

# Suzanne C. Walther

## Curriculum Vitae

Department of Environmental and Ocean Sciences  
University of San Diego  
5998 Alcalá Park  
San Diego, CA 92110

swalther@sandiego.edu  
@rivergeomorph  
(619) 260-4787

### EDUCATION

University of Oregon

**Ph.D. Geography**-Geomorphology, 2010, supervised by W. Andrew Marcus

Dissertation: "Remote Measurement of Gravel-Bed River Depths and Analysis of the Geomorphic Response of Rivers to Canals and Small Dams"

**M.S. Geological Sciences**, 2006

Thesis: "Using tephra as a tracer for hillslope sediment transport in a loess-mantled, forested ecosystem in the Blue Mountains of eastern Washington"

University of Virginia

**M.S. Environmental Sciences**, 2003

Thesis: "Sediment characteristics and isotopic analysis to interpret climate signals in two lake systems in KwaZulu-Natal Province, South Africa"

University of California, Santa Barbara

**B.A. Political Science-International Relations**, 1992

### TEACHING EXPERIENCE

**University of San Diego**, Department of Environmental and Ocean Sciences (Associate Professor May 2019-present; Assistant Professor August 2015-May 2019)

My teaching duties at USD include teaching classes in Environmental Science/Geography and GIS (9 FTE/semester). Courses I developed and currently teach:

EOSC 105 Natural Hazards (Lecture)

EOSC 314/514 Maps & Spatial Data (Lecture & lab)

EOSC 488/588 Geomorphology (Lecture & lab)

EOSC 415/515 GIS (Lecture & lab)

Additional responsibilities in my position include undergraduate and graduate research mentoring, GIS program development, and departmental, college, University & scientific service. Additional leadership:

- 1) creating a University wide Spatial Technology Analysis in Research and Teaching (START) committee that has thus far resulted in numerous collaborative courses across campus,
- 2) initiating College level support and institutional change for improvements in IT response and GIS support,
- 3) leading the development of a USD GIS certificate program with departmental (& university) colleagues,
- 4) developing a systemic plan for First Year Integration and a review of Advanced Integration components of the CORE program,
- 5) leading an AWARE Team that supported the successful submission of a Strategic initiative grant to support incoming black students.

**Utah Valley University**, Department of Earth Science (assistant Professor August 2011-July 2015)

My duties at UVU included teaching classes in Geography and GIS (12 FTE/semester). I developed the GIS and Geography programs and aided in increasing course offerings for the Utah geography education endorsement and creating a Geography minor. Courses taught:

GEOG 1000 Introduction to Physical Geography

GEOG 3650 Advanced GIS

GEO 1010 Introduction to Geology

GEO 480R Earth Science Seminar

GEO/GEOG 3500 Geomorphology

GEO 489R Student Research

GEOG 3600 Introduction to GIS

Service-Learning Project: Mexico (2013)

**University of Oregon**, Department of Geography (Instructor January 2008-August 2011)  
GEOG 141 Introduction to Physical Geography                      GEOG 422/522 Advanced Geomorphology  
GEOG 425/525 Hydrology and Water Resources                      GEOG 360 Watershed Science and Policy

**University of Virginia**, International Studies, Environmental Science, and Anthropology (TA 2002-2003; co-instructor 2003-2012)--4-week Study Abroad course in South Africa and Mozambique for US and southern African undergraduate and graduate students at three Universities, a rural research station, and remote villages.

### ***Other Research and Work Experience***

**US Army Corps of Engineers (USACE) and The Nature Conservancy (TNC)**. Developed Willamette River monitoring plan and database (2010-2012).

**Eugene Water and Electric Board (EWEB)**. Monitored field data collection with US Army Corps of Engineers (USACE) and Parametrix, Inc. (2008) and worked on a hydro-modeling project (2009).

