

Thomas M. Marchitto, Jr.
Curriculum Vitae

Dept. of Geological Sciences
Institute of Arctic and Alpine Research
University of Colorado
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Education

Ph.D. (1999) Marine Geology and Geophysics

Massachusetts Institute of Technology-Woods Hole Oceanographic Institution Joint Program

Thesis: *Zinc and Cadmium in Benthic Foraminifera as Tracers of Ocean Paleochemistry*

Advisors: W. B. Curry and D. W. Oppo

B.S. (1994) Geology and Geophysics

Yale University (cum laude, distinction in major, S. L. Penfield Prize, P. Wilde Prize)

Thesis: *Calcareous Nannofossils from the Gulf of Mexico, 16 to 9 ka*

Advisors: K. K. Turekian and K.-Y. Wei

Post-Degree Academic Employment

University of Colorado Boulder

Professor of Geological Sciences and INSTAAR Senior Fellow, 2019-present

Affiliate Faculty of Atmospheric and Oceanic Sciences, 2003-present

Associate Professor of Geological Sciences and INSTAAR Senior Fellow, 2010-2019

Assistant Professor of Geological Sciences and INSTAAR Fellow, 2003-2010

Lamont-Doherty Earth Observatory of Columbia University

Storke-Doherty Lecturer and Doherty Associate Research Scientist, 2002

Post-Doctoral Research Scientist, 2001-2002

Lamont-Doherty Post-Doctoral Fellow, 1999-2001

Awards and Fellowships

College Scholar Award, University of Colorado Boulder, 2017, 2024

Kavli Frontiers of Science Fellow, National Academy of Sciences, 2013

Provost's Faculty Achievement Award, University of Colorado Boulder, 2008

Schlanger Ocean Drilling Fellow, 1997-1999

JOI/USSAC Summer Research Fellow, University of Hawaii, Manoa, 1993

Leaves: Fall 2010 (sabbatical), Spring 2012 (paternity), Fall 2014 (paternity), Fall 2017 – Spring 2018 (sabbatical)

Publications

(first author *student or **postdoc)

(I am corresponding author but not first author)

Peer-Reviewed Research Publications

- *Elsworth, G. W., N. S. Lovenduski, K. M. Krumhardt, **T. M. Marchitto**, and S. Schlunegger, Anthropogenic climate change drives non-stationary phytoplankton internal variability, *Biogeosciences*, 20, 4477-4490, 2023.
- Oppo, D. W., W. Lu, K.-F. Huang, N. E. Umling, W. Guo, J. Yu, W. B. Curry, **T. M. Marchitto**, and S. Wang, Deglacial temperature and carbonate saturation state variability in the tropical Atlantic at Antarctic Intermediate Water depths, *Paleoceanography and Paleoclimatology*, 38(9), e2023PA004674, 2023.
- **Wycech, J. B., B. Rajagopalan, P. H. Molnar, E. Gill, and **T. M. Marchitto**, Multiproxy reconstruction of Pliocene North Atlantic sea surface temperatures and implications for rainfall in North Africa, *Paleoceanography and Paleoclimatology*, 37(12), e2022PA004424, 2022.
- *Richmond, T., J. Cole, G. Dangler, M. Daniele, **T. M. Marchitto**, and E. Lobaton, Forabot: Automated planktic foraminifera isolation and imaging, *Geochemistry, Geophysics, Geosystems*, 23(12), e2022GC010689, 2022.
- *Kelleher, R., A. Jennings, J. Andrews, N. K. S. Brooks, **T. M. Marchitto**, S. Feng, L. Woelders, A. Normandeau, K. Jenner, R. Bennett, and S. Brookins, Late glacial retreat of the Lancaster Sound Ice Stream and early Holocene onset of Arctic/Atlantic throughflow in the Arctic Island channels, *Arctic, Antarctic, and Alpine Research*, 54, 395-427, 2022.
- **Zanowski, H., A. Jahn, S. Gu, Z. Liu, and **T. M. Marchitto**, Decomposition of deglacial Pacific radiocarbon age controls using an isotope-enabled ocean model, *Paleoceanography and Paleoclimatology*, 37(8), e2021PA004363, 2022.
- *Kojima, A. C., D. M. Thompson, S. R. Hlohowskyj, J. E. Carilli, G. Gordon, T. J. Goepfert, H. R. Sayani, **T. M. Marchitto**, and K. M. Cobb, A mechanistic investigation of the coral Mn/Ca-based trade-wind proxy at Kiritimati, *Geochimica et Cosmochimica Acta*, 328, 58-75, 2022.
- *Valley, S. G., J. Lynch-Stieglitz, **T. M. Marchitto**, and D. W. Oppo, Seawater cadmium in the Florida Straits over the Holocene and implications for upper AMOC variability, *Paleoceanography and Paleoclimatology*, 37(5), e2021PA004379, 2022.
- Ezat, M. M., T. L. Rasmussen, M. P. Hain, M. Greaves, J. W. B. Rae, K. Zamelczyk, **T. M. Marchitto**, S. Szidat, and L. C. Skinner, Deep ocean storage of heat and CO₂ in the Fram Strait, Arctic Ocean during the last glacial period, *Paleoceanography and Paleoclimatology*, 36(8), e2021PA004216, 2021.
- Pausata, F. S. R., G. Messori, J. Yun, C. A. Jalihal, M. A. Bollasina, and **T. M. Marchitto**, The remote response of the South Asian Monsoon to reduced dust emissions and Sahara greening during the middle Holocene, *Climate of the Past*, 17(3), 1243-1271, 2021.
- **Sayani, H. R., D. M. Thompson, J. E. Carilli, **T. M. Marchitto**, A. U. Chapman, and K. M. Cobb, Reproducibility of coral Mn/Ca-based wind reconstructions at Kiritimati Island and Butaritari Atoll, *Geochemistry, Geophysics, Geosystems*, 22, e2020GC009398, 2021.
- *Monteagudo, M. M., J. Lynch-Stieglitz, **T. M. Marchitto**, and M. W. Schmidt, Central Equatorial Pacific Cooling during the Last Glacial Maximum, *Geophysical Research Letters*, 48, e2020GL088592, 2021.

- *Ge, Q., T. Richmond, B. Zhong, **T. M. Marchitto**, and E. J. Lobaton, Enhancing the morphological segmentation of microscopic fossils through Localized Topology-Aware Edge Detection, *Autonomous Robots*, 45, 709-723, 2021.
- Fehrenbacher, J., **T. M. Marchitto**, and H. J. Spero, Comparison of laser ablation and solution based ICP-MS results for individual foraminifer Mg/Ca and Sr/Ca analyses, *Geochemistry, Geophysics, Geosystems*, 21, e2020GC009254, 20 pp., 2020.
- *Rongstad, B. L., **T. M. Marchitto**, G. Serrato Marks, A. Koutavas, F. Mekik, and A. C. Ravelo, Investigating ENSO-related temperature variability in equatorial Pacific core-tops using Mg/Ca in individual planktic foraminifera, *Paleoceanography and Paleoclimatology*, 35(2), e2019PA003774, 18 pp., 2020.
- **Wycech, J. B., E. Gill, B. Rajagopalan, **T. M. Marchitto**, and P. H. Molnar, Multiproxy reduced-dimension reconstruction of Pliocene equatorial Pacific sea surface temperatures, *Paleoceanography and Paleoclimatology*, 35(1), e2019PA003685, 20 pp., 2020.
- *Mellon, S., M. Kienast, C. Algar, P. deMenocal, S. S. Kienast, **T. M. Marchitto**, M. Moros, and H. Thomas, Foraminifera trace anthropogenic CO₂ in the NW Atlantic by 1950, *Geophysical Research Letters*, 46, 14683-14691, 2019.
- *Valley, S. G., J. Lynch-Stieglitz, and **T. M. Marchitto**, Intermediate water circulation changes in the Florida Straits from a 35 ka record of Mg/Li-derived temperature and Cd/Ca-derived seawater cadmium, *Earth and Planetary Science Letters*, 523, 115692, 7 pp., 2019.
- Waelbroeck, C., and 62 others including **T. M. Marchitto**, Consistently dated Atlantic sediment cores over the last 40 thousand years, *Scientific Data*, 6, 165, 12 pp., 2019.
- *Piasecki, A., S. M. Bernasconi, A.-L. Grauel, B. Hannisdal, S. L. Ho, T. J. Leutert, **T. M. Marchitto**, N. Meinicke, A. Tisserand, and N. Meckler, Application of clumped isotope thermometry to benthic foraminifera, *Geochemistry, Geophysics, Geosystems*, 20, 2082-2090, 2019.
- **Mitra, R., **T. M. Marchitto**, Q. Ge, B. Zhong, B. Kanakiya, M. S. Cook, J. S. Fehrenbacher, J. D. Ortiz, A. Tripathi, and E. Lobaton, Automated species-level identification of planktic foraminifera using convolutional neural networks, with comparison to human performance, *Marine Micropaleontology*, 147, 16-24, 2019.
- Oppo, D. W., G. Gebbie, K.-F. Huang, W. B. Curry, **T. M. Marchitto**, and K. Pietro, Data constraints on glacial Atlantic water mass geometry and properties, *Paleoceanography and Paleoclimatology*, 33, 1013-1034, 2018.
- *Doss, W., **T. M. Marchitto**, R. Eagle, H. Rashid, and A. Tripathi, Deconvolving the saturation state and temperature controls on benthic foraminiferal Li/Ca, based on downcore paired B/Ca measurements and coretop compilation, *Geochimica et Cosmochimica Acta*, 236, 297-314, 2018.
- Marchitto, T. M.**, S. P. Bryan, W. Doss, M. T. McCulloch, and P. Montagna, A simple biomineralization model to explain Li, Mg, and Sr incorporation into aragonitic foraminifera and corals, *Earth and Planetary Science Letters*, 481, 20-29, 2018.
- *Rongstad, B. L., **T. M. Marchitto**, and J. C. Herguera, Understanding the effects of dissolution on the Mg/Ca paleothermometer in planktic foraminifera: Evidence from a novel individual foraminifera method. *Paleoceanography*, 32(12), 1386–1402, 2017.
- *Hasenfratz, A. P., R. Schiebel, D. J. R. Thornalley, J. Schönfelde, S. L. Jaccard, A. Martínez-García, A. Holbourn, A. E. Jennings, W. Kuhnt, C. H. Lear, **T. M. Marchitto**, U. Quillmann, Y. Rosenthal, and G. H. Haug, Mg/Ca-temperature calibration for the benthic foraminifera *Melonis barleeanum* and *Melonis pompilioides*, *Geochimica et Cosmochimica Acta*, 217, 365-383, 2017.

