Curriculum Vitae

Emilio Grande
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Earth and Planetary Sciences
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Educational background

University of California, Santa Cruz	Ph.D. Earth Sciences and Planetary Sciences	2022
California State University East Bay	M.S. Geology	2019
California State University East Bay	B.S. Geology (*Summa Cum Laude*)	2017
University of Pinar del Rio (Cuba)	Geological Engineering	2012

Research experience

NOAA Margaret A. Davidson Fellow 2020-2022

-Study shallow groundwater dynamics and nutrient cycling at high frequencies in salt marshes.

-Use time-frequency analysis of environmental data to explain high spatiotemporal variability of geochemical processes in coastal environments.

Cota-Robes University Graduate Fellow, University of California Santa Cruz 2019-2022

-Quantify subsurface and surface water residence times at the catchment scale through sampling and analysis of passive and radioactive tracers.

-Characterize biogeochemical and hydrologic processes controlling nutrient transport and transformations in shallow and deep groundwater in coastal wetlands.

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 and surface water interconnections in several streams reaches in diverse hydrologic settings in California, where perennial and intermittent streams are sustained by groundwater inflow in summer and fall.

- Ongoing research, developing a general model to quantify groundwater influxes to streams using radon-222 analyses in places where streamflow measurements show only small net influxes of groundwater, but geochemical tracers indicate large gross fluxes.

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 nitrate-contaminated (concentrations of NO_3-N > 10 mg/L) areas of Central California.

-Developed transit time distribution models using cosmogenic isotopes to understand conditions under which perennial flow is sustained in a small headwater of Coastal California.

Watershed Researcher, East Bay Regional Park District 2017-2019

-Led applied research initiatives focused on effects of land use on water quality in the Tilden Regional Park, CA.

-Assisted in developing and monitoring a comprehensive water quality data set to water bodies (i.e., Lake Temescal, Oakland) affected by cyanobacteria and algal blooms.

Teaching experience

Teacher Associated, California State University East Bay 2017-2019

- GEOL 100 Lab: Intro to earth science lab. Developed class syllabus, designed labs, graded students, held office hours.

- GEOL 101 Lab: Independent earth science laboratory. Developed class syllabus, designed labs, graded students, held office hours.
- GEOL 102: Earth science hands-on/practical activities for non-geology majors. Developed class syllabus, designed labs, graded students, held office hours.

Mentor in the Earth Sciences Mentor program UCSC 2020-present

- Mentored Earth science students from underrepresented groups in earth sciences. Met weekly and helped developing career goals and mentored students as they prepared to navigate graduate school.

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

Publications

Published

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

[2] **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

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

In review

[4] **Grande, E.** and Moran, J. 2021. Patterns in Radon Activity in California Groundwater. *Environmental Sciences and Technology.*

[5] **Grande, E**., Zimmer, M., Mallard, J. 2021. Storage state framework to explain hydrologic partitioning behavior across water- and energy-limited catchments. *Hydrological Processes.* Target Submission Date: October 2021.

In Preparation

[6] **Grande, E.**, Zimmer, M., Arora, B., Montalvo, M., Visser, A. Spatiotemporal variability of hydrological forcing and geochemistry of a salt marsh: a wavelet and mutual information analysis. *Water Resources Research*. Target Submission Date: November 2021.

[7] **Grande, E**., Zimmer, M., Arora, B., Montalvo, M., Oerter, E., Visser, A. Mixing and age distribution in shallow groundwater at the terrestrial-marine interface. *Geophysical Research Letters.* Target Submission Date: March 2022.

[8] **Grande, E.,** Zimmer, M., Seybold, E. High spatiotemporal nitrate measurements explain nutrient transport and transformations at the terrestrial-marine interface of a tidal watershed. *Water Resources Research.* Target Submission Date: April 2022.

[9] **Grande, E.,** Zimmer, M., Donaldson, A., Giggy, L, Visser, A. Time variable water age distribution in ephemeral streams. *Geophysical Research Letters.* Target Submission Date: April 2022.

[10] **Grande, E.,** Zimmer, M., Donaldson, A., Giggy, L, Visser, A. Perennial springs in an ephemeral stream network: On the age distribution of groundwater in a Mediterranean hydroclimate. *Hydrological Processes*. Target Submission Date: July 2022.

[11] **Grande, E.,** Zimmer, M., Donaldson, A., Giggy, L, Visser, A. Ensemble hydrograph separation explains runoff generation and residence time in non-perennial streams. *Hydrological Processes*. Target Submission Date: July 2022.

Select Presentations and Published Abstracts

M Zimmer, M Montalvo, **E Grande**, C Tatariw, E Seybold, A Braswell, A Kleinhuizen, A Visser, B Arora. 2021. Linkages between hydrologic cycling and hydro-biogeochemical processes in salt marsh systems. *Goldschmidt.*

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

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

JE Moran, **E Grande**, A Visser, E Avery, B Delgadillo, M Villalpando. 2019. Using Radon and Other Geochemical Tracers to Identify Groundwater Discharge to Streams in California. *American Geophysical Union Fall Meeting.*

MA Zimmer, **E Grande**, EC Seybold, AE Braswell, A Visser, A Greene. 2019. Coupled high frequency sensor network and environmental tracers to quantify subsurface nitrate transport to a coastal estuary. *American Geophysical Union Fall Meeting.*

EC Seybold, AE Braswell, A Greene, **E Grande**, MA Zimmer. 2019. Using high-frequency sensor networks to quantify terrestrial nitrogen sources to a coastal estuary. *Coastal and Estuarine Research Foundation 25th Biennial Conference.*

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

Service to the Hydrology Community/Outreach

American Geophysical Union Hydrology Section Student Subcommittee Member 2020-present