### **HONORS AND AWARDS**

USD Changemaker Fellow, 2020-2021

USD Center for Educational Excellence Involvement Award, 2018

UVU Presidential Award of Excellence – Engagement, 2015

Highlighted researcher in the iUtah WATER exhibit at The Leonardo Museum, SLC, UT, 2014

iGETT: Remote Sensing Teaching Fellow, National Council for Geographic Education funded by NSF, 2014

### **SCHOLARLY RESEARCH**

***Refereed Publications and Book Chapters*** \*denotes student author

Calverley, C.M.\*, **Walther, S.C.**, 2022. Drought, water management, and social equity: Analyzing Cape Town, South Africa's water crisis. *Frontiers in Water*. 4:910149. doi: 10.3389/frwa.2022.910149

Scholle, M.\*, **Walther, S.C.**, 2022. Responses to Lake Michigan Water Level Rise: Trends in Exposed Sand Cover at North Avenue Beach. *Journal of Great Lakes Research*, <https://doi.org/10.1016/j.jglr.2022.04.001>.

Wright, J.\*, Cathcart, E., **Walther, S.**, O'Shea, B., 2022. Role of climate and geography in arsenic mobility and risk at an artisanal mining site in an urbanized semi-arid environment. *Journal of Environmental Management*, 304: 114-163. <https://doi.org/10.1016/j.jenvman.2021.114163>.

**Walther, S.C.**, Martinez, A.E., Greenfield, B.K., 2021. Impact of Jordanelle Dam on sedimentological and ecohydrological regimes of the Provo River, Utah, USA. *International Journal of River Basin Management*. <https://doi.org/10.1080/15715124.2021.1961793>

Bennett, M.D.\*, **Walther, S.C.**, Tirrell, A., 2021. Transboundary Water and Paradiplomacy in the San Diego-Tijuana Binational Region. *The California Geographer*, 60: 15-38.

Martinez, A.E., **Walther, S.C.**, Kusler, J., Greenfield, B.K., Kannar, S.\*, 2019. Landscape Change and Vegetation-Channel Interactions in an Estuarine System. *Journal of Coastal Conservation*, 24 (2): 1-10. <https://doi.org/10.1007/s11852-019-00723-w>

**Walther, S.C.**, Dengenis, E.\*, Gurung, K., 2019. Using GIS and Remote Sensing to Map Grassroots Sustainable Development in Nepal. *International Journal of Geospatial and Environmental Research*, 6(1), article 2. <https://dc.uwm.edu/ijger/vol6/iss1/2>

Nickel, T.\*, **Walther, S.C.**, 2019. Recolonizing Gray Wolves (*Canis lupis*) in Northern California: Preliminary Analysis of Suitable Areas for Reoccupancy. *Natural Areas Journal*, 39 (3): 384-390. doi:10.3375/043.039.0311

Martinez, A.E., Adeyemo, A.\*, and **Walther, S.C.**, 2018. Riparian Vegetation and Digitized Channel Variable Changes After Stream Impoundment: The Provo River and Jordanelle Reservoir. *International Journal of Applied Geospatial Research*, 9 (1): 19-35.

Wang, W., **Walther** S., Cadet, E., Carling, G., Rey, K., Nelson, S., Tingey, D., Robertson, P.\*, Kerswell, B.\*, 2017. The Historical Records of Stable Isotopes (13C and 15N) and Trace Metals along Utah Lake-Jordan River Transition Zone, Utah (USA). *Utah Geological Association Publication 46, Geology and Resources of the Wasatch: Front to Back*: 171-185.

**Walther**, S.C., Reinholtz, A.L., Marcus, W.A., 2017. The geographic distribution of small dams in Oregon using ecoregion and landform classification. *Physical Geography*, 38(3): 286-301. doi: 10.1080/02723646.2017.1286224.

**Walther**, S.C., 2016. Environmental Flow Development: Geomorphic Considerations from the McKenzie River, Oregon. *Association of Pacific Coast Geographers Yearbook*, 78: 94-119.

**Walther**, S., Intolubbe-Chmil, L. and Swap, R.J., 2014. "Promoting Sustainability Through Enhancing Resilience: Transdisciplinary Teaching and Learning in the Cross Cultural Context of ESAVANA." Chapter In: *Teaching Sustainability: Perspectives from the Humanities and Social Sciences*, W. Boring and W. Forbes (Eds.), Stephen F. Austin University Press.

**Walther**, S.C., Marcus, W.A., Fonstad, M.A., 2011. Evaluation of high resolution, true color, aerial imagery for mapping bathymetry in clear water rivers without ground-based depth measurements. *International Journal of Remote Sensing*, 32 (15): 4343-4363, doi: 10.1080/01431161.2010.486418.

