

Sandrine J. Matiasek, PhD

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ACADEMIC APPOINTMENTS

- May 2020 – **Associate Professor**
present *Department of Geological and Environmental Sciences, California State University, Chico, CA*
- Jan. 2016 – **Assistant Professor**
May 2020 *Department of Geological and Environmental Sciences, California State University, Chico, CA*
- 2013 – **Lecturer**
Dec. 2015 *Department of Geological and Environmental Sciences and Department of Chemistry and Biochemistry, California State University, Chico, CA*
- 2012 – 2013 **Adjunct Faculty**
College of Natural Resources, American River College, Sacramento, CA
- 2009 – 2012 **Teaching Assistant**
Land, Air, and Water Resources Department, University of California, Davis, CA

EDUCATION

- 2014 **Ph.D., Hydrologic Sciences**
Aquatic Organic Geochemistry Group, Land, Air, and Water Resources Department, University of California, Davis
Dissertation Title: Dissolved Organic Matter Sources and Dynamics in an Agricultural Watershed: Contribution from Sediment Desorption and Insights from an Amino Acids Time Series
Committee: Dr. Peter Hernes (advisor, Aquatic Organic Geochemistry), Dr. Randy Dahlgren (Soils and Biogeochemistry), Dr. Brian Bergamaschi (USGS Sacramento)
- 2003 – 2004 **MPhil, Chemistry**
Centre for the Theory and Application of Catalysis, Queen's University of Belfast, Northern Ireland, UK
Thesis Title: Investigation of the regeneration process of barium-containing NOx traps for automobile applications
- 2002 – 2004 **MSc, Chemistry**
Ecole Nationale Supérieure de Chimie de Montpellier, Montpellier, France
Area of concentration: Environment, Catalysis, and Clean Processes
- 1998 – 2002 **BSc, Chemistry**
Ecole Nationale Supérieure de Chimie de Montpellier, Montpellier, France
Preparatory Classes, Lycée Berthollet, Annecy, France

TEACHING

California State University, Chico

Soils and Surficial Processes (GEOS 265, redesigned)	Fall 2019 – 2020
Water Resources Management (GEOS 460)	Spring 2019, Fall 2020
Environment I: Principles and Practices (GEOS 165)	Fall 2018
Environmental Science (GEOS 330W)	Fall 2018
Introduction to Environmental Science (GEOS 130)	Spring 2018
Hydrogeochemistry (GEOS 640)	Spring 2018 – 2014
Pollution Science (GEOS 315)	Spring 2020 – 2014
Environment III: Water and Soils (GEOS 265)	Fall 2018, 2017, 2016, 2014
Natural Water Systems (GEOS 516, now GEOS 616)	Fall 2019 – 18, 2016 – 2013
Computer Applications in Geoscience (GEOS 250)	Spring 2015, Fall 2015
Quantitative Analysis Laboratory (CHEM 320)	Fall 2015
General Chemistry Laboratory (CHEM 111)	Fall 2014

American River College, Sacramento CA

Natural Resource Measurements (NATR 310), Co-Instructor	Spring 2013, Fall 2012
Chemistry for Funeral Services (CHEM 130), Co-Instructor	Spring 2013
Water Resources and Conservation (NATR 346)	Fall 2012

McGeorge School of Law, University of Pacific, Sacramento CA

Foundations of Water Law, Guest lecturer (2 lectures)	Fall 2012
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University of California, Davis

Aqueous Geochemistry (HYD 134), Teaching Assistant	Spring 2012, 2011, 2009
General Chemistry (CHEM 2B), Teaching Assistant	Winter 2012
Principles of Soil Science (SSC 100), Teaching Assistant	Fall 2011, 2010, 2009
Water Quality at Risk (SAS 8), Teaching Assistant	Winter 2011
Water, Power, and Society (HYD 10), Teaching Assistant	Spring 2010
Aqueous Geochemistry (HYD 134), Substitute Instructor	Winter 2010