- *Valley, S., J. Lynch-Stieglitz, and **T. M. Marchitto**, Timing of deglacial AMOC variability from a high-resolution seawater cadmium reconstruction, *Paleoceanography*, 32(11), 1195-1203, 2017.
- *Gill, E. C., B. Rajagopalan, P. H. Molnar, Y. Kushnir, and **T. M. Marchitto**, Reconstruction of Indian summer monsoon winds and precipitation over the past 10,000 years using equatorial Pacific SST proxy records, *Paleoceanography*, 32(2), 195-216, 2017.
- *Skirbekk, K., M. Hald, **T. M. Marchitto**, J. Junttila, D. Klitgaard Kristensen, S. Aagaard-Sørensen, Benthic foraminiferal growth seasons implied from Mg/Ca-temperature correlations for three Arctic species, *Geochemistry, Geophysics, Geosystems*, 17, 4684-4704, 2016.
- *Lindsay, C. M., S. J. Lehman, **T. M. Marchitto**, J. D. Carriquiry, and J. D. Ortiz, New constraints on deglacial marine radiocarbon anomalies from a depth transect near Baja California, *Paleoceanography*, 31, 1103-1116, 2016.
- *Gill, E. C., B. Rajagopalan, P. Molnar, **T. M. Marchitto**, Reduced-dimension reconstruction of the equatorial Pacific SST and zonal wind fields over the past 10,000 years using Mg/Ca and alkenone records, *Paleoceanography*, 31, 928-952, 2016.
- *Rustic, G. T., A. Koutavas, **T. M. Marchitto**, and B. K. Linsley, Dynamical excitation of the tropical Pacific Ocean and ENSO variability by Little Ice Age cooling, *Science*, 350, 1537-1541, 2015.
- *Lindsay, C. M., S. J. Lehman, **T. M. Marchitto**, and J. D. Ortiz, The surface expression of radiocarbon anomalies near Baja California during deglaciation, *Earth and Planetary Science Letters*, 422, 67-74, 2015.
- *Aagaard-Sørensen, S., K. Husum, K. Werner, R. F. Spielhagen, M. Hald, and **T. M. Marchitto**, A Late Glacial-Early Holocene multiproxy record from the eastern Fram Strait, polar North Atlantic, *Marine Geology*, 355, 15-26, 2014.
- Marchitto, T. M.**, W. B. Curry, J. Lynch-Stieglitz, S. P. Bryan, K. M. Cobb, and D. C. Lund, Improved oxygen isotope temperature calibrations for cosmopolitan benthic foraminifera, *Geochimica et Cosmochimica Acta*, 130, 1-11, 2014.
- *Aagaard-Sørensen, S., K. Husum, M. Hald, **T. M. Marchitto**, and F. Godtliebsen, Sea surface temperatures in the polar North Atlantic during the Holocene: Planktic foraminiferal Mg/Ca temperature reconstructions, *The Holocene*, 24, 93-103, 2014.
- *Doss, W. C., and **T. M. Marchitto**, Glacial deep ocean sequestration of CO₂ driven by the eastern equatorial Pacific biologic pump, *Earth and Planetary Science Letters*, 377-378, 43-54, 2013.
- *Quillmann, U., **T. M. Marchitto**, A. E. Jennings, J. T. Andrews, and B. F. Friestad, Cooling and freshening at 8.2 ka on the NW Iceland Shelf recorded in paired $\delta^{18}\text{O}$ and Mg/Ca measurements of the benthic foraminifer *Cibicides lobatulus*, *Quaternary Research*, 78, 528-539, 2012.
- Clark, P. U., J. D. Shakun, P. A. Baker, P. J. Bartlein, S. Brewer, E. J. Brook, A. E. Carlson, H. Cheng, D. S. Kaufman, Z. Liu, **T. M. Marchitto**, A. C. Mix, C. Morrill, B. Otto-Bliesner, K. Pahnke, J. M. Russell, C. Whitlock, J. F. Adkins, J. L. Blois, J. Clark, S. C. Colman, W. B. Curry, B. P. Flower, F. He, T. C. Johnson, J. Lynch-Stieglitz, V. Markgraf, J. F. McManus, J. X. Mitrovica, P. I. Moreno, and J. W. Williams, Global climate evolution during the last deglaciation, *Proceedings of the National Academy of Sciences*, 109, E1134-E1142, 2012.
- Hönisch, B., A. Ridgwell, D. N. Schmidt, E. Thomas, S. J. Gibbs, A. Sluijs, R. Zeebe, L. Kump, R. C. Martindale, S. E. Greene, W. Kiessling, J. Ries, J. C. Zachos, D. L. Royer, S. Barker, **T.**

- M. Marchitto**, R. Moyer, C. Pelejero, P. Ziveri, G. L. Foster, and B. Williams, The geological record of ocean acidification, *Science*, 335, 1058-1063, 2012.
- Spielhagen, R. F., K. Werner, S. Aagaard-Sørensen, K. Zamelczyk, E. Kandiano, G. Budeus, K. Husum, **T. M. Marchitto**, and M. Hald, Enhanced modern heat transfer to the Arctic by warm Atlantic Water, *Science*, 331, 450-453, 2011.
- Marchitto, T. M.**, R. Muscheler, J. D. Ortiz, J. D. Carriquiry, and A. van Geen, Dynamical response of the tropical Pacific Ocean to solar forcing during the early Holocene, *Science*, 330, 1378-1381, 2010.
- *Basak, C., E. E. Martin, K. Horikawa, and **T. M. Marchitto**, Southern Ocean source of ^{14}C -depleted carbon in the North Pacific Ocean during the last deglaciation, *Nature Geoscience*, 3, 770-773, 2010.
- *Bryan, S. P., **T. M. Marchitto**, and S. J. Lehman, The release of ^{14}C -depleted carbon from the deep ocean during the last deglaciation: Evidence from the Arabian Sea, *Earth and Planetary Science Letters*, 298, 244-254, 2010.
- *Bryan, S. P., and **T. M. Marchitto**, Testing the utility of paleonutrient proxies Cd/Ca and Zn/Ca in benthic foraminifera from thermocline waters, *Geochemistry, Geophysics, Geosystems*, 11(1), Q01005, doi:10.1029/2009GC002780, 14 pp., 2010.
- Greaves, M., N. Caillon, H. Rebaubier, G. Bartoli, S. Bohaty, I. Cacho, L. Clarke, M. Cooper, C. Daunt, M. Delaney, P. deMenocal, A. Dutton, S. Eggins, H. Elderfield, D. Garbe-Schoenberg, E. Goddard, D. Green, J. Groeneveld, D. Hastings, E. Hathorne, K. Kimoto, G. Klinkhammer, L. Labeyrie, D. W. Lea, **T. M. Marchitto**, M. A. Martinez-Boti, P. G. Mortyn, Y. Ni, D. Nuernberg, G. Paradis, L. Pena, T. Quinn, Y. Rosenthal, A. Russell, T. Sagawa, S. Sosdian, L. Stott, K. Tachikawa, E. Tappa, R. Thunell, and P. A. Wilson, Interlaboratory comparison study of calibration standards for foraminiferal Mg/Ca thermometry, *Geochemistry, Geophysics, Geosystems*, 9(8), Q08010, doi:10.1029/2008GC001974, 27 pp., 2008.
- *Bryan, S. P., and **T. M. Marchitto**, The Mg/Ca - temperature proxy in benthic foraminifera: New calibrations from the Florida Straits and a hypothesis regarding Mg/Li, *Paleoceanography*, 23(2), PA2220, doi:10.1029/2007PA001553, 17 pp., 2008.
- Curry, W. B., and **T. M. Marchitto**, A secondary ionization mass spectrometry calibration of *Cibicides pachyderma* Mg/Ca with temperature, *Geochemistry, Geophysics, Geosystems*, 9(4), Q04009, doi:10.1029/2007GC001620, 13 pp., 2008.
- Otto-Bliesner, B. L., C. D. Hewitt, **T. M. Marchitto**, E. Brady, A. Abe-Ouchi, M. Crucifix, S. Murakami, and S. L. Weber, Last Glacial Maximum ocean thermohaline circulation: PMIP2 model intercomparisons and data constraints, *Geophysical Research Letters*, 34, L12706, doi:10.1029/2007GL029475, 6 pp., 2007.
- Marchitto, T. M.**, S. J. Lehman, J. D. Ortiz, J. Flückiger, and A. van Geen, Marine radiocarbon evidence for the mechanism of deglacial atmospheric CO_2 rise, *Science*, 316, 1456-1459, 2007.
- *Todd, A. S., D. M. McKnight, C. L. Jaros, and **T. M. Marchitto**, Effects of acid rock drainage on stocked rainbow trout (*Oncorhynchus mykiss*): an in-situ caged fish experiment, *Environmental Monitoring and Assessment*, 130, 111-127, 2007.
- Lynch-Stieglitz, J., J. F. Adkins, W. B. Curry, T. Dokken, I. R. Hall, J. C. Herguera, J. J.-M. Hirschi, E. V. Ivanova, C. Kissel, O. Marchal, **T. M. Marchitto**, I. N. McCave, J. F. McManus, S. Mulitza, U. Ninnemann, F. Peeters, E.-F. Yu, and R. Zahn, Atlantic meridional overturning circulation during the Last Glacial Maximum, *Science*, 316, 66-69, 2007.

