

Andrea J. Pain

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Education

2013-2017	PhD, Geology, University of Florida, Gainesville, FL
2010-2013	M.Sc., Environmental Systems Science, ETH Zurich, Zurich, Switzerland
2004-2008	B.A. with Honors, Earth & Environmental Sciences, Wesleyan University, Middletown, CT

Professional appointments

2020	Assistant Professor, University of Maryland Center for Environmental Science, Horn Point Laboratory
2018 - 2020	Postdoctoral researcher, University of Florida, Gainesville, FL

Publications

Refereed Journal Articles

- Pain, A.J.**, Martin, J.B., Martin, E.E., Rahman, S., Ackermann, P. (2020) Differences in the quantity and quality of organic matter exported from Greenlandic glacial and deglaciated watersheds. *Global Biogeochemical Cycles*. DOI:10.1029/2020GB006614
- Pain, A.J.**, Martin, J.B., Young, C.R., Valle-Levinson, A., and Mariño-Tapia, I. (2020) Carbon and phosphorus processing in a carbonate karst aquifer and delivery to the coastal ocean. *Geochimica et Cosmochimica Acta* 269, 484-495.
<https://doi.org/10.1016/j.gca.2019.10.040>
- Pain, A.J.**, Martin, J.B., Young, C., Huang, L., Valle-Levinson, A. (2019). Organic matter quantity and quality across salinity gradients in conduit- versus diffuse flow-dominated subterranean estuaries. *Limnology & Oceanography* 64, 1386-1402.
<https://doi.org/10.1002/lno.11122>
- Pain, A.J.**, Martin, J.B., Young, C. (2019) Sources and sinks of CO₂ and CH₄ in siliciclastic subterranean estuaries. *Limnology & Oceanography* 64, 1500-1514.
<https://doi.org/10.1002/lno.11131>
- Chamberlin C. A., Bianchi T. S., Brown A. L., Cohen M. J., Dong X., Flint M. K., Martin J. B., McLaughlin D. L., Murray A. B., **Pain A.J.**, Quintero C. J., Ward N. D., Zhang X. and Heffernan J. B. (2018) Mass balance implies Holocene development of a low-relief karst patterned landscape. *Chemical Geology*. DOI: 10.1016/j.chemgeo.2018.05.029.

Li L., He Z., Shields M. R., Bianchi T. S., **Pain A.J.** and Stoffella P. J. (2018) Partial least squares analysis to describe the interactions between sediment properties and water quality in an agricultural watershed. *Journal of Hydrology* 566, 386–395.

Young, C., J. B. Martin, Branyon, J., **Pain, A.J.**, Valle-Levinson, A., Mariño-Tapia, I., Vieyra, M.R. (2018) Effects of short-term variations in sea level on dissolved oxygen in a coastal karst aquifer, Quintana Roo, Mexico. *Limnology & Oceanography* **63**: 352–362.

Pain, A.J., and Hastings, H. (2010) Nutrient limitation in Bahía Fosforescente, Puerto Rico: Evidence from seagrass C:N:P ratios in *Thalassia Testudinum*. *Acta Científica* 24 (1-3): 14-25.

Invited talks and seminars

Pain, A.J., Martin, J.B., Martin, E.E, Rahman, S (2019) Shifts in riverine phosphorus fluxes and storage with ice sheet retreat. Goldschmidt Annual Conference. Barcelona, Spain.

Pain, A.J., Rahman, S., Martin, J.B., Martin, E.E (2019) Implications of ice sheet retreat for nutrient export from periglacial landscapes in Greenland (Paper number: 1110). Southeastern Regional Meeting of the American Chemical Society. Savannah, GA

Pain, A.J. (2020) Significance of Ice Loss to the Arctic: Organic Processes. Institute for Learning in Retirement. Gainesville, FL.

