Emilio Grande
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Educational background

University of California, Santa Cruz	Ph.D. Earth Sciences	2022
California State University East Bay	M.S. Geology	2019
California State University East Bay	B.S. Geology (*Summa Cum Laude*)	2017

Publications

[1] Guimond J, **Grande E**, Michael H, Pratt D, Herndon E, Noyce GL, Ward N, Forbrich I, Regier P, Berens M, et al. 2025. The hidden influence of terrestrial groundwater on salt marsh function and resilience. *Nature Water* 3: 157–166 DOI: https://doi.org/10.1038/s44221-024-00384-6

[2] **Grande E**, Delgadillo Moreno BK, Moran JE. 2024. A Tale of Two Storms: Inter-Storm Variability of Stable Water Isotopes in a Solute Transport Model. *Hydrological Processes* 38 (11): e15338 DOI: 10.1002/hyp.15338

[3] Lerback J, Bibby R, Danielsen J, Garguilo M, **Grande E**, Harm AJ, Minn K, Moran J, Oerter E, Visser A. 2024. How Rains and Floods Become Groundwater: Understanding Recharge Pathways With Stable and Cosmogenic Isotopes. *Hydrological Processes* 38 (12): e70020 DOI: 10.1002/hyp.70020

[4] Montalvo, M., **Grande, E**., Braswell, A., Arora, B., Seybold, E., Tatariw, C., Haskins, J., Endris, C., Zimmer, M. 2024. A Fresh Take: Seasonal Changes in Terrestrial Freshwater Inputs Impact Salt Marsh Hydrology and Vegetation Dynamics. *Estuaries and Coasts*. DOI: 10.1007/s12237-024-01392-1

[5] **Grande, E.**, Seybold, E., Tatariw, C., Arora, B., Visser, A., Braswell, A., Zimmer, M. 2023. Seasonal and Tidal Variations in Hydrologic Inputs Drive Salt Marsh Porewater Nitrate Dynamics. *Hydrological Processes:* 37(8) 1-17 DOI: 10.1002/hyp.14951

[6] **Grande, E.,** Visser, A., Oerter, E., Arora, B., Seybold, E., Tatariw, C. Braswell, A., Montalvo, M., Zimmer, M. 2023. Flow Directions and Ages of Subsurface Water in a Salt Marsh System Constrained by Isotope Tracing. *Estuaries and Coasts*: DOI: 10.1007/s12237-023-01237-3

[7] Lewis, S., **Grande, E**., Robinson, R. 2023. Boston's Walkable Neighborhood System: delineation and performance. *GeoJournal*. DOI: https://doi.org/10.1007/s10708-023-10848-z

[8] **Grande, E**., Zimmer, M., Mallard, J. 2022. Storage state framework to explain hydrologic partitioning behavior across water- and energy-limited catchments. *Hydrological Processes*: 36 (9) 1-28 DOI: 10.1002/hyp.14697

[9] **Grande, E.,** Arora, B., Visser, A., Montalvo, M., Braswell., Seybold, E., Tatariw, C., Beheshti,K., Zimmer, M., 2022. Tidal frequencies and quasiperiodic subsurface water level variations dominate redox dynamics in a salt marsh system. *Hydrological Processes:*36 (5) 1-16 DOI: 10.1002/hyp.14587

[10] **Grande, E.,** and Moran, J. 2021. Patterns in Radon Activity in California Groundwater. *Environmental Science and Technology*. DOI: 10.1021/acsestwater.1c00226

[11] **Grande, E.**, Visser, A., Moran, J. 2020. Catchment storage and residence time for a periodically irrigated watershed. *Hydrological Processes*. DOI: 10.1002/hyp.13798

[12] **Grande, E.**, Visser, A., Beitz, P., Moran, J. 2019. Examination of nutrient sources and transport in a catchment with an Audubon certified golf course. *Water*. DOI: 10.3390/w11091923

[13] Lewis, S., **Grande, E**. 2019. San Francisco's neighborhoods and auto dependency. *Cities*. DOI: 10.1016/j.cities.2018.12.017