RESEARCH

2014 – Present	Aqueous Geochemist, Principal Investigator <i>Department of Geological and Environmental Sciences, California State University, Chico</i> <ul style="list-style-type: none">• Water quality impacts of wildland-urban interface burning in creeks draining from Paradise, CA following the November 2018 Camp Fire• Storm runoff biofiltration and urbanization impacts on surface water chemistry• Dissolved organic matter dynamics in surface waters• Water quality impacts of historic gold mining• Dioxins in urban soils of Oroville, CA
2005 – 2014	Graduate Research Assistant <i>Aquatic Organic Geochemistry Group, University of California, Davis</i> <ul style="list-style-type: none">• Molecular and optical characterization of dissolved organic matter in surface waters

2003 – 2004 **Graduate Research Assistant**

Centre for the Theory and Application of Catalysis, Queen's University of Belfast, Northern Ireland, UK

- Characterization of novel NO_x storage catalysts with real-time mass spectrometry

Feb. 2003 – **Analytical Chemist**

Aug. 2003 *Commissariat à l'Energie Atomique* (CEA, French nuclear research agency), Marcoule, France

- Quantification of degradation products of organic solvents used for nuclear waste treatment by micro-LC-MS

Aug. 2002 – **Water Chemist**

Jan. 2003 *Grupo TAR* (Tratamiento de Aguas Residuales), Escuela Universitaria Politecnica de Sevilla, Spain

- Dissolved organic matter flocculation in waste water treatment

PUBLICATIONS

Jung, J.K., Alam, K.K., Verosloff, M.S., Capdevila, D.A., Desmau, M., Clauer, P.R., Lee, J.W., Nguyen, P.Q, Pastén, P.A., **Matiasek, S.J.**, Gaillard, J.-F., Giedroc, D.P, Collins, J.J., and Lucks, J.B. (2020) Cell-free biosensors for rapid detection of water contaminants. *Nature Biotechnology*. 1-9. doi:10.1038/s41587-020-0571-7

Matiasek, S.J. and Hernes, P.J. (2019) The chemical fingerprint of solubilized organic matter from eroded soils and sediments. *Geochimica et Cosmochimica Acta*. 267, 92-112. doi:10.1016/j.gca.2019.09.016

Matiasek, S.J., Pellerin, B.A., Spencer, R.G.M, Bergamaschi, B.A., Hernes, P.J. (2017) Irrigation as a fuel pump to freshwater ecosystems. *Biogeochemistry*, 136(1), 71-90. doi:10.1007/s10533-017-0381-2

Journet S. (2007). Suspended Sediment in San Francisco Bay and Delta, Water Year 2005. In: Sommer, T. (ed.) *Interagency Ecological Program for the San Francisco Estuary Newsletter*. Sacramento, CA. **20**(3):17-19.

AGENCY-REVIEWED PUBLICATIONS

Brown, C., **Matiasek, S.J.** (2018) Preliminary Assessment/Site Inspection Report Addendum, Robinson Mine and Mill Site, Plumas County, California. Prepared for: Plumas National Forest, Feather River Ranger District U.S. Department Of Agriculture, in collaboration with: Abandoned Mine Lands Program, Office of Mine Reclamation, California Department of Conservation.

Brown, C., Brown, D.L., **Matiasek, S.J.** (2017) Preliminary Assessment/Site Inspection Report, Robinson Mine and Mill Site, Plumas County, California. Prepared for: Plumas National Forest, Feather River Ranger District U.S. Department Of Agriculture, in collaboration with: Abandoned Mine Lands Program, Office of Mine Reclamation, California Department of Conservation.

RESEARCH FUNDING GRANTS

Matiassek, S.J., Webster, J. (2019) RAPID: Collaborative Research: A cell-free synthetic biology platform for water quality monitoring - field testing and validation at the Camp Fire site in Paradise, California. NSF Systems and Synthetic Biology (05/01/2019 – 04/30/2020) Award MCB-1929921. \$19,995 of total award: \$199,995.

Matiassek, S.J. (2019) Improving Storm Runoff Treatment in Biofiltration Systems. CSU System Research, Scholarly & Creative Activities grant. \$5,997.

Webster, J., **Matiassek, S.J.** (2019) RAPID Collaborative Proposal: Characterization of upland watershed contamination from wildland-urban burning. NSF Environmental Engineering (02/01/2019 – 01/31/2020) Award CBET-1917165. \$51,435.