**Walther**, S.C., Neumann, F., 2011. Sedimentology, isotopes and palynology of late Holocene cores from Lake Sibaya and the Kosi Bay system (KwaZulu-Natal, South Africa). *South African Geographical Journal*, doi: 10.1080/03736245.2011.591982.

**Walther**, S.C., Roering, J.J., Almond, P., Hughes, M.W.\*, 2009. Long-term biogenic soil mixing and transport in a hilly, loess-mantled landscape: Blue Mountains of southeastern Washington. *Catena*, 79 (2): 170-178, doi: 10.1016/j.catena.2009.08.003.

#### ***Technical Reports and Non-refereed Publications***

Wright, J.\*, Cathcart, E., **Walther**, S., and O'Shea, B. 2019. Assessing arsenic transport in storm water and sediment drainage towards nearby communities, Black Mountain Open Space Park, San Diego. Report submitted to the City of San Diego.

**Walther**, S., Bidlack, A., Fewings, M., Glenn, C., Moffett, K., 2018. *Coasts in Context: linkages across inland and offshore*, UCAR Coastlines and People (CoPe) Emerging Research Scoping Workshop report to NSF.

McDowell, P.F., Marcus, W.A., **Walther**, S.C., 2012. *Willamette Sustainable River Project Phase 1: Development of a Monitoring Plan for Environmental Flow Recommendation on the Middle Fork Willamette River, Oregon*. U.S. Army Corps of Engineers Report, Research Cooperative Agreement W912HZ-10-2-0044.

#### ***Conference Presentations (as a faculty member)*** \* denotes student author

Skinner, M.\*, **Walther**, S.C., 2022. Flood impacts and risk assessment of Pleasant Creek in Capitol Reef National Park. American Association of Geographers (AAG) Annual Mtg, Mar 1.

**Walther**, S.C., 2022. Addressing Barriers to Minoritized Scholars' Advancement and Success in Physical Geography Fields: What can your department do? AAG Annual Mtg, Feb 27. Chair, co-organizer, panelist.

Calverley, C.\*, **Walther**, S.C., 2022. Drought Impacts and Water Management in Semi-Arid Regions: Analyzing Cape Town, South Africa's 'Day Zero'. AAG Annual Mtg, Feb 26.

**Walther**, S.C., 2022. Cape Town's 'Day Zero': What can we learn for water management in southern California? AAG Annual Mtg, Feb 26.

Lazar, E.\*, **Walther**, S.C., 2022. The Impacts of Flash Floods on Channel Morphology in Anza Borrego Desert State Park. Association of American Geographers (AAG) Annual Mtg, Feb 25.

Calverley, C.\*, **Walther**, S.C., 2021. Drought Impacts and Water Management in Semi-Arid Regions: Analyzing Cape Town, South Africa's 'Day Zero'. Association of Pacific Coast Geographers (APCG), San Diego, Oct 16 (*AWARDED Outstanding Undergraduate Student Paper*).

Walther, S.C., Khalsa-Basra, R.\*, 2021. Coastal watershed monitoring and management: flood modeling of Los Peñasquitos Creek, CA. California Geographical Society Spring Mtg, Apr 24.

Layton, T.\*, Walther, S., 2021. Land Cover Change on Coyote Creek, Anza-Borrego Desert State Park. AAG Annual Mtg, Apr 10.

Walther, S.C., Khalsa-Basra, R.\*, 2021. Flood modeling of Los Peñasquitos Creek. AAG Annual Mtg, Apr 9.

Scholle, M.\*, Walther, S.C., 2021. Lake Michigan Water Level Rise: Trends in Exposed Sand Cover at North Avenue Beach. AAG Annual Mtg, Apr 8.

Khalsa-Basra, R.\*, Walther, S.C., Cathcart, E., 2020. Quantifying Longitudinal Variation in Fluvial Morphology, Metals, and Nutrients of Los Peñasquitos Creek, San Diego County, CA. AGU, Dec. 7.

Layton, T.\*, Walther, S., 2020. Land Cover Change on Coyote Creek, Anza-Borrego Desert State Park. USD Summer Research Colloquium. Aug 6.