Published Data Sets

[1] Montalvo, M., **Grande, E**., Braswell, A., Arora, B., Seybold, E., Tatariw, C., Haskins, J., Endris, C., Zimmer, M. 2024. Data for Publication: "A Fresh Take: Seasonal Changes in Terrestrial Freshwater Inputs Impact Salt Marsh Hydrology and Vegetation Dynamics." *Environmental System Science Data Infrastructure for a Virtual Ecosystem*. https://doi.org/10.15485/2407118

[2] **Grande, E.**, Zimmer, M., Seybold, E., Tatariw, C. 2023. Modeled sub-hourly nitrate concentrations in subsurface water across a salt marsh system in Elkhorn Slough, California. *Environmental System Science Data Infrastructure for a Virtual Ecosystem*. https://doi.org/10.15485/1987518

[3] **Grande, E.**, Visser, A., Zimmer, M. 2023. Stable water isotopes and tritium data from porewater at Elkhorn Slough. Linking Nutrient Reactivity and Transport in Subsurface Flowpaths Along a Terrestrial-Estuarine Continuum. *Environmental System Science Data Infrastructure for a Virtual Ecosystem.* doi:10.15485/1970526

[4] **Grande, E.**, Arora, B., Zimmer, M. 2022. Subsurface redox potential and water level at the Elkhorn Slough NERR. *Environmental System Science Data Infrastructure for a Virtual Ecosystem*. DOI: https://doi.org/10.15485/1846282

Research experience

NOAA Margaret A. Davidson Fellow 2020-2022
-Study groundwater and nutrient dynamics at high frequencies in salt marshes.
-Use time-frequency analysis of environmental data in coastal environments.

Cota-Robes University Graduate Fellow, UC Santa Cruz 2019-2022
-Quantify water age distribution at the catchment
-Characterize biogeochemical and hydrologic processes controlling nutrient transport and transformations in groundwater in coastal environments

Research Assistant, California State University East Bay 2017-2019
-Used isotope tracers ($\delta^{18}O$, $\delta^{2}H$, ^{222}Rn, and ^{3}H) to understand groundwater-stream water interactions in several stream reaches in diverse hydrologic settings.
- Developed a general model to quantify groundwater influx to streams using ^{222}Rn

Visiting Guest Researcher, Lawrence Livermore National Laboratory 2018-2019
-Worked with Dr. Ate Visser in the Noble Gas Mass Spectrometry Lab to correlate groundwater ages with water quality in central California.
-Developed transit time distribution models using cosmogenic isotopes to understand conditions under which perennial flow can be sustained

Watershed Researcher, East Bay Regional Park District 2017-2019
-Led research initiatives focused on the effects of land use on water quality
-Assisted in developing and monitoring a comprehensive water quality dataset for water bodies affected by cyanobacteria and algal blooms.

Notable awards and honors

- Margaret A. Davison Fellowship (NOAA) 2020-2022
- Costa Robles Fellowship, University of California Santa Cruz 2019-2024
- Earth and Planetary Sciences: Casey Moore Fund award 2020
- Harrington Award, Best Master's Thesis in the College of Science, CSUEB. 2019
- East Bay Mineral Society Scholarship 2016

Teaching Experience

Assistant Professor, California State University East Bay 2022-present

- GEOL 651: Hydroinformatics/Data Science in Water Resources
- GEOL 602: Graduate Seminar
- ENSC/GEOL 432: Hydrogeology
- ENSC/GEOL 350: Environmental Hydrology
- ENSC 420: Global Change
- ENSC 320: The Science of Global Change
- ENSC/GEOL 397: Advanced Field Experience
- ENSC/GEOL 297: Introductory Field Experience
- GEOL 100 A: Earth System Science Lab

Teaching Associate, California State University East Bay 2017-2019

- GEOL 100 Lab: Taught Intro to Earth Science laboratory. Developed class syllabus, designed labs, graded student work, held office hours.
- GEOL 101 Lab: Taught Independent Earth Science laboratory. Developed class syllabus, designed labs, graded student work, held office hours.
- GEOL 102: Taught Earth science hands-on/practical activities for non-geology majors. Developed class syllabus, designed labs, graded student work, held office hours.