- Marchitto, T. M.**, S. P. Bryan, W. B. Curry, and D. C. McCorkle, Mg/Ca temperature calibration for the benthic foraminifer *Cibicidoides pachyderma*, *Paleoceanography*, 22(1), PA1203, doi:10.1029/2006PA001287, 9 pp., 2007.
- Marchitto, T. M.**, and W. S. Broecker, Deep water mass geometry in the glacial Atlantic Ocean: A review of constraints from the paleonutrient proxy Cd/Ca, *Geochemistry Geophysics Geosystems*, 7(12), Q12003, doi:10.1029/2006GC001323, 16 pp., 2006.
- Marchitto, T. M.**, Precise multi-elemental ratios in small foraminiferal samples determined by sector field ICP-MS, *Geochemistry Geophysics Geosystems*, 7(5), Q05P13, 10 pp., 2006.
- *Farmer, E. C., P. B. deMenocal, and **T. M. Marchitto**, Holocene and deglacial ocean temperature variability in the Benguela upwelling region: Implications for low-latitude atmospheric circulation, *Paleoceanography*, 20(2), PA2018, doi:10.1029/2004PA001049, 16 pp., 2005.
- Marchitto, T. M.**, J. Lynch-Stieglitz, and S. R. Hemming, Deep Pacific CaCO₃ compensation and glacial-interglacial atmospheric CO₂, *Earth and Planetary Science Letters*, 231, 317-336, 2005.
- Marchitto, T. M.**, Lack of a significant temperature influence on the incorporation of Cd into benthic foraminiferal tests, *Geochemistry Geophysics Geosystems*, 5(10), Q10D11, doi:10.1029/2004GC000753, 9 pp., 2004.
- **Ortiz, J. D., S. B. O'Connell, J. DelViscio, W. Dean, J. D. Carriquiry, **T. M. Marchitto**, Y. Zheng, and A. van Geen, Enhanced marine productivity off western North America during warm climate intervals of the past 52 k.y., *Geology*, 32, 521-524, 2004.
- Rosenthal, Y., S. Perron-Cashman, C. H. Lear, E. Bard, S. Barker, K. Billups, M. Bryan, M. L. Delaney, P. B. deMenocal, G. S. Dwyer, H. Elderfield, C. R. German, M. Greaves, D. W. Lea, **T. M. Marchitto**, D. K. Pak, G. L. Paradis, A. D. Russell, R. R. Schneider, K. Scheiderich, L. Stott, K. Tachikawa, E. Tappa, R. Thunell, M. Wara, S. Weldeab, and P. A. Wilson, Interlaboratory comparison study of Mg/Ca and Sr/Ca measurements in planktonic foraminifera for paleoceanographic research, *Geochemistry Geophysics Geosystems*, 5(4), Q04D09, doi:10.1029/2003GC000650, 29 pp., 2004.
- Marchitto, T. M.**, and P. B. deMenocal, Late Holocene variability of upper North Atlantic Deep Water temperature and salinity, *Geochemistry Geophysics Geosystems*, 4(12), 1100, doi:10.1029/2003GC000598, 12 pp., 2003.
- Marchitto, T. M.**, D. W. Oppo, and W. B. Curry, Paired benthic foraminiferal Cd/Ca and Zn/Ca evidence for a greatly increased presence of Southern Ocean Water in the glacial North Atlantic, *Paleoceanography*, 17(3), 10.1-10.18, doi:10.1029/2000PA000598, 2002.
- *Koutavas, A., J. Lynch-Stieglitz, **T. M. Marchitto**, and J. P. Sachs, El Niño-like pattern in Ice Age tropical Pacific sea surface temperature, *Science*, 297, 226-230, 2002.
- Marchitto, T. M.**, W. B. Curry, and D. W. Oppo, Zinc concentrations in benthic foraminifera reflect seawater chemistry, *Paleoceanography*, 15, 299-306, 2000.
- Marchitto, T. M.**, G. A. Jones, G. A. Goodfriend, and C. R. Weidman, Precise temporal correlation of Holocene mollusk shells using sclerochronology, *Quaternary Research*, 53, 236-246, 2000.
- Curry, W. B., **T. M. Marchitto**, J. F. McManus, D. W. Oppo, and K. L. Laarkamp, Millennial-scale changes in ventilation of the thermocline, intermediate, and deep waters of the glacial North Atlantic, in *Mechanisms of Global Climate Change at Millennial Time Scales*, *Geophysical Monograph Series*, vol. 112, edited by P. U. Clark, R. S. Webb, and L. D. Keigwin, pp. 59-76, AGU, Washington, 1999.

Marchitto, T. M., W. B. Curry, and D. W. Oppo, Millennial-scale changes in North Atlantic circulation since the last glaciation, *Nature*, 393, 557-561, 1998.

Marchitto, T. M., and K.-Y. Wei, History of Laurentide meltwater flow to the Gulf of Mexico during the last deglaciation, as revealed by reworked calcareous nannofossils, *Geology*, 23, 779-782, 1995.

Peer-Reviewed (Juried) Conference Proceedings

*Zhong, B., Q. Ge, B. Kanakiya, R. Mitra, **T. M. Marchitto**, and E. Lobaton, A comparative study of image classification algorithms for Foraminifera identification, *Institute of Electrical and Electronics Engineers (IEEE) Symposium Series on Computational Intelligence*, DOI: 10.1109/SSCI.2017.8285164, 8 pp., Honolulu, 2017.

*Ge, Q., B. Zhong, B. Kanakiya, R. Mitra, **T. M. Marchitto**, and E. Lobaton, Coarse-to-fine Foraminifera image segmentation through 3D and deep features, *Institute of Electrical and Electronics Engineers (IEEE) Symposium Series on Computational Intelligence*, DOI: 10.1109/SSCI.2017.8280982, 8 pp., Honolulu, 2017.

Invited Textbook Articles (Editor-Reviewed)

Marchitto, T. M. and J. R. Farmer, Nutrient proxies, in *Encyclopedia of Quaternary Science*, 3rd ed., edited by S. A. Elias, pp. 899-906, Elsevier, Amsterdam, 2023.

Lynch-Stieglitz, J., and **T. M. Marchitto**, Tracers of past ocean circulation, in *The Oceans and Marine Geochemistry*, edited by H. Elderfield, *Treatise on Geochemistry*, 2nd ed., edited by H. D. Holland and K. K. Turekian, vol. 8, pp. 435-451, Elsevier, Oxford, 2014.

Marchitto, T. M., Nutrient proxies, in *Encyclopedia of Quaternary Science*, 2nd ed., edited by S. A. Elias, pp. 899-906, Elsevier, Amsterdam, 2013.

Marchitto, T. M., North Atlantic Deep Water and climate change, in *Encyclopedia of Paleoclimatology and Ancient Environments*, edited by V. Gornitz, pp. 614-619, Springer, Dordrecht, 2009.

Marchitto, T. M., Nutrient proxies, in *Encyclopedia of Quaternary Science*, edited by S. A. Elias, pp. 1732-1740, Elsevier, Amsterdam, 2007.

Invited Commentaries (Editor-Reviewed)

Zeebe, R. E., and **T. M. Marchitto**, News & Views: Glacial cycles: Atmosphere and ocean chemistry, *Nature Geoscience*, 3, 386-387, 2010.

Filippelli, G., D. Warnke, J. A. Flores, and **T. M. Marchitto**, Paleoceanography and paleoclimatology of the Southern Ocean, *Eos*, 86(20), 193-195, 2005.

Marchitto, T. M., Highlights: Paleoclimatology and paleoceanography, *Geotimes*, 48(7), 32-33, 2003.

Marchitto, T. M., Highlights: Paleoclimatology and paleoceanography, *Geotimes*, 47(7), 28-29, 2002.

Presentations at Scientific Conferences Since Joining CU

(* invited)

- Marchitto, T. M.**, Roeder, E. E., and Wycech, J. B., Tropical Pacific sea surface temperature patterns during the Last Glacial Maximum, *14th International Conference on Paleoceanography*, Bergen, August 29-September 2, 2022. (poster)
- Marchitto, T. M.**, B. Rongstad, G. Serrato Marks, and K. Karnauskas, Individual foraminiferal Mg/Ca as a proxy for ENSO variance: Core top validation and Last Glacial Maximum application, *2020 V. M. Goldschmidt Conference*, virtual, June 21-26, 2020. (talk)
- Marchitto, T. M.**, E. Lobaton, M. Daniele, T. Richmond, A. Young, Q. Ge, B. Zhong, and R. Mitra, Development of FORABOT, a robotic system for automated foram picking, *13th International Conference on Paleoceanography*, Sydney, September 2-6, 2019. (poster)
- Marchitto, T. M.**, G. A. Gaetani, J. Uchikawa, and R. E. Zeebe, Abiotic experimental constraints on the aragonite Li/Mg thermometer, *American Geophysical Union 2018 Fall Meeting*, Washington DC, December 10-14, 2018. (talk)
- * **Marchitto, T. M.**, S. P. Bryan, W. Doss, K. A. Huguen, M. T. McCulloch, and P. Montagna, A simple biomineralization model to explain Li, Mg, and Sr incorporation into aragonitic corals and foraminifera, *American Geophysical Union 2017 Fall Meeting*, New Orleans, December 11-15, 2017. (talk)
- Marchitto, T. M.**, R. Mitra, B. Zhong, Q. Ge, B. Kanakiya, and E. Lobaton, Automated species-level identification and segmentation of planktonic foraminifera using convolutional neural networks, *American Geophysical Union 2017 Fall Meeting*, New Orleans, December 11-15, 2017. (talk)
- Marchitto, T. M.**, J. Fehrenbacher, H. Spero, and A. van Geen, Proof-of-concept for solution-based Mg/Ca on individual planktonic foraminifera: 250 years of ENSO variability, *Past Global Changes (PAGES) Open Science Meeting*, Zaragoza, May 10-13, 2017. (poster)
- Marchitto, T. M.**, J. Fehrenbacher, H. Spero, and A. van Geen, Greater ENSO activity during the late Little Ice Age inferred from Mg/Ca in individual planktonic foraminifera, *12th International Conference on Paleoceanography*, Utrecht, August 29-September 2, 2016. (poster)
- * **Marchitto, T. M.**, J. Fehrenbacher, H. Spero, and A. van Geen, Proof-of-concept for solution-based Mg/Ca on individual planktonic foraminifera: 250 years of ENSO variability, *Workshop on Individual Foraminifer Analysis in Paleoceanography*, Utrecht, August 28, 2016. (talk)
- Marchitto, T. M.**, J. Fehrenbacher, H. Spero, and A. van Geen, Enhanced ENSO variability during the Little Ice Age based on Mg/Ca in individual planktonic foraminifera, *Annual V. M. Goldschmidt Conference*, Yokohama, June 26-July 1, 2016. (talk)
- Marchitto, T. M.**, S. Valley, and J. Lynch-Stieglitz, Improved constraints on deep sea temperatures from Li/Mg in biogenic aragonites, with a paleo-AMOC application in the Florida Straits, *Climate Variability and Predictability Program (CLIVAR) Workshop on Connecting Paleo and Modern Oceanographic Data to Understand AMOC over Decades to Centuries*, Boulder, May 23-25, 2016. (poster)
- Marchitto, T. M.**, S. Valley, and J. Lynch-Stieglitz, Accurate and precise bottom water paleotemperatures from aragonitic benthic foraminiferal Li/Mg: Calibration, theory, and application, *American Geophysical Union 2015 Fall Meeting*, San Francisco, December 14-18, 2015. (talk)