Aird, H., **Matiassek, S.J.**, Nuester, J., Teasdale, R., Shapiro, R. (2018). Acquisition of an Inductively Coupled Plasma Mass Spectrometer for Collaborative Research in Geochemistry. NSF EAR-IF grant proposal. (2/15/2019 – 1/31/2020) Award EAR -1826807. \$286,229.

Matiassek, S.J. (2018). Stormwater remediation in biofiltration systems: assessment of flow reduction and pollutant removal. Funding for two Watershed Management Interns, 2018-19. CSU Water Resources and Policy Initiatives. \$10,120.

Matiassek, S.J. and Webster, J. (2018) Soil Amendment Guidance for Infiltration and Stormwater Treatment. Faculty Research Incentive Award Program. CSU Water Resources and Policy Initiatives. \$15,752.

Matiassek, S.J., Bamford, M., Goodsell, E. (2018). The Press Powell Fellowship Award to The Big Chico Creek Ecological Reserve, Anglers' Fish Monitoring Program. \$210 for streamflow monitoring at Big Chico Creek Ecological Reserve. Total awarded: \$1,000.

Matiassek, S.J. (2017). Assessing the performance of stormwater biofiltration systems in Chico, CA. Funding for two Watershed Management Interns, 2017-18. CSU Water Resources and Policy Initiatives. \$10,120.

Matiassek, S.J. and Brown, C., (2017). Robinson Mine PA/SI follow-up contract with the CA Department of Conservation Office of Mine Reclamation (9/15/2017-12/31/2017) \$3,998.

Matiassek, S.J. (2016). Streamflow monitoring in Big Chico Creek. Student Learning Fee proposal, CSU Chico. \$18,600.

Matiassek, S.J. (2016). Evaluating Biofiltration in Small Urban Areas: Chico, California Case Study. EPA People, Prosperity, and the Planet (P3) Phase II grant #SU836930 (10/1/2016 – 9/30/2018) \$74,971.

Matiassek, S.J. (2015), Evaluating Biofiltration in Small Urban Areas: Chico, California Case Study. EPA People, Prosperity, and the Planet (P3) Phase I grant # SU835992 (10/1/2015-9/30/2016) \$14,963.

Matiassek, S.J., Brown, D.L., Brown, C., (2015). Robinson Mine Preliminary Assessment/Site Investigation (PA/SI) with the CA Department of Conservation Office of Mine Reclamation (7/1/2015-2/28/2016) \$32,450.

RESEARCH MENTORING

Master's Thesis committees

Stacey Alexander (committee chair)	M.S. Geosciences- Hydrology	2019 – present
John Machado (committee chair)	M.S. Environmental Science	2019 – present
Jonathan Schwede (committee chair)	M.S. Environmental Science	2019 – present
Robert Gruenberg (committee chair)	M.S. Geosciences- Hydrology	2018 – 2019
Richard Vitamanti (committee chair)	M.S. Geosciences- Hydrology	2017 – 2018
Spencer Carroll (committee chair)	M.S. Geosciences- Hydrology	Spring 2017
John Kelley	M.S. Geosciences- Hydrology	2017 – 2018
Travis Moore	M.S. Geosciences- Hydrology	2015 – 2019
A. John Ward	M.S. Geosciences	2015 – present
Nicholas Graham	M.S. Geosciences	2015 – 2017
Jessica Kolstad (committee chair)	M.S. Geosciences	2015 – 2016
Peter Van Daalen Wetters	M.S. Geosciences	2014 – 2016
Nathan Maroon	M.S. Geosciences	2014 – 2015
Kelli Albertson	M.S. Geosciences	2014

Honors Research mentoring

Andrea Villegas Fregoso	B.S. Environmental Science, Hydrology	2020 - 2021
Brice Vanness	B.S. Biochemistry	2019 - 2020
Gabrielle Wyatt	B.S. Biology	2019 – 2020
Eric Dearden	B.S. Environmental Science, Hydrology	2018 – 2019
Bryn Copson	B.S. Environmental Science, Energy and Earth Res.	2017 – 2018
Robert Gruenberg	B.S. Environmental Science, Hydrology	2017 – 2018
Chandler Jarreau-Legarda	B.S. Environmental Science, Hydrology	2016 – 2017
Richard Vitamanti	B.S. Environmental Science, Hydrology	2016 – 2017
Harrison Mills	B.S. Chemistry	Spring 2016
Alyssa Anenberg	B.S. Environmental Science, Applied Ecology	2015 – 2016
Peyton Steinbacher	B.S. Environmental Science, Applied Ecology	2015 – 2016

ORAL PRESENTATIONS

*: student presenter

Matiasek, S.J., Alexander, S.*, Gruenberg, R.*, Pizzella, N.*, Schwede, J.*, Vanness, B.*, Wyatt, G.* (2020) The future is “swale” for urban storm runoff management. Online due to COVID-19. This Way to Sustainability Conference XVI, Chico, CA, Mar 26.