Conference abstracts

Pain, A.J., Martin, J.B., Martin, E.E. (2020) Effects of mineral weathering on iron, sulfur and phosphorus geochemistry along a deglaciated chronosequence in southwest Greenland. Geological Society of America Fall Meeting, Montreal, Canada

Martin, J.B., **Pain, A.J.**, Martin, E.E. (2020) Changes in dissolved nutrient export with continental ice sheet retreat. Geological Society of America Fall Meeting, Montreal, Canada

Pain, A.J., Martin, J.B., Martin, E.E, Rahman, S. (2019) Carbon feedbacks under the Greenland Ice Sheet and implications for greenhouse gas exchange. American Geophysical Union Fall 2019 Meeting. San Francisco, CA

Rahman, S., Martin, J.B., Martin, E.E., **Pain, A.J.** (2019) Nutrient fluxes from deglaciated versus proglacial Greenlandic watersheds. American Geophysical Union Fall 2019 Meeting. San Francisco, CA

Martin, J.B., **Pain, A.J.**, Young, C. (2019) Coastal Carbonate Critical Zones: An example from the Yucatan peninsula. Geological Society of America Fall 2019 Meeting. Phoenix, AZ.

- Pain, A.J.**, Martin, J.B., Martin, E.E, Rahman, S (2019) Shifts in riverine phosphorus fluxes and storage with ice sheet retreat. Goldschmidt Annual Conference. Barcelona, Spain.
- Pain, A.J.**, Martin, J.B., Martin, E.E, Rahman, S. (2018) Shifts in quantity and quality of dissolved organic carbon delivered to the ocean as continental ice sheets retreat. American Geophysical Union Fall 2018 Meeting. Washington, D.C.
- Martin, J.B., **Pain, A.J.**, Martin, E.E., Robbins, M., Hall, H.G., Schnur, S. (2018) Diel variations in high-latitude stream water chemistry. American Geophysical Union Fall 2018 Meeting. Washington, D.C.
- Rahman, S., Martin, J.B., Martin, E.E., **Pain, A.J.** (2018) Dissolved and reactive Si fluxes from deglaciated and proglacial watersheds in West and South Greenland. American Geophysical Union Ocean Sciences Meeting, Portland, OR.
- Pain, A.J.**, Martin, J.B., Martin, E. (2017) Implications for carbon processing beneath the Greenland Ice Sheet from dissolved CO₂ and CH₄ concentrations of subglacial discharge. American Geophysical Union Fall 2017 Meeting. New Orleans, LA.
- Pain, A.J.**, Young, C. R., Martin, J.B. (2016) Impact of organic carbon quality on methanogenesis in subterranean estuaries and implications for greenhouse gas production American Geophysical Union Fall 2016 Meeting. San Francisco, CA.
- Pain, A.J.**, Martin, J.B., Young, C.R. (2016) Phosphorus storage in coastal sediments: Will sea-level rise mobilize P and elevate coastal fluxes? American Water Resources Association 2016 Annual Meeting. Orlando, FL
- Huang, L., Young, C., **Pain, A.J.**, Martin, J.B., Ogram, A. (2016) Analysis of microbial communities associated with groundwater discharge in the Yucatan Peninsula. American Water Resources Association 2016 Annual Meeting. Orlando, FL
- Chamberlin, C., Heffernan, J., Cohen, M., Quintero, C., **Pain, A.J.** (2016) Evolution of a Lowland Karst Landscape; A Mass-Balance Approach. American Geophysical Union Fall 2016 Meeting. San Francisco, CA
- Pain, A.J.**, Martin, J.B., Young, C. (2016). Heterogeneously distributed nutrient loading from groundwater to Indian River Lagoon, Florida. 2016 North Florida Marine Science Symposium, Cedar Key, FL
- Huang, L., Young, C., **Pain, A.J.**, Martin, J.B., Ogram, A., (2016) The responses of key nitrogen cycling genes to seasonal and tidal variations in a tropical estuary, 5th UF Water Institute Symposium, Gainesville, Florida.
- Pain, A.J.**, Martin, J.B., Young, C., and Brown, A. (2015) Organic carbon quality in submarine groundwater discharge and implications for mineral dissolution in a coastal carbonate aquifer, Geological Society of America, Abstract with program, v. 47, p. 845.