Randolph, S.\*, Walther, S., 2019. What's for Dinner? A Look at Housing Segregation and Food Deserts in Chicago. USD Creative Collaborations (CC), Apr 11.

Bennett, M.\*, Walther, S., 2019. Border Diplomacy: How Water Unites Cities. USD CC, Apr 11.

Thomas, V.\*, Walther, S., 2019. Quantifying Sea Level Rise: Impacts on Land Use, Structures, and Vegetation in San Diego. USD CC, Apr 11.

Williams, S.\*, Walther, S., 2019. Heavy Metal Distribution in the Tijuana River Estuary. USD CC, Apr 11.

Walther, S.C., 2019. Mapping sustainable development in Nepal. AAG Annual Mtg, Apr 6, Washington, D.C.

Berry, D.\*, Walther, S.C., 2019. Using change detection and supervised classification from LIDAR datasets to assess potential habitat distribution in the Tijuana River Estuary, SD. AAG Annual Mtg, Apr 6, D.C.

Bennett, M.\*, Walther, S.C., 2019. Border Diplomacy: How Water Unites Cities. Association of American Geographers AAG Annual Mtg, Apr 4, Washington, D.C.

Berry, D.\*, 2018. Understanding Grain Size and Heavy Metal Distributions in the Tijuana River Estuary. Combined 9th National Summit on Coastal and Estuarine Restoration and Management and CA Estuarine Research Society Meeting, Dec 9, Long Beach, CA.

Williams, S.\*, Walther, S., 2018. Metals concentrations in Tijuana River Estuary Sediments. USD CC, Apr 19.

Walther, S.C., 2018. Impacts of the Jordanelle Dam on the hydrology and sedimentology of the Provo River: continued downstream adjustment. AAG Annual Mtg, Apr 12, New Orleans, LA.

Martinez, A., Walther, S.C., 2018. Landscape Change and Vegetation Influences: Preliminary Monitoring of the Tijuana River Estuary, San Diego, CA. AAG Annual Mtg, Apr 12, New Orleans, LA.

Walther, S.C., 2017. UAVs for use in monitoring the impacts of flash flooding. Envirodrones Conference, June 5, Hanover, NH. Invited speaker.

Walther, S.C., 2017. Mapping restoration in Tecolote Canyon, CA. AAG Annual Mtg, Apr 7, Boston, MA.

Martinez, A., Walther, S.C., 2017. Riparian Vegetation and Stream Impoundment: The Provo River and Jordanelle Reservoir. AAG Annual Mtg, Apr 5, Boston, MA.

Walther, S.C., 2016. Project-based GIS for undergraduates: synthesis of learning. APCG Mtg, Oct 7, Pdx, OR.

Dengenis, E.\*, Walther, S.C., 2016. Mapping Sustainable Community Development: An Eco-Endeavour in the Kathmandu Valley. APCG Annual Mtg, Oct 7, Portland, OR.

Walther, S.C., Huffaker, B.\*, Toke, N., 2016. Flash Flooding in Capitol Reef National Park, Utah. AAG Annual Mtg, Mar 30, San Francisco, CA.

Walther, S.C., 2015. Quantifying Geomorphic Change on Pleasant Creek in Capitol Reef National Park, Utah. APCG Annual Mtg, Oct 24, Palm Springs, CA.

Huffaker, B.\*, Toke, N., Bunds, M., Stallings\*, A., Walther, S., 2015. Quantifying Geomorphic Change over Multiple Time Scales along Pleasant Creek, Capitol Reef National Park, Utah. Geological Society of America (GSA) Annual Mtg Paper No. 291-22, Nov 4, Baltimore, MD.

Walther, S.C., 2015. Small Dams in Oregon: Mapping Distributions at the Ecoregion Extent. AAG Annual Mtg, Apr 21-25, Chicago, IL.

Walther, S.C., Wang, W., Arens, H., Cadet, E., Mills, M., 2014. Research, Monitoring, and Recovery on Utah Lake Panel session, 8<sup>th</sup> Annual Salt Lake County Watershed Symposium, Nov 19-21, SLC, UT.

Huffaker, B.\*, Walther, S.C., Toké, N.A., 2014. Analysis of the Geomorphic Impact of a Flood Season on Pleasant Creek, Capitol Reef NP, Utah. GSA Annual Mtg, Oct 19-22, Vancouver, BC, Canada.