Matiasek, S.J. (2019) Long-Term Multi-Pollutant Assessment of Urban Stormwater Treatment by Bioswales. Abstract H12A-02. American Geophysical Union Fall Meeting 2019 in San Francisco, CA, Dec 9.

Matiasek, S.J. (2019) Urban storm runoff treatment in bioswales. 11th Annual Meeting of the Association for Environmental Studies and Sciences in Orlando, FL, Jun 27.

Webster, J.P. and **Matiasek, S.J.** (2019) Surface water quality monitoring following the Camp Fire: preliminary results. University of California Cooperative Extension 2019 Camp Fire Research Symposium in Chico, CA, Jun 4.

Dearden, E.*, Gruenberg, R.*, Olivar, J.*, Vanness, B.*, Wyatt, G.*, **Matiasek, S.J.** (2019) All is “swale” for urban storm runoff – assessment of biofiltration systems. This Way to Sustainability Conference XIV, Chico, CA, Mar 29.

ORAL PRESENTATIONS (CONTINUED)

Matiassek, S.J., Vitamanti, R.*, Meddings, C.* (2018) A Swale Promise: Pollutant Removal in Bioswales. 2018 Summer Meeting of the Association for the Sciences of Limnology and Oceanography Summer Meeting in Victoria, B.C., Canada, Jun 11.

Vitamanti, R.*, Copson, B.*, Dearden, E.*, Nguyen, Q.*, **Matiassek, S.J.** (2018) A “swale” future for stormwater: bioswales to the rescue. This Way to Sustainability Conference XIII, Chico, CA, Mar 16.

Carroll, S.*, Jarreau-Legarda, C.*, Meddings, C.*, Libby, R.*, Vitamanti, R.*, **Matiassek, S.J.** (2017) Stormwater Biofiltration Systems: Performance Monitoring and Design Considerations. This Way to Sustainability Conference XII, Chico, CA, Mar 24.

Bauer, S.*, Carroll, S.J.*, Mills, H.*, Reagan, A.*, Triassi, M.*, **Matiassek, S.J.** (2016) Storm Runoff Mitigation by Biofiltration. This Way to Sustainability Conference XI, Chico, CA, Mar 25.

SEMINAR PRESENTATIONS

Matiassek, S.J. (2020) Biofiltration of urban stormwater: lessons learned from the long-term monitoring of a bioswale. Seminar presentation at the Department of Geological and Environmental Sciences Seminar Series, CSU Chico, Jan 27.

Matiassek, S.J. (2018) Pollutant Removal in Urban Stormwater Biofiltration Systems. Seminar presentation at the Colloquium Series of the Departments of Geology, Biological Sciences and Environmental Studies and the U.S. Geological Survey, CSU Sacramento, Apr 24.

Matiassek, S.J. (2018) Pollutant Removal in Urban Stormwater Biofiltration Systems. Seminar presentation at the Geochemistry Guest Lecture Series of CSU Stanislaus College of Science, Feb 8.

SELECTED POSTER PRESENTATIONS

*: student presenter

Dearden, E.*, **Matiassek, S.J.** (2019) Performance Evaluation of a Stormwater Biofilter at Treating Urban Runoff. Abstract H13I-1806. 2019 American Geophysical Union Fall Meeting, San Francisco, CA, Dec 9.

Desmaud, M., Lucks, J.B., Jung, K., Alam, K.K, Webster, J.P., **Matiassek, S.J.**, Gaillard, J.-F. (2019) Assessing metal release in the wildland-urban interface of Paradise following the Camp Fire. Abstract B33G-2558. 2019 American Geophysical Union Fall Meeting, San Francisco, CA, Dec 11.