Mentor in the Earth Sciences Mentor program UCSC 2021-2022

- Mentor Earth Science undergraduate students from historically underrepresented groups in STEM.
- Help develop career goals and advise students as they prepare to navigate graduate school.

Selected Presentations and Published Abstract

∗ Graduate Student Advise § Undergraduate Student Advise

E Grande, et al., 2024. Surface water-groundwater exchanges at the terrestrial-marine interface control oxic moments in a coastal floodplain. *Geophysical Union Fall Meeting.* Oral. H54C-07

J Lerback, E Oerter, A Visser, A Harm, J Danielsen, M Garguilo, K Minn, **E Grande**, J Moran, 2024. Stable oxygen isotopes constrain tree water demand and timing in an urban streamside ecosystem. H43M-1053.

§R Nearhood, **E Grande**, et al., 2024. Calibration and Analytical Uncertainties of a New Membrane Inlet Mass Spectrometer to Calculate Groundwater Recharge Elevation in Mountainous Regions. *Geophysical Union Fall Meeting.*

∗D O'Ryan, **E Grande**, et al., 2024. From zero flow to a hundred CFS: Radon and other isotopic tracers explain groundwater-surface water interactions in a mountainous catchment. *American Geophysical Union Fall Meeting.* Oral. H31E-04.

∗S Motz, **E** Grande, et al., 2024. The Dry Streams and the Storage: Stable Water Isotope-Aided SAS Functions Explain Hydrological Responses in Two Adjacent Non-Perennial Catchments. *American Geophysical Union Fall Meeting.* H11T-0957

S Godsey, C Glaser, **E Grande**, et. al., 2024. Streamflow (De)generation Processes: a Proposed Framework for Understanding Water Loss and its Impact on Flow Patterns in Stream Networks across Scales. *American Geophysical Union Fall Meeting.* H31V-0886

∗L Tolley-Mann, **E Grande**, et al., 2024. Isotopic Tracers and Noble Gases Explain Groundwater Flowpaths and Residence Times of California's Major Spring Systems. *American Geophysical Union Fall Meeting.* H51U-1010.

*A Haynes, D Dwivedi, M Wilshire, M Montalvo, **E Grande**, et al., 2024. Simulating the role of freshwater and extreme climate events in driving tidal marsh pore water salt concentrations in coastal California. *American Geophysical Union Fall Meeting*. Oral. H53S-04.

*M Esqueda, **E Grande**, P Oikawa. 2024. Coupled high-frequency sensor network explains nutrient transport and subsurface hydrologic interactions at the coastal-terrestrial interface. *American Geophysical Union Fall Meeting*

R Ghosh, **E Grande** and C McIntire. 2024. Oxic hot moments in a coastal floodplain highlight the bidirectional flow of surface water-groundwater exchanges at the terrestrial-marine interface. *European Geophysical Union General Assembly Conference.* 14357. Oral

R Ghosh, **E Grande** and C McIntire. 2024. Tidal cycles control oxic hot moments in a costal floodplain: Insights from four years of in-situ, continuous, high-frequency DO and hydrometeorological data. *Ocean Sciences Meeting.* Oral

E Grande. 2023. Seasonality and Tidal Variations Control Nitrate Dynamics in Salt Marsh Porewater. *Ecological Society of America* OOS 27-3. Invited Talk

E Grande, EC Seybold, AE Braswell, C Tatariw, A Greene, M Montalvo, F Birgand, A Visser, MA Zimmer. 2022. Seasonal and Tidal Forcing Control Salt Marsh Porewater Nitrate Dynamics in a Mediterranean System. *American Geophysical Union Fall Meeting* H22V-1133. Invited.

E GrandeA Visser, E Oerter, M Montalvo, MA Zimmer,. 2022. Flow Direction and Velocities of Subsurface Water in a Mediterranean Salt Marsh *American Geophysical Union Fall Meeting* H26C-01. Oral.