- Marchitto, T. M.**, Mg/Ca measurements on individual planktonic foraminifera using a ‘wet chemistry’ approach, *SCOR/IGBP Working Group 138: Final Workshop and Short Course on Culturing Planktonic Foraminifera*, Santa Catalina Island, August 30-September 4, 2015. (poster)
- Marchitto, T. M.**, H. Grist, and A. van Geen, Seasonal and interannual ocean temperature reconstruction using Mg/Ca measurements on individual planktic foraminifera, *24th Annual V. M. Goldschmidt Conference*, Sacramento, June 8-13, 2014. (poster)
- Marchitto, T. M.**, H. Grist, and A. van Geen, Measuring past changes in ENSO variance using Mg/Ca measurements on individual planktic foraminifera, *American Geophysical Union 2013 Fall Meeting*, San Francisco, December 9-13, 2013. (talk)
- * **Marchitto, T. M.**, Paleooceanographic perspectives on the global carbon cycle, *2013 US Kavli Frontiers of Science Symposium*, Irvine, November 7-9, 2013. (poster)
- Marchitto, T. M.**, H. Grist, and A. van Geen, An attempt to measure changes in ENSO variance using Mg/Ca measurements on individual planktic foraminifera, *11th International Conference on Paleooceanography*, Barcelona-Sitges, September 1-6, 2013. (poster)
- Marchitto, T. M.**, S. P. Bryan, and P. Montagna, A simple biomineralization model to explain Li, Mg, and Sr incorporation into aragonitic foraminifera and corals, *American Geophysical Union 2011 Fall Meeting*, San Francisco, December 5-9, 2011. (poster)
- * **Marchitto, T. M.**, S. J. Lehman, C. Lindsay, S. P. Bryan, J. D. Ortiz, and A. van Geen, Low latitude surface ocean contribution to the deglacial atmospheric radiocarbon decline, *21st Annual V. M. Goldschmidt Conference*, Prague, August 14-19, 2011. (talk)
- Marchitto, T. M.**, R. Muscheler, J. D. Ortiz, J. D. Carriquiry, and A. van Geen, Probing Holocene tropical Pacific SST variability using multi-specimen and single-specimen planktonic foraminiferal Mg/Ca measurements, *10th International Conference on Paleooceanography*, La Jolla, August 29-September 3, 2010. (poster)
- Marchitto, T. M.**, R. Muscheler, J. D. Ortiz, J. D. Carriquiry, and A. van Geen, La Niña-like response of the tropical Pacific to solar forcing during the Holocene, with implications for western United States aridity, *American Quaternary Association 21st Biennial Meeting*, Laramie, August 13-15, 2010. (poster)
- Marchitto, T. M.**, J. D. Ortiz, and A. van Geen, Dynamical response of the tropical Pacific Ocean to solar forcing during the Holocene, *American Geophysical Union 2009 Fall Meeting*, San Francisco, December 14-18, 2009. (talk)
- * **Marchitto, T. M.**, Ice age deep ocean circulation and atmospheric CO₂, *Yale University Geology & Geophysics Alumni Conference*, New Haven, November 6-8, 2009. (talk)
- Marchitto, T. M.**, J. D. Ortiz, and A. van Geen, Millennial-scale variations in eastern North Pacific upwelling temperatures since the last deglaciation, *AGU Chapman Conference on Abrupt Climate Change*, Columbus, June 15-19, 2009. (talk)
- * **Marchitto, T. M.**, S. P. Bryan, P. Montagna, and M. McCulloch, Li/Mg in biogenic aragonite as a potential paleotemperature proxy, *American Geophysical Union 2008 Fall Meeting*, San Francisco, December 15-19, 2008. (talk)
- * **Marchitto, T. M.**, Distribution of LGM deep water masses based on benthic foraminiferal Cd/Ca, *Workshop on Reconstruction of the Glacial Deep Ocean Circulation*, Bremen, November 4-7, 2008. (talk)
- * **Marchitto, T. M.**, SynTraCE21K: Intermediate waters of the tropical and North Pacific, *Workshop on Synthesizing Transient Climate Evolution of the Last 21,000 Years (SynTraCE-21k)*, Madison, August 11-13, 2008. (talk)

- Marchitto, T. M.,** S. P. Bryan, W. B. Curry, J. Lynch-Stieglitz, and D. C. Lund, Precise calibration of oxygen isotope paleotemperature equations for several taxa of benthic foraminifera, *18th Annual V. M. Goldschmidt Conference*, Vancouver, July 13-18, 2008. (talk)
- Marchitto, T. M.,** and S. J. Lehman, Eastern North Pacific radiocarbon signal of the ocean's CO₂ release during the last deglaciation, *9th International Conference on Paleoceanography*, Shanghai, September 3-7, 2007. (poster)
- * **Marchitto, T. M.,** S. J. Lehman, J. D. Ortiz, J. Flückiger, and A. van Geen, Marine radiocarbon evidence for the mechanism of deglacial atmospheric CO₂ rise, *60th Anniversary of Geological Society of Korea, International Symposium on Global Environmental Change*, Seoul, April 12-13, 2007. (talk)
- Marchitto, T. M.,** S. J. Lehman, J. D. Ortiz, and A. van Geen, Intermediate water ¹⁴C evidence for the mechanism of deglacial CO₂ increase, *American Geophysical Union 2006 Fall Meeting*, San Francisco, December 11-15, 2006. (talk)
- * **Marchitto, T. M.,** S. J. Lehman, J. D. Ortiz, and A. van Geen, The ocean's great deglacial CO₂ release: Evidence from deep sea CaCO₃ preservation and intermediate water ¹⁴C activity, *16th Annual V. M. Goldschmidt Conference*, Melbourne, August 27-September 1, 2006. (talk)
- Marchitto, T. M.,** J. D. Ortiz, J. D. Carriquiry, C. Levi, and A. van Geen, A 14,000 year foraminiferal trace metal record of ENSO-influenced upwelling near southern Baja California, *American Geophysical Union 2005 Fall Meeting*, San Francisco, December 5-9, 2005. (talk)
- Marchitto, T. M.,** J. Lynch-Stieglitz, and S. Hemming, Deep Pacific CaCO₃ compensation and glacial-interglacial atmospheric CO₂, *AGU Chapman Conference on Role of Marine Organic Carbon and Calcite Fluxes in Driving Global Climate Change, Past and Future*, Woods Hole, July 24-27, 2005. (poster)
- * **Marchitto, T. M.,** Water mass reconstruction from trace metals in benthic foraminifera, *SCOR/IMAGES Working Group 123 Workshop on Reconstruction of Past Ocean Circulation (PACE)*, Atlanta, March 20-23, 2005. (talk)
- Marchitto, T. M.,** J. D. Ortiz, J. D. Carriquiry, A. Sanchez, W. Dean, Y. Zheng, C. Levi, and A. van Geen, ENSO-influenced upwelling off of Southern Baja California since the last glaciation, *American Geophysical Union 2004 Fall Meeting*, San Francisco, December 13-17, 2004. (talk)
- Marchitto, T. M.,** S. J. Lehman, J. D. Ortiz, J. D. Carriquiry, A. Sanchez, W. Dean, Y. Zheng, C. Levi, M. Vicarelli, and A. van Geen, ENSO dynamics and Baja California oxygen minimum zone strength since the last glaciation, *Geological Society of America 2004 Annual Meeting*, Denver, November 7-10, 2004. (poster)
- * **Marchitto, T. M.,** S. J. Lehman, J. D. Ortiz, J. D. Carriquiry, A. Sanchez, W. Dean, Y. Zheng, C. Levi, M. Vicarelli, and A. van Geen, ENSO dynamics and Baja California oxygen minimum zone strength since the last glaciation, *8th International Conference on Paleoceanography*, Biarritz, September 5-10, 2004. (plenary talk)
- Marchitto, T. M.,** M. Vicarelli, J. Carriquiry, A. Sanchez, W. Dean, J. Ortiz, Y. Zheng, and A. van Geen, Ventilation influence on Baja California oxygen minimum zone strength since the LGM: Constraints from benthic foraminiferal Mg/Ca, *XVI International Union for Quaternary Research Congress*, Reno, July 23-30, 2003. (poster)
- Marchitto, T. M.,** J. Lynch-Stieglitz, and S. Hemming, Quantifying glacial carbonate compensation in the deep Pacific using trace metals in benthic foraminifera, *European*

*Geophysical Society-American Geophysical Union-European Union of Geosciences 2003
Joint Assembly, Nice, April 6-11, 2003. (talk)*

Presentations at Scientific Conferences by Student Advisees

(* invited, † student award)

(other numerous coauthored presentations are **not listed**)