Vanness, B.*, **Matiassek, S.J.** (2019) Removal of Hydrocarbons from Urban Storm Runoff in a Bioswale. Abstract H13I-1809. 2019 American Geophysical Union Fall Meeting, San Francisco, CA, Dec 9.

Wyatt, G.*, **Matiassek, S.J.** (2019) Seasonal variation in plant bioaccumulation of heavy metals at the Butte College bioswale. Abstract H41J-1838. 2019 American Geophysical Union Fall Meeting, San Francisco, CA, Dec 12.

Dearden, E.*, **Matiassek, S.J.** (2019) Evaluation of pollutant removal and runoff reduction of a stormwater biofiltration system. Association for the Sciences of Limnology and Oceanography 2019 Aquatic Sciences Meeting, Puerto Rico. Feb 25.

SELECTED POSTER PRESENTATIONS (CONTINUED)

Matiasek, S.J. and Vitamanti, R* (2018) Effects of additives and saturation depth on nutrient retention in urban stormwater biofilters. Bay-Delta Science Conference, Sacramento, CA, Sep 10-12.

Dearden, E.*, Vanness, B.*, Wyatt, G.*, Gruenberg, R.*, and **Matiasek, S.J.** (2018) Do stormwater biofilters treat urban runoff? Bay-Delta Science Conference, Sacramento, CA, Sep 10-12.

Copson, B.* and **Matiasek, S.J.** (2018) Fate of heavy metals in urban stormwater biofiltration systems. Bay-Delta Science Conference, Sacramento, CA, Sep 10-12.

Vitamanti, R.*, Copson, B.*, Dearden, E.*, Libby, R.*, **Matiasek, S.J.** (2017) Pollutant Removal Efficiency of Stormwater Biofilters: Role of Plants and Additives. The State of the Estuary Conference. Oakland, CA, Oct 10-11.

Matiasek, S.J., Pellerin, B.A., Spencer, R.G.M, Bergamaschi, B.A., and Hernes, P.J. (2016) A Transformational Journey: Compositional Changes in Organic Matter during Desorption from Sediments. Abstract EP23B-0967. 2016 American Geophysical Union Fall Meeting, San Francisco, CA, Dec 12-16.

Carroll, S.J.*, Libby, R.*, Meddings, C.*, Bauer, S.*, Mills, H.*, Reagan, A.*, Triassi, M.*, **Matiasek, S.J.** (2016) Assessment of Pollutant Removal Efficiency and Drainage Capacity in Stormwater Biofilters. Abstract H13M-1607. 2016 American Geophysical Union Fall Meeting, San Francisco, CA, Dec 12-16.

Ward, A.J.*, Monohan, C., **Matiasek, S.J.**, Alpers, C.N., Curtis J.A., Campbell, K.M., Roth, D.A., Howle, J.F. (2016) Sediment Source Analysis at Malakoff Diggins State Historic Park, California. Abstract PA41B-2139. 2016 American Geophysical Union Fall Meeting, San Francisco, CA, Dec 12-16.

Matiasek, S.J. and Hernes, P.J. (2016) A change in character: agricultural sediments release compositionally distinct dissolved organic matter. Bay-Delta Science Conference, Sacramento, CA, Nov 15-17.

Matiasek, S.J., Pellerin, B.A., Spencer, R.G.M, Bergamaschi, B.A., and Hernes, P.J. (2015) Degradation state, sources, and reactivity of dissolved organic matter from an amino acid time series in an agricultural watershed. Abstract B11G-0513. 2015 American Geophysical Union Fall Meeting, San Francisco, CA, Dec14-18.

Matiasek, S.J., Pellerin, B.A., Bachand, P.A.M., Spencer, R.G.M, Bergamaschi, B.A., Hernes, P.J., (2010) Partitioning of sediment-associated organic matter in the agricultural Willow Slough watershed: quantitative and qualitative characterization. Bay-Delta Science Conference, Sacramento, CA, Sep 28.

Journet, S., Pellerin, B.A., Bachand, P.A.M., Spencer, R.G.M, Bergamaschi, B.A., Hernes, P.J., (2009) Partitioning of sediment-associated organic matter in agricultural watersheds: controlling parameters and water quality implications. Abstract B43A-0348. 2009 American Geophysical Union Fall Meeting, San Francisco, CA, Dec 17.