M Montalvo, **E Grande**, M Zimmer, A Braswell, J Haskins, C Endris, et al. 2022.Seasonal Terrestrial Freshwater Inputs Impact Salt Marsh Hydrology. *American Geophysical Union Fall Meeting* H26C-02.

MA Zimmer, M Montalvo, **E Grande,** EC Seybold, AE Braswell, C Tatariw, A Greene, F Birgand, A Visser. 2022. Identification of Hot Moments of Nutrient Processing in Coastal Systems Using High Frequancy Sensors. *American Geophysical Union Fall Meeting* H12G-05-Invited.

J Romero, C Tatariw, A Haynes, **E Grande**, M Montalvo, M Wilshire, H Carlson, A Braswell, E Seybold, A Visser, B Arora, D Dwivedi, M Zimmer. 2022. Investigating Hydrobiogeochemical Drivers of Salt Marsh Nitrogen Cycling *American Geophysical Union Fall Meeting* B52D-0871

A Haynes, D Dwivedy, J Romero, **E Grande**, M Montalvo, M Wilshire, B Arora, M Zimmer. 2022. Reactive Transport Modeling Subsurface Hydrological Dynamics in Tidal Salt Marsh. *American Geophysical Union Fall Meeting* H22V-1136

E Grande, EC Seybold, AE Braswell, C Tatariw, A Greene, M Montalvo, F Birgand, A Visser, MA Zimmer. 2021. Tidal forcing influences on biochemicql processes in a salt marsh. *American Geophysical Union Fall Meeting* H31D-06. Oral.

E GrandeA Visser, MA Zimmer, E Oerter, M Montalvo. 2021. Mixing and Age Distribution in Shallow Groundwater and the Terrestrial-Marine Interface. *American Geophysical Union Fall Meeting* H11A-10. Oral.

M Montalvo, **E Grande**, M Zimmer, A Braswell, J Haskins, C Endris, et al. 2021. Seasonal Changes in Subsurface Hydrology Influence Nutrient Cycling in a Salt Marsh. *American Geophysical Union Fall Meeting* H45I-1276.

M Mallard., **E Grande,** M Zimmer. 20201 Catchment storage state controls event-scale runoff generation in catchments at the threshold between water-and-energy-limitation. *American Geophysical Union Fall Meeting* H14E-05.

C Tatariw, EC Seybold, AE Braswell, M Montalvo, F Birgand, A Visser, MA Zimmer, **E Grande**. 2021. Seasonal Precipitation is a Hydrologic Driver of Salt Marsh Nitrogen Removal. *American Geophysical Union Fall Meeting* B45B-1621.

M Zimmer, **E Grande,** M Mallard. 2020. Dynamic catchment water storage-discharge partitioning across water- and energy-limited catchments. *American Geophysical Union Fall Meeting* H205-04. Oral (Presenting author).

E Grande, MA Zimmer, EC Seybold, AE Braswell, C Tatariw, A Greene, M Montalvo, F Birgand, A Visser. 2020. Using high spatiotemporal nitrate measurements to assess nutrient transport and transformations at the terrestrial-marine interface of a tidal watershed. *American Geophysical Union Fall Meeting* B057-05. Oral.

E Grande, JE Moran, A Visser. 2019. Residence time and groundwater storage for a parodically irrigated catchment. *American Geophysical Union Fall Meeting* H53P-2040. Poster.

E Grande, JE Moran, A Visser. 2018. Multi-tracer characterization of Wildcat Creek in the Berkeley Hills, California. *American Geophysical Union Fall Meeting* H13N-1962.

Service to the Hydrology Community/Outreach

- Reviewer for Hydrological processes, Estuaries and Coasts, Water Resources Research, Journal of Hydrology, Ecohydrology
- Organization Committee of the Intermittency in Headwater Streams – Challenges and Opportunities from an Interdisciplinary Perspective- University of Bonn, Germany. 2024
- AGU Hydrology Section Student and Early Career Subcommittee 2020-2022
  *Served in the Justice Equity Diversity and Inclusivity (JEDI) committee
  *AGU Town hall convener- Academic or non-academic? Tips, stories, and strategies on navigating your career path.