

Postdoctoral Scholar
Climate, Atmospheric Science, and Physical Oceanography Division
Scripps Institution of Oceanography, UCSD
Nierenberg Hall Room 227
8810 Shellback Way, La Jolla, CA 92037
jguzmanmorales@ucsd.edu

Research Interests

My research focuses on mesoscale regional climate and extreme weather. I have extensively worked on Santa Ana Winds -a seasonal downslope wind regime of Southern California and Northern Baja California- and its effect on creating extreme fire weather conditions. I am especially interested in the variability of regional climate to which populations have adapted and coexisted with, but whose likely future behavior is yet unseen in the coupled human-environment system. For this purpose, I utilize statistical tools and modelling to investigate natural regional climate variability and changes of anthropogenic origin.

Education

- 2011–2018** **University of California San Diego, Scripps Institution of Oceanography**
PhD. Earth Sciences
Dissertation: *“Santa Ana Winds of Southern California: Historical Variability and Climate Future Projections.”*
Fellowship: CONACyT-UCMEXUS
- 2004–2010** **National Autonomous University of Mexico**
BSc. Chemistry
Dissertation: *“Assessment of Atmospheric Metal Pollution in the Urban Area of Mexico City, using Ficus benjamina as biomonitor.”*

Appointments

- 2018–present** **Postdoctoral Scholar**
University of California San Diego, Scripps Institution of Oceanography
[WECLIMA](#) Group
Research focus: Downslope wind regimes in California and fire weather.
- 2013–2018** **Graduate Student Researcher**
University of California, San Diego. Scripps Institution of Oceanography
[WECLIMA](#) Group
Advisor: Dr. Alexander Gershunov
- 2011–2013** **Graduate Student Researcher**
University of California, San Diego, Scripps Institution of Oceanography
Atmospheric Aerosol Group
Advisor: Dr. Lynn Russell
- Jan 2011–May 2011** **Invited Scholar**

University of California, San Diego, Scripps Institution of Oceanography
Atmospheric Aerosol Group
Advisor: Dr. Lynn Russell

2008–2010

Undergraduate Researcher Assistant

National Autonomous University of Mexico, Geophysics Institute
ICP-MS Laboratory
Advisor: Dr. Ofelia Morton-Bermea

Teaching Experience

2015

Teaching Assistant

University of California San Diego
Professor: Alexander Gershunov
Winter course: SIO 20 “The Atmosphere”

2013

Teaching Assistant

University of California San Diego
Professor: Gabi Laske
Fall course: SIO 15 “Natural Disasters”

Conferences, Seminars and Workshops

July 2019

American Meteorological Society Seminar

San Diego Chapter
Talk: “Coastal Heat Waves Induction by Santa Ana Winds: Observational Record and Future Climate Projections”

Feb 2019

National Weather Service Seminar

NWS San Diego Office
Talk: “SAW-driven heat waves”

Nov 2017

1st Forum for Climate Change and Public Health

Institute of Public Health Services of Baja California, Mexico
Talk: “Weather Extremes in a Varying and Changing Climate”

Oct 2017

Youth Leadership Development Forum for Students in STEM

Hispanic Association of Colleges and Universities
Panelist: “STEM Career Pathways & Your Impact”

Dec 2015

American Geophysical Union, Fall 2015 meeting

Regional Climate Modelling III Session
Talk: “Santa Ana Winds of Southern California: Their Climatology and Variability Spanning 6.5 Decades from Regional Dynamical Modelling”

Nov 2015

Regional Weather and Global Climate Impacts without Borders Seminar

Ensenada Center for Scientific Research and Higher Education (CICESE)

Talk: “Santa Ana Winds (SAWs), an integral feature of our regional climate”

Sep 2015

2nd Scripps Student Symposium

Scripps Institution of Oceanography

Talk: “Santa Ana Winds of Southern California: Their Climatology, and Variability Spanning 6½ Decades”

Oct 2011

American Association of Aerosol Research 30th Annual Conference

Poster: “Regional Assessment of Organic PM during CalNex, Cal-Mex, and CARES.”