- Tellez, T. A., and **T. M. Marchitto**, Using Li/Mg partitioning in lab-grown aragonite to understand a deep sea paleotemperature proxy, *American Geophysical Union 2023 Fall Meeting*, San Francisco, December 11-15, 2023. (talk)
- Tellez, T. A., and **T. M. Marchitto**, Validation of bio-aragonite Li/Mg as a deep sea paleotemperature proxy, *Rocky Mountain Geobiology Symposium*, Boulder, April 22, 2023. (poster)
- Roeder, E. E., and **T. M. Marchitto**, A multi-proxy reduced dimension reconstruction of LGM equatorial Pacific sea surface temperatures, *American Geophysical Union 2021 Fall Meeting*, New Orleans, December 13-17, 2021. (talk)
- Rongstad, B., **T. M. Marchitto**, A. Koutavas, F. Mekik, and A. C. Ravelo, Calibrating a method for reconstructing total and interannual (ENSO) variability in the equatorial Pacific using Mg/Ca in individual planktic foraminifera, *13th International Conference on Paleoceanography*, Sydney, September 2-6, 2019. (poster)
- Rongstad, B., **T. M. Marchitto**, A. Koutavas, F. Mekik, and A. C. Ravelo, Calibrating a method for reconstructing total and interannual (ENSO) variability in the equatorial Pacific using Mg/Ca in individual planktic foraminifera, *American Geophysical Union 2018 Fall Meeting*, Washington DC, December 10-14, 2018. (talk)
- Rongstad, B., **T. M. Marchitto**, A. Koutavas, and F. Mekik, Calibrating a method for reconstructing ENSO variance in the eastern tropical Pacific using Mg/Ca in individual planktic foraminifera, *American Geophysical Union 2017 Fall Meeting*, New Orleans, December 11-15, 2017. (poster)
- Rongstad, B., **T. M. Marchitto**, and J. C. Herguera, Understanding the effects of dissolution on Mg/Ca ratios in planktic foraminifera: Evidence from a novel individual foraminifera method, *Geological Society of America Annual Meeting*, Denver, September 25-28, 2016. (poster)
- Rongstad, B., **T. M. Marchitto**, and J. C. Herguera, Understanding the effects of dissolution on Mg/Ca ratios in planktic foraminifera: Evidence from a novel individual foraminifera method, *12th International Conference on Paleoceanography*, Utrecht, August 29-September 2, 2016. (poster)
- Serrato Marks, G., and **T. M. Marchitto**, El Niño-Southern Oscillation variability during the Holocene and Last Glacial Maximum, *Society for Advancement of Hispanics/Chicanos and Native Americans in Science 2014 National Conference*, Los Angeles, October 16-18, 2014. (poster)
- Doss, W. C., and **T. M. Marchitto**, Glacial deep ocean sequestration of CO₂ driven by the eastern equatorial Pacific biologic pump, *American Geophysical Union 2013 Fall Meeting*, San Francisco, December 9-13, 2013. (talk)
- Grist, H., **T. M. Marchitto**, A. O. Parker, J. D. Ortiz, and A. van Geen, Testing for orbital and solar forcing of the ENSO system during the Holocene, *American Geophysical Union 2013 Fall Meeting*, San Francisco, December 9-13, 2013. (poster)
- Lindsay, C. M., S. J. Lehman, **T. M. Marchitto**, J. D. Ortiz, and A. van Geen, The surface expression of radiocarbon anomalies near Baja California during deglaciation, *American Geophysical Union 2013 Fall Meeting*, San Francisco, December 9-13, 2013. (poster)

- Doss, W. C., and **T. M. Marchitto**, A strong carbonate ion influence upon benthic foraminiferal B/Ca, Mg/Ca, and Li/Ca: Lessons from downcore intercalibration, *11th International Conference on Paleoceanography*, Barcelona-Sitges, September 1-6, 2013. (poster)
- Grist, H., **T. M. Marchitto**, A. O. Parker, J. D. Ortiz, and A. van Geen, Testing for orbital and millennial-scale ENSO-like variability in the eastern subtropical Pacific during the Holocene, *11th International Conference on Paleoceanography*, Barcelona-Sitges, September 1-6, 2013. (poster)
- Lindsay, C. M., S. J. Lehman, and **T. M. Marchitto**, Reconstructing the vertical ^{14}C gradient of the Baja margin during the last deglaciation, *21st International Radiocarbon Conference*, Paris, July 9-13, 2012. (poster)
- Doss, W. C., and **T. M. Marchitto**, Paleo- ΔCO_3^{2-} history of the Panama Basin: New insights into glacial deep ocean carbon storage from benthic foraminiferal B/Ca ratios, *American Geophysical Union 2011 Fall Meeting*, San Francisco, December 5-9, 2011. (poster)
- Lindsay, C. M., S. J. Lehman, **T. M. Marchitto**, J. D. Ortiz, and A. van Geen, Reconstructing the vertical ^{14}C gradient of the Baja margin during the last deglaciation, *American Geophysical Union 2011 Fall Meeting*, San Francisco, December 5-9, 2011. (poster)
- Parker, A. O., and **T. M. Marchitto**, Reconstructing thermocline hydrography using planktonic foraminiferal Mg/Ca: Implications for paleo-ENSO during the Holocene, *American Geophysical Union 2010 Fall Meeting*, San Francisco, December 13-17, 2010. (poster)
- Quillmann, U., **T. M. Marchitto**, A. E. Jennings, I. R. Hall, and J. T. Andrews, Holocene subpolar gyre dynamics and implications for paleonutrient transport to high latitudes, *Geological Society of America 2010 Annual Meeting*, Denver, October 31-November 3, 2010. (poster)
- Bryan, S. P., **T. M. Marchitto**, S. J. Lehman, and U. S. Ninnemann, Ventilation of intermediate waters along the southern Chile margin during the last deglaciation, *10th International Conference on Paleoceanography*, La Jolla, August 29-September 3, 2010. (poster)
- Doss, W. C., and **T. M. Marchitto**, The link between atmospheric CO_2 and deepwater carbonate chemistry: Benthic foraminifera trace metal paleo- ΔCO_3^{2-} history of the deep eastern tropical Pacific, *10th International Conference on Paleoceanography*, La Jolla, August 29-September 3, 2010. (poster)
- Quillmann, U., A. E. Jennings, **T. M. Marchitto**, I. R. Hall, and J. T. Andrews, Holocene subpolar gyre evolution, *10th International Conference on Paleoceanography*, La Jolla, August 29-September 3, 2010. (poster)
- Quillmann, U., I. R. Hall, A. E. Jennings, **T. M. Marchitto**, and J. T. Andrews, Mg/Ca-based sea surface temperature and oxygen isotopic composition of seawater during the Holocene from the northern Iceland Basin, *40th International Arctic Workshop*, Winter Park, March 10-12, 2010. (talk)
- * Bryan, S. P., **T. M. Marchitto**, and S. J. Lehman, Intermediate water radiocarbon evidence for the demise of an isolated deep ocean water mass during the last deglaciation, *American Geophysical Union 2009 Fall Meeting*, San Francisco, December 14-18, 2009. (talk)
- Doss, W. C., and **T. M. Marchitto**, Deep Pacific carbonate ion concentration and CaCO_3 compensation since the last ice age, *American Geophysical Union 2009 Fall Meeting*, San Francisco, December 14-18, 2009. (poster)
- Bryan, S. P., **T. M. Marchitto**, and S. J. Lehman, Millennial-scale changes in deep ocean circulation and carbon cycling during the last deglaciation: Evidence from the Arabian Sea, *AGU Chapman Conference on Abrupt Climate Change*, Columbus, June 15-19, 2009. (poster)

- Quillmann, U., **T. M. Marchitto**, J. T. Andrews, A. E. Jennings, and W. E. Dean, North Atlantic cooling and freshening at 8.2 ka detected in foraminiferal Mg/Ca and $\delta^{18}\text{O}$ ratios, *38th International Arctic Workshop*, Boulder, March 5-7, 2008. (talk)
- Quillmann, U., **T. M. Marchitto**, J. T. Andrews, A. E. Jennings, and W. E. Dean, Using Mg/Ca and stable light isotope ratios of a benthic foraminiferal species to detect the 8.2 ka cooling event on the Icelandic shelf, *Geological Society of America 2007 Annual Meeting*, Denver, October 28-31, 2007. (talk)
- † Bryan, S. P., and **T. M. Marchitto**, Calibration of paleonutrient proxies Cd/Ca and Zn/Ca in benthic foraminifera from thermocline waters, *9th International Conference on Paleoceanography*, Shanghai, September 3-7, 2007. (poster)
- Quillmann, U., **T. M. Marchitto**, J. T. Andrews, A. E. Jennings, and W. E. Dean, 8.2 ka cooling event detected using benthic foraminiferal Mg/Ca and $\delta^{18}\text{O}$, *9th International Conference on Paleoceanography*, Shanghai, September 3-7, 2007. (poster)
- Bryan, S. P., and **T. M. Marchitto**, Constraining the Mg/Ca – temperature proxy in benthic foraminifera, *American Geophysical Union 2006 Fall Meeting*, San Francisco, December 11-15, 2006. (poster)
- Bryan, S. P., **T. M. Marchitto**, and W. B. Curry, Calibration of multiple trace metal proxies in benthic foraminifera, *American Geophysical Union 2005 Fall Meeting*, San Francisco, December 5-9, 2005. (poster)

Invited Talks at University Colloquia Since Joining CU

- Tropical Pacific sea surface temperature patterns during the Last Glacial Maximum, Lamont-Doherty Earth Observatory Colloquium, February 25, 2022.
- The quest for a reliable paleotemperature proxy in marine calcifiers, University of Colorado Dept. of Geological Sciences Colloquium, September 19, 2018.
- El Niño in a foram shell: Extracting past interannual variability from marine sediments, University of Colorado INSTAAR Noon Seminar, October 23, 2017.
- Reconstructing Holocene El Niño variability using marine sediments, University of California Riverside, Department of Earth Sciences Hewett Club Seminar, February 9, 2016.
- Reconstructing Holocene El Niño behavior using marine sediments, University of Minnesota, Department of Earth Sciences Seminar, December 10, 2015.
- Accurate and precise bottom water paleotemperatures from aragonitic benthic foraminiferal Li/Mg: Calibration, theory, and application, University of Minnesota, Softrock Lunch Seminar, December 10, 2015.
- El Niño during the Holocene: Reconstructing past interannual variability of sea surface temperature using ocean sediments, Iowa State University, Dept. of Geological & Atmospheric Sciences Seminar, February 28, 2014.
- Radiocarbon as a tracer of deep ocean circulation since the last ice age: Progress and conundrums, University of Bremen, Germany, Center for Marine Environmental Sciences Lecture Series, October 28, 2013.
- ENSO-like response of the tropical Pacific Ocean to solar forcing during the Holocene, University of Colorado Dept. of Geological Sciences Colloquium, September 30, 2009.
- Tracing the atmospheric CO₂ rise at the end of the last ice age using marine radiocarbon, Ohio State University, School of Earth Sciences Colloquium, January 29, 2009.

