeley-doctoral-candidate-awarded-2-national-fellowships/>
 - UC Berkeley Rausser College of Natural Resources. “Areidy Beltran awarded two national fellowships”. June 2, 2021 <https://nature.berkeley.edu/news/2021/06/areidy-beltran-awarded-department-energy-scgsr-fellowship>

- U.S. Department of Energy. “*DOE’s Office of Science Graduate Student Research (SCGSR) Program selects 78 outstanding U.S. graduate students*”. April 29, 2021 <https://www.energy.gov/science/articles/does-office-science-graduate-student-research-scgsr-program-selects-78-outstanding>