Peer-reviewed Publications

Gershunov, A., **Guzman-Morales J.**, Hatchett B., Guirguis, K., Aguilera R., Shulgina T., et al., Hot and cold flavors of southern California’s Santa Ana winds: Their causes, trends, and links with wildfire. *Climate Dynamics*. Submitted on Jan 2021.

Keeley, J. E., **Guzman-Morales J.**, Gershunov, A., Syphard, A., Cayan, D., Pierce, D. W., et al., *Evaluating climate, weather and ignitions in Santa Ana Wind driven fires*. PNAS. Submitted on Jan 2021

Guzman-Morales, J. & Gershunov, A. (2019). Climate change suppresses Santa Ana winds of Southern California and sharpens their seasonality. *Geophysical Research Letters*, 46, 2772–2780. <https://doi.org/10.1029/2018GL080261>

Guzman-Morales, J., Gershunov, A., Theiss, J., Li, H., & Cayan, D. (2016). Santa Ana Winds of Southern California: Their climatology, extremes, and behavior spanning six and a half decades. *Geophysical Research Letters*, 43(6), 2827–2834. <https://doi.org/10.1002/2016GL067887>

Schwarz, L., Malig, B., **Guzman-Morales, J.**, Guirguis, K., Ilango, S. D., Sheridan, P., Gershunov, A., Basu, R., & Benmarhnia, T. (2020). The health burden fall, winter and spring extreme heat events in the in Southern California and contribution of Santa Ana Winds. *Environmental Research Letters*, 15 (5). <https://doi.org/10.1088/1748-9326/ab7f0e>

Aguilera, R., Gershunov, A., Ilango, S. D., **Guzman-Morales, J.**, & Benmarhnia, T. (2019). Santa Ana Winds of Southern California impact PM2.5 with and without Smoke from wildfires. *GeoHealth*, 4, e2019GH000225. <https://doi.org/10.1029/2019GH000225>

Williams, P. A., Abatzoglou, J. T., Gershunov, A., **Guzman-Morales, J.**, Bishop, D. A., Balch, J. K., & Lettenmaier, D. P. (2019). Observed Impacts of Anthropogenic Climate Change on Wildfire in California. *Earth’s Future*. <https://doi.org/10.1029/2019EF001210>

Guirguis, K., Basu, R., Al-Delaimy, W. K., Benmarhnia, T., Clemesha, R. E. S., Corcos, I., **Guzman-Morales, J.**, Small, I., Tardy, A., Vashishtha, D., Zivin, J. G., & Gershunov, A. (2018). Heat, Disparities, and Health Outcomes in San Diego County’s Diverse Climate Zones. *GeoHealth*. <https://doi.org/10.1029/2017GH000127>

Syphard, A.D., Gershunov, A., Lawson, D.M., Rivera Huerta, H., **Guzman-Morales, J.**, and Jennings, M.K.. 2018. San Diego Wildfires: Drivers of Change and Future Outlook. Pages xx - xx in: Jennings, M.K., D. Cayan,

J. Kalansky, A.D. Pairis et al. San Diego County Ecosystems: Ecological Impacts of Climate Change on a Biodiversity Hotspot. California's Fourth Climate Change Assessment, California Energy Commission. Publication number: EXT-CCC4A-2018-XXX.

Guzman-Morales, J., Frossard, A. A., Corrigan, A. L., Russell, L. M., Liu, S., Takahama, S., Taylor, J.W., Allan, J., Coe, H., Zhao, Y., & Goldstein, A. H. (2014). Estimated contributions of primary and secondary organic aerosol from fossil fuel combustion during the CalNex and Cal-Mex campaigns. *Atmospheric Environment*, 88. <https://doi.org/10.1016/j.atmosenv.2013.08.047>

Takahama, S., Johnson, A., **Guzman-Morales, J.**, Russell, L. M., Duran, R., Rodriguez, G., Zheng, J., Zhang, R., Toom-Sauntry, D., & Leitch, W. R. (2013). Submicron organic aerosol in Tijuana, Mexico, from Local and Southern California Sources during the Calmex Campaign. *Atmospheric Environment*. 70, 500-512. <https://doi.org/10.1016/j.atmosenv.2012.07.057>