Marine radiocarbon evidence for the mechanism of atmospheric CO₂ rise at the end of the last ice age, University of Colorado INSTAAR Noon Seminar, January 14, 2008.

Reconstructing Atlantic deep water circulation during the last glacial period, Seoul National University, Korea, School of Earth and Environmental Sciences Seminar, April 16, 2007.

Reconstructing Atlantic deep water circulation during the last glacial period, Kangwon National University, Korea, Dept. of Geology Seminar, April 11, 2007.

The ocean's role in atmospheric CO₂ lowering during glacial periods, University of Colorado Dept. of Geological Sciences Colloquium, September 13, 2006.

Dansgaard-Oeschger climate variability in the eastern tropical-subtropical Pacific, University of Bergen, Norway, Bjerknes Centre for Climate Research Seminar, August 1, 2006.

Rapid climate change in the Pacific during the last glacial period, Scripps Institution of Oceanography GSMCG Seminar, March 13, 2006.

Atlantic-Pacific climate teleconnections at millennial timescales, University of Colorado INSTAAR Noon Seminar, September 22, 2003.

Atlantic-Pacific climate teleconnections at millennial timescales, University of South Carolina Dept. of Geological Sciences Seminar, September 8, 2003.

External Research Grants

Awarded:

- National Science Foundation Marine Geology and Geophysics Grant OCE-2233080, “Theoretical and Practical Development of Aragonite Li/Mg as a Deep Sea Paleotemperature Proxy” (PI: **T. Marchitto**), 2023-2026: \$458,232
- Sandia National Laboratories Grant 22-0169 Campus Executive Partnership Plus-Up, “Quantifying the known unknown: Including marine sources of greenhouse gases in climate modeling” (PI: J. Frederick; collaborating PI: **T. Marchitto**), 2021-2022: \$44,460 (CU component)
- National Science Foundation Ocean Technology and Interdisciplinary Coordination Grant OCE-1829930, “Collaborative Research: FORABOT: An autonomous and accessible system for sorting foraminifera” (PI: E. Lobaton; co-PI: M. Daniele; collaborating PI: **T. Marchitto**), 2019-2021: \$161,470 (CU component)
- National Science Foundation Paleo Perspectives on Climate Change Grant PLR-1804504, “Timing and Paleoceanographic Impacts of the Onset of Arctic-Baffin Bay Throughflow” (PI: A. Jennings; co-PIs: J. Andrews, A. Jahn, **T. Marchitto**, and J. Sepúlveda), 2018-2021: \$668,325
- National Science Foundation Paleo Perspectives on Climate Change Grant OCE-1603023, “Development of individual foraminiferal Mg/Ca to reconstruct past ENSO variability” (PI: **T. Marchitto**), 2016-2018: \$299,986
- National Science Foundation Ocean Technology and Interdisciplinary Coordination Grant OCE-1637023, “Collaborative Research: A visual system for autonomous foraminifera identification” (PI: E. Lobaton; collaborating PI: **T. Marchitto**), 2016-2018: \$63,713 (CU component)
- National Science Foundation Information and Intelligent Systems Grant IIS-1245947, “INSPIRE: Automating Reasoning in Interpreting Climate Records of the Past” (PI: E. Bradley; co-PIs: K. Anderson, **T. Marchitto**, and J. White), 2012-2015: \$577,021
- National Science Foundation Paleo Perspectives on Climate Change Grant OCE-1103482, “Investigation of a dynamical response of the tropical Pacific to orbital and solar forcing during the early Holocene” (PI: **T. Marchitto**), 2011-2014: \$354,875
- National Science Foundation Marine Geology and Geophysics Grant OCE-0851391, “Tracing the radiocarbon signal of the ocean’s CO₂ release during the last deglaciation” (PI: S. Lehman; co-PI: **T. Marchitto**), 2009-2012: \$457,981
- National Science Foundation Paleo Perspectives on Climate Change Grant OCE-0823535, “High northern latitude linkages between Atlantic Water, DSOW formation and GIS stability during the Holocene” (PI: A. Jennings; co-PIs: J. Andrews and **T. Marchitto**), 2008-2011: \$399,402
- National Science Foundation Marine Geology and Geophysics Grant OCE-0648215, “Glacial-interglacial carbon reorganization and carbonate compensation in the Pacific Ocean” (PI: **T. Marchitto**), 2007-2010: \$259,947
- National Science Foundation Marine Geology and Geophysics Grant OCE-0550150, “Collaborative Research: A SIMS and ICP-MS calibration of benthic foraminiferal elemental chemistry” (PI: W. Curry; collaborating PI: **T. Marchitto**), 2006-2008: \$73,470 (CU component)
- National Science Foundation Marine Geology and Geophysics Grant OCE-0425522, “Accurate calibration of multiple paleoceanographic proxies in benthic foraminifera” (PI: **T. Marchitto**), 2004-2006: \$183,646

National Science Foundation Chemical Oceanography Grant OCE-0221979, “Reconstruction of the end member contributions to and ventilation rate of glacial-age lower Atlantic deep water” (PI: W. Broecker; co-PIs: S. Hemming, J. Lynch-Stieglitz, and **T. Marchitto**), 2002-2004: \$228,564

National Science Foundation Earth System History Grant OCE-0214221, “Collaborative research: A high resolution record of productivity and/or ventilation of the northeastern Pacific from Soledad Basin, Baja California” (PI: A. van Geen; co-PIs: **T. Marchitto** and Y. Zheng; collaborating PI: J. Ortiz), 2002-2005: \$316,390 (Columbia component)

National Science Foundation Earth System History Grant OCE-0214180, “Holocene variations in upper North Atlantic Deep Water (Labrador Sea Water) properties” (PI: **T. Marchitto**; co-PI: P. deMenocal), 2002-2005: \$237,844

National Science Foundation Earth System History Grant OCE-0117465, “Evolution of the North Atlantic’s climate over the last 3000 years and comparison with late MIS 5e” (PI: G. Bond; co-PIs: J. Lynch-Stieglitz and **T. Marchitto**), 2001-2003: \$255,000

Internal Seed Grants Awarded

CU Research & Innovation Seed Grant, “Fertilizing the North Atlantic: How Greenland’s icebergs raft sediments into the ocean” (PI: I. Overeem; co-PI: **T. Marchitto**), 2018-2019, \$49,976

CU Leadership Education for Advancement and Promotion (LEAP) Associate Professor Growth Grant, “Experimental precipitation of abiotic aragonite to shed light inside a black box of biomineralization” (**T. Marchitto**), 2017-2018: \$7891

CU Office of the Vice Chancellor for Research Innovative Seed Grant, “Development of uranium-thorium dating for paleoclimate research” (**T. Marchitto**), 2007-2008: \$23,991

LDEO Climate Center Grant, “Development of ICP-MS techniques to measure trace and minor elements in foraminiferal calcite” (**T. Marchitto**), 2002-2003: \$5,150

LDEO Climate Center Grant, “Development of benthic foraminiferal Zn/Ca as a paleoceanographic tracer, including new instrumental methods development” (**T. Marchitto**), 2000-2001: \$3,475

WHOI Ocean Ventures Fund, “Benthic foraminiferal zinc as a paleoceanographic tracer of deep waters” (**T. Marchitto**), 1997-1998: \$10,000

Teaching at CU

Peer-Reviewed Education Publication

Arthurs, L., and **T. M. Marchitto**, Qualitative methods applied in the development of an introductory oceanography concept inventory survey, in *Qualitative Inquiry in Geoscience Education Research, Geological Society of America Special Paper*, vol. 474, edited by A. D. Feig and A. Stokes, pp. 97-111, GSA, Boulder, 2011.

Courses Taught (* new courses added to Catalog)

Lecture Courses (3 credits each)

GEOL 3070: Introduction to Oceanography, 169 students (Spring 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2013, 2014, 2015, 2016, 2017, 2019, 2020, 2021, 2022, 2023, 2024)

*GEOL 4270/5270: Marine Chemistry and Geochemistry, ~10-25 students (Fall 2006, 2008, 2011, 2013, 2015, 2019, 2021, 2023) [taught as 4700/5700 in 2006]

*GEOL 5430: Paleoceanography and Paleoclimatology, ~5-20 students (Fall 2004, 2005, 2007, 2009, 2012, 2016, 2018, 2020, 2022) [taught as 4700/5700 in 2004-2007]

Hybrid Lecture-Seminar Course

GEOL 5420: Quaternary Dating Methods, 6 students (Spring 2011, 3 cr., co-taught with Giff Miller and Scott Lehman)

Seminar Courses

*GEOL 5705: Seminar in Paleoclimate, 5-10 students (Spring 2003, 2005, 2007, Fall 2015, Spring 2017, 2019, 2021, 2022, 2023, 2024; 1-3 cr.) [taught as 4700/5700 in 2003-2019]

*GEOL 5701: Super-Problems in Quaternary Climate, 6-9 students (Fall 2008, Spring 2010, 2014; 2 cr., co-taught with Scott Lehman) [taught as 5700 in 2008-2014]

Independent Study (2 credits)

GEOL 5840: Calibration of Arctic benthic foraminiferal Mg/Ca, 1 student (Fall 2005)

Students and Postdocs Advised

Postdoctoral Researchers

Jody Wycech, CIRES Visiting Fellow (co-advisor: Peter Molnar), U. Wisconsin PhD 2017 (Fall 2017-Fall 2019)