Journet, S., Pellerin, B.A., Bergamaschi, B.A., Hernes, P.J., (2007) Microbial Origin and Transformation of Dissolved Organic Matter in the Agricultural Willow Slough Watershed, California: Insights from Amino Sugars. Abstract B11A-0053. 2007 American Geophysical Union Fall Meeting, San Francisco, CA, Dec 10.

AWARDS AND FELLOWSHIPS

2017	Outstanding New Investigator Award , University Office of Research and Sponsored Programs
2019, 18, 17, 16	Winner of the Judged Award, Undergraduate-Faculty Research, poster at the College of Natural Sciences Poster Session.
2016	Winner of the People's Choice Award, Graduate-Faculty Research, poster at the College of Natural Sciences Poster Session.
2016	Excellence in Teaching Award , National Society of Leadership and Success
2012	Dissertation Year Fellowship (\$42,150)
2006, 07, 09	Henry A. Jastro and Peter J. Shields Graduate Research Scholarship Award (\$2,400; \$1,873; \$3,000)
2006	Land, Air, and Water Resources Department Graduate Opportunity Fund (\$750)
2005	Kearney Foundation of Soil Science Fellowship (\$14,977)

ACADEMIC SERVICE

2019 – present	Science Director, Center for Water and the Environment
2019 – present	Faculty member, College of Natural Sciences Poster Session Committee
2018 – present	Faculty member, Campus Sustainable Committee
2017 – present	Faculty Board member, Center for Water and the Environment
2017 – 2019	Department representative on the Curriculum, Academic Policies, and Status (CAPS) committee
2017 – 2018	Environmental Science curriculum remodel ad-hoc committee
2017	Pre-requisites changes ad-hoc committee
2016 – present	Department Scholarship committee
2016 – present	1 st Gen Faculty and Staff Association, member
2016 – 2018	Department representative on the new Physical Sciences building users committee
2016 – present	Academic advising, Environmental Science program
2016 – present	Judge at the College of Natural Sciences Annual Poster Session
2016 – present	Faculty Marshall at Commencement ceremony
2015 – 2016	Assessment Coordinator, Environmental Science program

OUTREACH

Matiasek, S.J. and Stephens, A. K. (2018). Build a Stormwater Filtration System. Page 169. 2018 Living Schoolyard Activity Guide: United States Edition. Publisher: Green Schoolyards America. Editor: Danks, S. 220 p.
http://ecoschools.com/Assets/Documents/GSA-LSYM_2018sc.pdf

Presentations at K-12 schools:

- Stormwater sampling at Hearthstone School, Oroville, CA (Dec. 2018 – March 2019). Presentation to science teachers (May 22, 2018).
- Hands-on demonstrations to K-2 educators in Dual Language Immersion Programs during the 2018 CIELO ELD/STEM Summer Institute, Chico, CA. (Jun. 15, 2018)
- Chico High School, AP Biology – May 14, 2018, Science Club – Apr 27, 2018
- Sierra View Elementary 4th grade class – Feb 27, 2018
- Sacramento River Floodplain Ecology Institute – Nov 4, 2017
- Bidwell Junior High School – Apr 3, 2017

TEACHER TRAINING

- 2020 Go Virtual Summer Institute, CSU Chico.
- 2017 – 2018 Redefining the College Lecture Faculty Learning Program, NSF IUSE grant.
- 2016 Early Career Geoscience Faculty Workshop: Teaching, Research and Managing Your Career, National Association of Geoscience Teachers (NAGT).
- 2015 Field Safety Leadership Workshop taught by Dr. Kurtis Burmeister (University of Pacific) at CSU Chico.
- 2010 – 2012 Graduate Teaching Community, member. University of California Davis
- 2011 Teaching workshop series (10-week), Center for Excellence in Teaching and Learning, University of California Davis

PROFESSIONAL MEMBERSHIPS

- 2019 – present Association of Environmental Studies and Sciences (AESS)
- 2016 – 2018 National Association of Geoscience Teachers (NAGT)
- 2006 – present American Geophysical Union (AGU)
- 2006 – present American Society of Limnology and Oceanography (ASLO)