Guzman-Morales, J., Morton-Bermea, O., Hernández-Álvarez, E., Rodríguez-Salazar, M. T., García-Arreola, M. E., & Tapia-Cruz, V. (2011). Assessment of Atmospheric Metal Pollution in the Urban Area of Mexico City, Using *Ficus benjamina* as Biomonitor. *Bulletin of Environmental Contamination and Toxicology*, 86(5), 495–500. <https://doi.org/10.1007/s00128-011-0252-9>

Morton-Bermea, O., Hernández-Alvarez, E., Lozano R., **Guzmán-Morales, J.**, & Martinez, G. (2010). Spatial Distribution of Heavy Metals in Top Soils around the Industrial Facilities of Cromatos de México, Tultitlan Mexico. *Bulletin of Environmental Contamination and Toxicology*, 85(5), 520–524. <https://doi.org/10.1007/s00128-010-0124-8>

On feminist-decolonial work;

Center for Interdisciplinary Environmental Justice: Brito-Millan, M., Cheng, A., Harrison, E., Mendoza Martinez, M., Sugla, R., Belmonte, M., Salomon, A., Quintanilla L., **Guzman-Morales, J.**, Martinez, A. (2019). No Comemos Baterías: Solidarity Science Against False Climate Change Solutions. *Science for the People*. 22(1). Accessible at <https://magazine.scienceforthepeople.org/vol22-1/agua-es-vida-solidarity-science-against-false-climate-change-solutions/>

Research Highlights in Media

- | | |
|-----------------|---|
| Sep 2020 | National Geographic. Santa Ana and Diablo winds propel raging wildfires in California. By Alexandra Borunda. |
| Nov 2019 | The New York Times. How California's 'Demonized' Winds Shape Wildfire Season. By Henry Fountain. |
| Oct 2019 | The New York Times. How Climate Change Could Shift California's Santa Ana Winds, Fueling Fires. By Jill Cowan. |
| Oct 2019 | The San Diego Union-Tribune. As the Santa Ana winds touch down this fall, wildfire season may begin to shift to winter in San Diego. By Celina Tebor |
| Jan 2019 | Los Angeles Times. Climate change should tamp down California's wildfire-fanning Santa Ana winds, study finds. By Joshua Emerson Smith |

Oct 2015 *KPBS. [El Niño, Warm Ocean Temperatures Lead To Stronger Santa Ana Winds](#). By Susan Murphy*

Community Engagement

Jan 2020 **Organizer of “Decolonize for Climate” CIEJ* workshop**
Centro Cultural de la Raza, Enero Zapatista 2020
Workshop on “green” technologies based on lithium extraction on Indigenous lands. Panel on Chilean, Argentinian, and Bolivian political and ecological contexts. Interactive discussion on climate change solutions.

Nov 2019 **Visit to Indigenous communities in the Andean Altiplano (Chile and Argentina). CIEJ* initiative**
Participation in a meeting with communities’ representatives of La Cuenca de Salinas Grades, Argentina regarding water quality concerns. Sampling of water for human consumption in 12 communities of the region and support in designing community driven monitoring protocols.

Dec 2018 **Volunteer at the Migrant Caravan, Tijuana Mexico**
Collecting and transporting donations to the provisional migrant shelter “El Barretal” hosting ~2000 migrants.

Nov 2018 **Organizer of the “Voices of TransAndean Indigenous Resistance: Water is Life” CIEJ* series of events**
Hosting visit to San Diego of indigenous communities’ members from the Andean Altiplano (Chile and Argentina). Organizing series of events to amplify their fight for water and cultural survival and for preventing ecological catastrophe by lithium mining.

Aug 2016 **SIO Student Committee Member**
Student representation in the selection and hiring process of the Diversity Initiatives Coordinator at Scripps Institution of Oceanography (SIO).

Feb 2015 **Volunteer at the Canal Wound Clinic, Tijuana Mexico**
Assisting medical personnel in providing humanitarian health care to vulnerable population (homeless, drug users, sex workers, deportees) living at the Tijuana River Canal.

Nov 2013 **Member of Community-based Science Collective**
Mentoring support and volunteering at the Arroyo Paseo Chapter High School located at an underserved neighborhood City Height, San Diego.

* CIEJ, [Center for Interdisciplinary Environmental Justice](#)

Languages

English (bilingual), Spanish (native)