Lineke Woelders, INSTAAR Postdoctoral Scholar (co-advisor: Julio Sepúlveda), KU Leuven PhD 2017 (Spring 2018-Summer 2019)

Ritayan Mitra, supported by NSF grant OCE-1637023, Scripps Institution of Oceanography PhD 2012 (Summer 2016-Summer 2017)

Kirstin Werner, German Academic Exchange Service Postdoctoral Fellow, GEOMAR PhD 2011 (Fall 2012-Spring 2013)

Graduate Students

Laurel Bayless, PhD candidate (co-advisor: Brad Markle)

Trisia Tellez, MS candidate

Geneviève Elsworth, PhD 2022 (de jure advisor; de facto advisor: Nikki Lovenduski)

Emily Roeder, MS 2021, *A multi-proxy reduced dimension reconstruction of LGM equatorial Pacific sea surface temperatures*

Brigitta Rongstad, PhD 2020, *Development of individual foraminiferal Mg/Ca to reconstruct past ENSO variability*

Colin Lindsay, PhD 2016, *Carbon Dynamics of the Deglacial and Contemporary Ocean Inferred from Radiocarbon Measurements in Foraminifera, Seawater and Atmospheric Carbon Dioxide* (co-advisor: Scott Lehman)

Whitney Doss, PhD 2014, *New Insights into Ice Age and Post-Industrial Marine Carbonate System Dynamics Inferred from the Geochemistry of Benthic Foraminifera and a Scleractinian Coral*

Hannah Grist, MS 2014, *Solar and Orbital Forcing on the El Niño Southern Oscillation System during the Holocene*

Ursula Quillmann, PhD 2014, *The Influence of Subpolar Gyre Dynamics on Centennial to Millennial Scale Holocene Climate Variability in the High-Latitude North Atlantic* (co-advisor: Anne Jennings)

Sean Bryan, PhD 2010, *An Investigation of the Oceanic Redistribution of Carbon during the Last Deglaciation* (co-advisor: Scott Lehman)

Sean Bryan, MS 2007, *Calibration of Trace Element Paleoceanographic Proxies in Benthic Foraminifera*

Undergraduate Honors Theses

Andres Reyes, BA candidate

Haikal Abu Bakar, BA 2023, *A 30,000-year Thermocline Temperature Paleo-Reconstruction using Mg/Ca Analysis on *N. dutertrei*: Implications for Eastern Equatorial Pacific Paleo-ENSO*

Baylee Sergeant, BA 2020, *Trace Metal Chemistry of Pteropod Shells: Biomineralization and Temperature Influences*

Andrew Parker, BA 2011, *Reconstructing Thermocline Hydrography Using Planktonic Foraminiferal Mg/Ca: Implications for Paleo-ENSO during the Holocene*

Dan Lopez, BA 2007, *Testing the Use of Trace Metals Mg, Cd, and Zn in Planktonic Foraminifera as Paleoceanographic Proxies*

Other CU Student Mentorees and Research Assistants

Skye Fernandez, BA candidate, Research Assistant (Fall 2022-)

Danny Schmiegell, BA candidate, Research Assistant (Spring 2022-)

Jazmin Schwab, BA candidate, Research Assistant (Spring 2022-)

Clayton LaMonica, BA 2022, Research Assistant (Fall 2021-Spring 2022)

Robert Kelleher, BA 2020, Research Assistant (Fall 2020-Summer 2021)

Nicole Brooks, non-degree graduate student, Research Assistant (Summer 2018-Summer 2020)

Payton Birdsong, BA 2019, Research Assistant (Spring 2017-Spring 2019)

Riff Denbow, BA candidate, UROP Research Assistant (Fall 2016-Spring 2018)

Elisa Myers Berto, Federal Fluminense University, Brazil Scientific Mobility Program (Summer 2015)

Derek Weller, BA 2010, Research Assistant and Departmental Mentoree (Spring 2009-Spring 2010)

Jacob Bauer, BA 2005, Research Assistant and Departmental Mentoree (Fall 2003-Spring 2005)

Summer Multicultural Access to Research Training (SMART) Undergraduate Students

Valerie Rubalcava, University of Wisconsin, Milwaukee, Summer 2019, *Cross-Validating Stable Isotopes and Mg/Ca Measurements on Individual Foraminifera*

Gabriela Serrato Marks, Bowdoin College, Summer 2014, *El Niño-Southern Oscillation Variability in the Eastern Equatorial Pacific During the Holocene and Last Glacial Maximum*

Visiting International Students (semester-long stays or longer)

Kari Skirbekk, University of Tromsø, Norway, PhD student with Morten Hald & Katrine Husum (Spring-Fall 2012)

Eunmi Lee, Kangwon National University, Korea, MS student with Daekyo Cheong (Spring-Summer 2010)

Steffen Aagaard-Sørensen, University of Tromsø, Norway, PhD student with Morten Hald & Katrine Husum (Fall 2009)

Christine Euler, Bjerknes Centre for Climate Research, Norway, PhD student with Kikki Kleiven & Ulysses Ninnemann (Spring-Summer 2007)

Bok-Hye Kim, Kangwon National University, Korea, MS student with Daekyo Cheong (Spring 2006-Spring 2007)

Birgitte Friestad Nyland, Bjerknes Centre for Climate Research, Norway, PhD student with Trond Dokken (Spring-Summer 2006)

Dissertation Committees

Cole Persch, ATOC PhD candidate with Sara Sanchez

Indigo Heine, PhD candidate with Shaily Rahman

Rose Leeger, ENVS PhD candidate with Cassandra Brooks

Genevieve Clow, ATOC PhD candidate with Nikki Lovenduski

Haley Brumberger, PhD candidate with Katie Snell

Harry Allbrook, PhD candidate with Julio Sepúlveda

Robert Kelleher, PhD candidate with Julio Sepúlveda

Juliana Olsen-Valdez, PhD candidate with Katie Snell & Lizzie Trower

Hayley Bennett, MS 2023 with Brad Markle

Nicole Brooks, Environmental Engineering MS 2022 with Diane McKnight

Sebastian Ignacio Cantarero, PhD 2022 with Julio Sepúlveda

Lina Pérez-Angel, PhD 2022 with Peter Molnar & Julio Sepúlveda

Jon Raberg, PhD 2021 with Giff Miller

Abby Thayer Hughes, PhD 2021 with Jim White and Tyler Jones

Garrett Boudinot, PhD 2020 with Julio Sepúlveda

Danielle Lemmon, ATOC PhD 2020 with Kris Karnauskas

David Harning, PhD 2019 with Giff Miller & Auslaug Geirsdottir

Isaac Vimont, PhD 2017 with Jim White

Derek Weller, PhD 2017 with Chuck Stern

Natalie Freeman, ATOC PhD 2017 with Nikki Lovenduski

Chris Florian, PhD 2016 with Giff Miller & Auslaug Geirsdottir

Emily Gill, Civil Engineering PhD 2015 with Balaji Rajagopalan & Peter Molnar
Tyler Jones, ENVS PhD 2015 with Jim White
Tristan Betzner, MS 2014 with Karen Chin
Darren Larsen, PhD 2013 with Giff Miller & Auslaug Geirsdottir
Steve Yeager, ATOC PhD 2013 with Baylor Fox-Kemper
Celene Christensen, MS 2013 with Giff Miller
Laura Wilson, PhD 2012 with Karen Chin
Marcia Wyatt, PhD 2012 with Peter Molnar
Kurt Refsnider, PhD 2011 with Giff Miller
Katie Hayo, MS 2011 with Scott Lehman
Alex Dutchak, PhD 2010 with Jaelyn Eberle
Ben Schupack, MS 2010 with Giff Miller
Trevor Popp, PhD 2008 with Jim White
Jason Adams, MS 2008 with Mary Kraus
Annie Schilla, PhD 2007 with Jim White
Yarrow Axford, PhD 2007 with Giff Miller
Ursula Quillmann, MS 2006 with John Andrews and Anne Jennings
Zack Guido, MS 2006 with Bob Anderson
Ryan Vachon, PhD 2006 with Jim White
Greta Bjork Kristjansdottir, PhD 2005 with John Andrews

External Examiner

Jiade Wu, Australian National University 2023 PhD dissertation examination with Jimin Yu
Shannon Valley, Georgia Tech 2019 PhD defense with Jean Lynch-Stieglitz
James Rae, U. Bristol 2011 PhD defense with Gavin Foster
Stephanie Healey, U. South Carolina 2007 comps with Bob Thunell

Comprehensive Exam (only) Committees

Katherine Dayem, 2005 comps with Peter Molnar
Ken MacClune, 2005 comps with Jim White

Undergraduate Honors Thesis Committees

Joe Gradone, ATOC BA 2016 with Nikki Lovenduski
Amanda Daniel, EBIO BA 2010 with Alex Cruz
Bridget Molloy, EBIO BA 2009 with Andrew Martin

Service Since Joining CU

University Service

Department of Geological Sciences Service

Event Coordination Committee, Spring 2024

Faculty Mentor for Brad Markle, Fall 2022-present (provide guidance through periodic meetings)

Faculty Mentor for Julio Sepúlveda, Fall 2014-present (provide guidance through periodic meetings)

Associate Chair for Graduate Affairs, Fall 2014-Spring 2017; Fall 2019-Spring 2022; Summer-Fall 2023 (oversee progress of graduate students; help design and implement changes to graduate program; track department resources for admissions)

Executive Committee, Fall 2005, Fall 2007-Spring 2009, Spring 2011, Fall 2012-Spring 2013, Spring 2015-Spring 2017, Fall 2019-Spring 2022; Fall 2023 (evaluate faculty and recommend raises; other executive decisions)

Graduate Admissions Committee, Fall 2009-Spring 2010, Fall 2019-Spring 2022; Fall 2023 (ex officio in 2022-23) (set procedures for admissions; vetted IQBio candidates; chose candidates for Diversity and Chancellor's fellowships; divvied up resources within interest group)