Walther, S.C., 2014. Modeling Distribution and Sediment Transport in Pleasant Creek, Capitol Reef National Park. AAG Annual Mtg, Apr 8-12, Tampa, FL.

- Howard, D. \*, Walther, S.C., 2014. Sediment grain size and mobility analysis of Pleasant Creek, Capitol Reef National Park. Spring Run-off Conference, Apr 1-2, Logan, UT.
- Kerswell, B. \*, Robertson, P. \*, Walther, S., 2014. Investigating Anthropogenic Impacts on the Utah Lake-Jordan River Transition Zone Using a Multi-proxy Approach. UCUR, Feb 28, Provo, UT.
- Howard, D. \*, Walther, S.C., 2013. 3D Mapping Of Pleasant Creek, Capitol Reef National Park. Poster, GSA Annual Meeting, Oct 27-30, Denver, CO.
- Walther, S.C., 2013. Thirty years of channel and land cover change: implications for management and restoration of the Jordan River, Utah. AAG Annual Mtg, Apr 9-13, Los Angeles, CA.
- Hilbert, J. \*, Davis, B. \*, Walther, S.C., 2013. Riparian Vegetation Change on the Extent of the Jordan River, Utah. Poster. UCUR, Feb 22, Logan, Utah.
- Davis, B. \*, Hilbert, J. \*, Walther, S.C., 2012. Riparian Vegetation Change on the Jordan River, Utah. Poster. 43<sup>rd</sup> annual Binghamton Geomorphology Symposium, Sept 21-23, Jackson Hole, WY.
- Walther, S.C., 2012. Gravel Mobility in Regulated Rivers: Assessment and Issues in Planning Environmental Flows. Spring Runoff Conference, Apr 3-4, Logan, Utah.
- Davis, B. \*, Hilbert, J. \*, Walther, S.C., 2012. Three Decades of Channel Change on the Jordan River, Utah. Poster. Spring Runoff Conference, Apr 3-4, Logan, Utah.
- Cheung, R. \*, Stephens, C., Walther S.C., 2012. Use of GIS in the Investigation of Niche Differentiation between Six Frog Species of the Pacific Northwest. Presentation, NCUR, Mar 29, Ogden, UT.

### **GRANTS AND FUNDING (for scholarly work and teaching)**

- USD Faculty Research Grant (FRG) “Quantifying Changes following Flash Flooding”, 2020, 2021
- USD FRG “Quantifying Impacts of Hydrologic Changes on Freshwater Habitats in Arid Lands”, 2019
- STEP grant (Martinez, Walther, Kusler) “Landscape Change and Topographic Monitoring in an Estuarine System: Tijuana River Estuary, San Diego, CA”, \$12,000, 2018
- RED Grant (Walther, Garcia) “GIS & Programming”, USD Engineering funded by NSF, \$5000, 2017
- femSTEM Mentoring Program Writing Retreat (NSF funded), Julian, CA, Jan 2016, 2017, 2018
- UVU Undergraduate Research Scholarly Activities Award (Walther, Toke, Bunds) “Topographic and Seismic Analyses of Historic and Prehistoric River Dynamics Pleasant Creek, Capitol Reef Ntl Park”, \$2000, 2015
- iUtah Research Catalyst Grant (Wang, Walther, Zanazzi, Cadet, Carling) “Investigating Temporal and Spatial Variations of Nutrient and Trace Metal Loading to Utah Lake” (6 students), \$20,000, 2015
- iUtah Research Catalyst Grant (Walther, Martinez) “Stream impoundment: comprehensive riverine effects on the Provo River, Utah” (4 students), \$15,758, 2014
- UVU Grant for Engaged Learning, “Establishing Geomorphology Projects Engaging Students in Long-Term Monitoring of Utah's Active Landscapes” (15 students), \$10,000, 2013
- iUtah Research Catalyst Grant (Walther, Wang) “Investigating Anthropogenic Impacts on the Utah Lake-Jordan River Transition Zone Using a Multi-proxy Approach” (2 students), \$10,000, 2013
- NSF EPSCoR phase 1 grant \$20 million/5 yrs (UVU representative) – my portion \$77,000/5 yrs
- NSF CNIC Grant “Catalyzing International Partnerships in Community-related Environmental and Sustainability Research and Education: Ethical, Structural and Institutional Issues of Collaboration” \$24,000 (Co-PI) (Involved two workshops—in Virginia and in South Africa), 2012