Young, C., Martin, J.B., **Pain, A.J.**, Huang, L., and Ogram, A. (2015) Microbially driven nitrogen cycling in Yucatan cenotes, Geological Society of America, Abstract with program, v. 47, p. 56

Huang, L, Young, C., **Pain, A.J.**, Martin, J.B., Ogram, A., (2015) The responses of key nitrogen cycling genes to seasonal and tidal variations in a tropical estuary, Florida Branch of the American Society for Microbiology meeting, Cocoa Beach, FL, Oct. 9 – 11.

Martin J., Brown, A., Ezell, J., **Pain, A.J.**, and Young, C., (2015) Weathering in modern carbonate terrains: Biological controls on redox conditions, dissolution and atmospheric CO₂ fluxes, Goldschmidt meeting, Prague, Czech Republic.

Martin, Jonathan B., Young, Caitlin, Branyon, Jackie, Valle-Levinson, A., **Pain, A.J.**, Marino-Tapia, I, and Rebolledo-Vieyra, M., (2015) Sea level rise impacts on coastal karst aquifers, Geological Society of America, Abstract with program, v. 47, p. 556.

Other publications

Pain, A.J. (2017) Carbon cycling in subterranean estuaries and implications for oceanic fluxes. University of Florida PhD Dissertation, Department of Geological Sciences. Gainesville, FL.

Pain, A.J. (2012) Management effects on soil organic matter stabilization in a long-term agricultural field trial. Master Thesis. Swiss Federal Institute of Technology, Zurich, Switzerland.

Pain, A.J. (2008) Sediment Phosphorus Reservoirs in Tropical Bays: Implications for Phosphorus Availability and Bioluminescent Dinoflagellate Populations. Wesleyan University Honors Thesis, Department of Earth & Environmental Sciences. Middletown, CT

Factsheets published in Sustainable Sanitation and Water Management Toolbox (sswm.info), published by seecon GmbH :

Pain, A. (2013) Business Model Canvas.

Pain, A. (2013) Blue Ocean Strategy

Pain, A. (2013) Elevator Pitch

Pain, A. (2012) Chlorination (Centralised)

Pain, A. (2012) Decentralised Supply

Pain, A. (2012) Wastewater Reuse at Home

Pain, A. (2012) Wastewater Reuse in Industry

Pain, A. (2012) Rich Pictures

Pain, A. and Spuhler, D. (2012) The SSWM Toolbox: Promoting a more holistic approach to capacity development in the water and sanitation sector. International Ecologic Engineering Society (IEES). Transforming Thinking Series.

Carrasco, J. and **Pain, A.** (2012) Mechanical Water Use

Carrasco, J. and **Pain, A.** (2012) Hydropower (Small-Scale)
Carrasco, J. and **Pain, A.** (2012) Hydropower (Large-Scale)

Awards and Honors

John Ridge Award for Outstanding Graduate Student in Academic Excellence, University of Florida Department of Geological Sciences, 2017. Gainesville, FL.

American Water Resources Association (AWRA) Outstanding Student Oral Presentation. Annual Fall Meeting, 2016. Orlando, FL

Departmental Honors, Wesleyan University Department of Earth & Environmental Sciences, 2008. Middletown, CT.

Grants and Fellowships

2020 International Network for Terrestrial Research and Monitoring in the Arctic (INTERACT) travel support: \$8,000
2019 International Network for Terrestrial Research and Monitoring in the Arctic (INTERACT) travel support: \$10,000

Teaching Experience

2014-2015 Florida Geology (University of Florida, Gainesville, FL)
2013 Environmental & Engineering Geology (University of Florida, Gainesville, FL)
2008-2010 English Language (Guadeloupe, French West Indies)
2008 Environmental Studies (Wesleyan University, Middletown, CT)

Other professional experience

2013 Project consultant, Integrity Management Toolbox on Sustainable Sanitation and Water Management Toolbox (sswm.info), Seecon GmbH, Basel, Switzerland
2012-2013 Intern, Sustainable Sanitation and Water Management Toolbox (sswm.info), Seecon GmbH, Basel Switzerland
2010-2012 Research assistant, Sustainable Construction, Institute of Construction and Infrastructure Management, ETH Zurich, Zurich, Switzerland
2008-2010 English teacher, French Ministry of Education, Guadeloupe, French West Indies