Chair, Graduate Curriculum Committee, Spring 2015-Spring 2017, Fall 2018-Spring 2022; Fall 2023 (poll students and faculty; recommended and implemented changes to graduate degree requirements; prepared section of ARPAC report)

Chair, Promotion and Tenure Committee for Katie Snell, Summer-Fall 2022 (formulated list of external letter writers; wrote PUEC letter for dossier; presented case to faculty)

Post-Tenure Review for Bob Anderson, Spring 2022 (gathered data and wrote report)

Chair, Promotion and Tenure Committee for Julio Sepúlveda, Summer-Fall 2021 (formulated list of external letter writers; wrote PUEC letter for dossier; presented case to faculty)

Benson Fellowship Award Committee, Spring 2021 (chose five internal awardees for initial round of one-year fellowships)

Post-Tenure Review for Suzanne Anderson, Spring 2021 (gathered data and wrote report)

Search Committee for open rank Bruce Benson Endowed Chair in Petroleum Geology, Summer 2019-Spring 2020 (drafted advertisement; chose short list for requesting letters; conducted video-conference preliminary interviews; recommended interviewee list; interviewed and hosted candidates; led voting discussion; resulted in failed search)

Futures Committee, Fall 2018-Spring 2019 (prepared section of ARPAC report)

Reappointment Committee for Julio Sepúlveda, Fall 2017 (wrote letter for dossier; presented case to faculty in both units)

Search Committee for open rank faculty hire in geobiology, Spring 2015-Spring 2016 (drafted advertisement; chose short list for requesting letters; conducted video-conference preliminary interviews; recommended interviewee list; interviewed and hosted candidates; led voting discussion; resulted in successful hiring of Boz Wing)

Chair, Search Committee for GEOL-INSTAAR joint faculty hire in organic geochemistry, Fall 2013-Spring 2014 (drafted advertisement; chose short list for requesting letters; recommended interviewee list; arranged interview visits; interviewed and hosted candidates led voting discussion in both units; resulted in successful hiring of Julio Sepúlveda)

Promotion and Tenure Committee for Becky Flowers, Summer-Fall 2013 (formulated list of external letter writers; wrote PUEC letter for dossier; presented case to faculty)

Chair, Promotion and Tenure Committee for Alexis Templeton, Summer-Fall 2011 (formulated list of external letter writers; wrote PUEC letter for dossier; presented case to faculty)
Undergraduate Curriculum Committee, Fall 2003-Spring 2008, Spring 2011 (polled students and faculty; implemented PRP recommendations; revamped undergraduate major tracks)
Colloquium Co-Coordinator, Fall 2003-Spring 2004 (invited and hosted Colloquium speakers)

INSTAAR Service

Associate Director of Laboratories, Fall 2023-present
Awards and Recognition Committee, Fall 2022-Spring 2023
Faculty mentor for Julia Moriarty, Fall 2021-present (provide guidance through periodic meetings)
Search Committee for INSTAAR faculty hire in Aquatic Ecology/Biogeochemistry, Spring 2022 (chose interviewee list; interviewed candidates; led to successful hiring of Bella Olesky)
ARPAC Committee, Spring 2021-Spring 2022 (attended meetings, wrote and edited ARPAC document)
Chair, Targeted Hire of Shaily Rahman, Spring 2021 (posted job ad)
Executive Committee, Fall 2009-Spring 2010, Fall 2018-Spring 2019 (evaluated faculty and recommended raises; other executive decisions)
Promotion and Tenure Committee for Nikki Lovenduski (ATOC-INSTAAR), Summer-Fall 2018 (formulated list of external letter writers; wrote PUEC and INSTAAR letters; presented case to faculty of both units)
Chair, Personnel Committee, Spring 2015 (evaluated two applications to join Directorate; recommended one; led voting discussion)
Reappointment Committee for Nikki Lovenduski (ATOC-INSTAAR), Summer-Fall 2014 (wrote letter for dossier; presented case to faculty in both units)
Search Committee for INSTAAR faculty hire in Long-Term Ecological Research, Summer 2014 (chose interviewee list; interviewed and hosted candidates; led to successful hiring of Mike Gooseff)
Chair, Search Committee for GEOL-INSTAAR joint faculty hire in organic geochemistry, Fall 2013-Spring 2014 (see description under GEOL service)
Search Committee for INSTAAR-ATOC joint faculty hire in climate science, Fall 2008-Spring 2009 (drafted MOU for rules of joint hire; drafted advertisement; chose short list for requesting letters; chose interviewee list; interviewed and hosted candidates; led voting discussion; resulted in successful hiring of Nikki Lovenduski)
Information Committee Chair, Fall 2007-Fall 2008 (gathered information and made recommendations on biennial report, Information Center, website, and general outreach)
Noon Seminar Co-Coordinator, Fall 2004-Spring 2005 (invited and hosted Seminar speakers)

Other CU Service

Vice Chancellor for Research Innovative Seed Grant Proposal Review Panel, Spring 2008, Spring 2010, Spring 2016 (reviewed, discussed, and rated proposals)

Trace Metal Lab Managers Supervised

Lennart van Maldegem, 2023-present
Nadia Dildar, 2022
John Morton, 2017-2021
Derek Weller, 2010-2017

Greg Estep, 2010
Patrick Cappa, 2007-2009
Chad Wolak, 2004-2006

Professional Service

Professional Journals

Associate Editor, *Geochimica et Cosmochimica Acta*, Fall 2015-present (solicit peer reviews, review and make decisions on manuscripts)
Supervising Editor, *Geochimica et Cosmochimica Acta* special issue in honor of Harry Elderfield, Spring 2016-Summer 2018 (helped draft proposal, recruit Guest Editors, and identify potential contributors; reviewed and made decisions on 27 manuscripts)
Associate Editor, *Quaternary Research*, Fall 2009-Fall 2015 (reviewed and made decisions on 46 manuscripts)
Since joining CU I have reviewed an additional 103 unique manuscripts for 24 different journals, and served as Guest Editor for a single submission to *PNAS*

Professional Societies/Meetings

Scientific Committee, 14th International Conference on Paleoceanography, Bergen, September 2022 (helped formulate scientific program and identify invited speakers)
Convener, Session on “Paleoclimatic history of El Niño-Southern Oscillation,” American Geophysical Union 2018 Fall Meeting, Washington DC, December 10-14, 2018 (proposed session, invited speakers; solicited abstracts; organized oral and poster sessions; led sessions)
Organizing Committee, GEOTRACES-PAGES Workshop on “Trace element and isotope proxies in paleoceanography,” Aix-Marseille, December 3-5, 2018 (chose participants, speakers, and chairs; led breakout group discussion)
Co-Convener, Session on “Trace elements and their isotopes as geochemical proxies of past ocean conditions,” PAGES 5th Open Science Meeting, Zaragoza, May 9-13, 2017 (invited speakers; solicited abstracts; organized oral and poster sessions; led sessions)
Co-Convener, Session on “Development and application of paleoenvironment proxies in biogenic carbonates,” American Geophysical Union 2012 Fall Meeting, San Francisco, December 3-7, 2012 (invited speakers; solicited abstracts; organized oral and poster sessions)
Councilor, American Quaternary Association, 2008-2012 (made executive decisions related to governing the association and organizing scientific conferences)
Co-Convener, Session on “New developments in geochemical paleoclimate proxies,” 20th Annual V. M. Goldschmidt Conference, Knoxville, June 13-18, 2010 (invited speakers; solicited abstracts; organized oral and poster sessions; led sessions)
Chair, Session on “Paleoceanography,” 40th International Arctic Workshop, Winter Park, March 10-12, 2010 (led session)
Program Committee, American Geophysical Union Chapman Conference on Abrupt Climate Change, Columbus, June 15-19, 2009 (provided recommendations for scientific program)
Convener, Session on “Radiocarbon evidence for past changes in the global carbon cycle and ocean circulation,” American Geophysical Union 2008 Fall Meeting, San Francisco, December 15-19, 2008 (proposed session, invited speakers; solicited abstracts; organized oral and poster sessions; led sessions)

Co-Convener, Joint Oceanographic Institutions/U. S. Science Support Program (JOI/USSAC) Workshop on “Paleoceanography and Paleoclimatology of the Southern Ocean: A Synthesis of Three Decades of Scientific Ocean Drilling,” Boulder, January 21-23, 2005 (hosted meeting and assisted with logistics; synthesized ODP results and made recommendations for future drilling priorities)

Funding Agencies

National Science Foundation Paleo Perspectives on Climate Change Proposal Review Panel (remote), January 26-29, 2021 (discussion leader, scribe, or reader for 9 proposals; participated in panel discussions and wrote panel summaries)

National Science Foundation Paleo Perspectives on Climate Change Proposal Review Panel (remote), June 4-6, 2018 (discussion leader or scribe for about 10 proposals; led panel discussions and wrote panel summaries)

National Science Foundation Paleo Perspectives on Climate Change Proposal Review Panel, Arlington, January 24-26 and (remotely) March 1, 2012 (discussion leader or scribe for about 20 proposals; led panel discussions and wrote panel summaries)

National Science Foundation “Paleo Perspectives on Climate Change” Program Planning Workshop, Washington, March 29-30, 2007 (drafted new description for successor to ESH program)

National Science Foundation Earth System History Proposal Review Panel, Arlington, February 6-9, 2006 (discussion leader or scribe for about 20 proposals; led panel discussions and wrote panel summaries)

National Science Foundation Post-“Earth System History” Program Planning Workshop, Arlington, November 28-30, 2005 (initiated planning for successor to ESH program)

National Science Foundation “Earth System History” Program Holocene Workshop, Washington, May 16-19, 2005 (synthesized Holocene results of ESH program, in anticipation of planning for successor program)

In addition to the above panels, since joining CU I have reviewed 94 funding proposals for 10 different agencies

Miscellaneous

External letter writer for one promotion from Research Assistant Professor to tenure-track Assistant Professor (2021), three promotions to Associate Professor with tenure (2011, 2021, 2023), one promotion to full Professor (2021), and one society award (2022)

Public Outreach

22 interviews granted on paleoclimate and climate change research for newspapers (6), magazines (3), news agencies (1), radio (4), television (1), video projects (2), and websites (5).

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