### **THESIS AND MENTORING**

- Graduate Research D. Berry 2016-2019; R. Khalsa-Basra, 2018-2021
- Graduate committee member J. Wright 2018-2020; R. Hennig 2019-2021; B. Patterson 2022-present
- Undergraduate Research/Honors Thesis (M. Skinner, E. Lazar, C. Calverley, J. Ritchie) 2020, 2021
- Undergraduate Research (SURE recipients T. Layton, H. White; M. Scholle) 2020, 2021, 2022
- USD Honors Senior Thesis mentor with Dr. A. Tirrell, Political Science (M. Bennett) 2018 (G. Peterson) 2021
- Undergraduate Research (M. Dolan, T. Layton, V. Thomas) 2019
- USD McNair Scholar (S. Randolph) 2018
- Undergraduate Research (SURE recipients M. Bennett; S. Williams) 2017
- Undergraduate Research (SURE recipient E. Dengenis; M. Bennett; T. Nickel) 2016
- Geospatial Technology Skills Poster Competition (ESRI) mentor (T. Nickel) 2016, (J. Greenstein) 2018
- National Conference (AAG) and travel grant recipient (R. Kumar) 2016

USD EPA Campus Rainworks initiative (S. Dunlap) 2016  
UVU Undergraduate research (SURF Grant recipient B. Huffaker), 2015  
NSF Fellowship scholars: A. Stallings, 2014-2015; B. Kerswell, 2013-2014  
UVU Undergraduate research (SURF Grant recipients B. Huffaker, B. Davis) 2014  
UVU Undergraduate research (SURF Grant recipients B. Davis, J. Hilbert) 2013  
UVU Honors Thesis mentor (G. Ferreira) 2013  
Integrated Studies Senior Thesis mentor (A. Lewis 2014, W. Ray, 2013, R. Cheung, 2012)

**SERVICE** (*selected*)

***Departmental***

USD Association of Environmental Professionals (AEP) chapter Faculty Advisor (w/ Kirstin Skadberg)  
USD GIS Certificate Development Committee 2020-present  
USD EOSC DEI Cluster Hire for GIS committee chair 2021-present  
USD EOSC Department Assessment Coordinator 2016-2021  
USD Mater Dei Science camp GIS workshop, summer 2017, 2018, 2019, 2021  
USD STEM Fair outreach, Feb 2016, 2017, 2018, 2019, 2020

***College***

USD Faculty Research Grant committee 2022-present  
USD SURE Award reviewer 2018-2021  
USD STEAM Academy lab outreach summer 2018, 2019, 2020, 2021  
USD Udall Faculty Representative 2017-2021

***University***

Spatial Technologies and Analysis, Research, and Teaching (START) Chair 2016-present  
AWARE committee, lead Action Team E 2020-present  
USD First-Generation Network faculty member 2018-present  
USD First Year Integration Fellow 2018-2019  
USD Unmanned Aircraft Systems (UAS) on campus Committee 2016-present  
USD Safe Space Allies Training 2016; 2021

***Professional (Geography/Geomorphology/Geoscience/GIS)***

AGU EPSP (Earth & Planetary Surface Processes) Canvassing Committee (elected 2021-present)  
Tijuana Estuary Tidal Restoration Program (TETRP) Science Advisory Team (2016-present)  
UCAR NSF Funded Coastlines and People (CoPe) Emerging Research Scoping Workshop (Sept 2018)  
Reviewer: Geomorphology, Remote Sensing, IJRBM, NSF Geography & spatial sciences program  
2013-2020 AAG Meeting session chair, "Water Body Observations, Monitoring, and Management".  
2012-2014 Utah Valley GIS Day UVU site organizer (with UVGIS users group) 400+ H.S. students

**ADDITIONAL INFORMATION**

FAA Certified Remote Pilot in Control License, 2017, 2019, 2021  
FAA Drone registration and Drone Safety Training, 2017, 2019, 2021  
Languages: English, German (fluent), Spanish (conversational)