

STEPHEN EMIL KACZMAREK

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STEPHEN.KACZMAREK@WMICH.EDU

EDUCATION

- 2001-2005 Ph.D., Geology (*Carbonate Petrology*), Department of Geological Sciences, Michigan State University, East Lansing, MI
- 1996-2000 B.S., Geology (*Geophysics Concentration*), Department of Geological Sciences, Michigan State University, East Lansing, MI

PROFESSIONAL APPOINTMENTS

- 2020- Associate Professor, Geological and Environmental Sciences, Western Michigan University, Kalamazoo, Michigan
- 2015-2020 Assistant Professor, Geological and Environmental Sciences, Western Michigan University, Kalamazoo, Michigan
- 2011-2015 Assistant Professor, Geological Sciences, Bridgewater State University, Bridgewater, Massachusetts
- 2005-2011 Research Geoscientist, ExxonMobil Upstream Research Company, Houston, Texas
- 2003-2005 Graduate Laboratory Coordinator, Center for Integrative Studies in Physical Sciences, Michigan State University, East Lansing, Michigan
- 2001-2005 Graduate Assistant, Department of Geological Sciences, Michigan State University, East Lansing, Michigan

PEER-REVIEWED ARTICLES

† denotes student advisee

- [40] †Hashim, M.S., Burke, J.E., Hardesty, D.S., and **Kaczmarek, S.E.** (in press) Iodine incorporation into dolomite: Experimental constraints and implications for the iodine redox proxy and Proterozoic Ocean, *Geochimica et Cosmochimica Acta*
- [39] †Al-Musawi, M., **Kaczmarek, S.E.**, Harrison W., Voice, P., Kuglitsch, J., Griffith, E., and Saltzman, M. (2022) A composite Llandoveryan $\delta^{13}\text{C}_{\text{carb}}$ curve from the Michigan Basin, USA, *GSA Bulletin*, p. 1-10, doi.org/10.1130/B36317.1
- [38] †Ryan, B.H., **Kaczmarek, S.E.**, and Rivers, J. (2022), Extensive recrystallization of Cenozoic dolomite during shallow burial: A case study from the Paleocene-Eocene Umm er Radhuma Fm. and a global meta-analysis, *Sedimentology*, p. 1-27, doi: 10.1111/sed.12982
- [37] Teoh, C.P., Laya, J.C., †Rose, K.G., and **Kaczmarek, S.E.** (2022) The effects of magnesium concentration in high-magnesium calcite allochems on dolomitization: Insights from high-temperature dolomite synthesis experiments, *Journal of Sedimentary Research*, v. 92, p. 134-143, doi: 10.2110/jsr.2021.052
- [36] †Hashim, M., and **Kaczmarek, S.E.** (2022) Rhombic calcite microcrystals as a textural proxy for meteoric diagenesis, *Scientific Reports*, v. 12, no. 213, 8 p., doi.org/10.1038/s41598-021-04219-2

- [35] †Hashim, M., and **Kaczmarek, S.E.** (2021) The transformation of aragonite to calcite in the presence of magnesium: implications for marine diagenesis, *Earth & Planetary Science Letters*, 10 p., doi.org/10.1016/j.epsl.2021.117166
- [34] Rivers, J., †Ryan, B., †Manche, C., and **Kaczmarek, S.E.** (2021) Forum Comment: Phanerozoic variation in dolomite abundance linked to oceanic anoxia, *Geology*, v. 49, p. e534, doi.org/10.1130/G49326C.1.
- [33] Xiong, J., Yang, J., Wang, G., Saeed, T., Liu, Y., **Kaczmarek, S.E.**, Lu, W., and Wu, Q. (2021) Investigations on the effect of current density on SiO/Si composite electrodes, *Electrochimica Acta*, v. 393, 10 p., doi.org/10.1016/j.electacta.2021.139072.
- [32] †Manche, C. and **Kaczmarek, S.E.** (2021) A global study of dolomite stoichiometry and cation ordering through the Phanerozoic, *Journal of Sedimentary Research*, v. 91, p. 520-546, doi: 10.2110/jsr.2020.204
- [31] Laya, J.C., Albader, A., **Kaczmarek, S.E.**, Pope, M., Harris, P., and Miller, B. (2021), Dissolution of ooids in seawater-derived fluids – an example from Lower Permian re-sedimented carbonates, West Texas, *Sedimentology*, v. 68, p. 2671-2706, doi: 10.1111/sed.12869.
- [30] †Hemenway, M. and **Kaczmarek, S.E.** (2021) High-resolution chemostratigraphy in texturally homogeneous carbonate mudstones: Salina A-1 Carbonate (Silurian), Michigan Basin, U.S.A. *Marine and Petroleum Geology*, v. 126, 18 p., doi: 10.1016/j.marpetgeo.2021.104918
- [29] Laya, J.C, Teoh, C.P., Whitaker, F., †Manche, C., **Kaczmarek, S.E.**, Tucker, S.M., Gabellone, T., Hasiuk, F. (2021) Dolomitization of a Miocene-Pliocene progradational carbonate platform by mesohaline brines: re-examination the reflux model on Bonaire Island, *Marine and Petroleum Geology*, v. 126, 17 p., doi: 10.1016/j.marpetgeo.2020.104895
- [28] †Hashim, M., and **Kaczmarek, S.E.** (2021) Evolution of calcite microcrystal morphology during experimental dissolution, *Journal of Sedimentary Research*, v. 91, p. 229-242, doi: 10.2110/jsr.2020.154
- [27] †Ryan, B., **Kaczmarek, S.E.**, and Rivers, J. (2021) Multi-episodic recrystallization and isotopic resetting of early-diagenetic dolomites in near-surface settings *Journal of Sedimentary Research*, v. 91, p. 146-166, doi: 10.2110/jsr.2020.056
- [26] Rivers, J., Yousif, R., **Kaczmarek, S.E.**, and Al-Shaikh, I. (2021) Cenozoic coastal carbonate deposits of Qatar: Evidence for dolomite preservation bias in highly-arid systems, *Sedimentology*, v. 68, p. 771-787, doi: 10.1111/sed.12805
- [25] †Rine, M., McLaughlin, P., Bancroft, A., Harrison, W., Kuglitsch, J. Caruthers, A., Ramezani, J. **Kaczmarek, S.**, Emsbo, P. (2020) Linked Silurian carbon cycle perturbations, bursts of pinnacle reef growth, extreme sea-level oscillations, and evaporite deposition (Michigan Basin, USA), *Palaeogeography, Palaeoclimatology, Palaeoecology*, 20 p., doi:10.1016/j.palaeo.2020.109806
- [24] Rivers, J. and **Kaczmarek, S.E.** (2020) Dologrus: the impact of meteoric-water-controlled diagenesis following early-marine dolomitization, *Sedimentology*, v. 67, p. 3317–3332, doi:10.1111/sed.12742
- [23] †Ryan, B., **Kaczmarek, S.E.**, and Rivers, J. (2020) Early and pervasive dolomitization by near-normal marine fluids: New lessons from an Eocene evaporative setting in Qatar, *Sedimentology*, v. 67, p. 2917–2944, doi:10.1111/SED.12726 **Sedimentology Editors' Pick 2020**
- [22] †Hashim, M., and **Kaczmarek, S.E.** (2020) Stabilization of carbonate sediments to calcite: insights on calcite microcrystal textures, *Earth & Planetary Science Letters*, v. 538, 14 p., doi:10.1016/j.epsl.2020.116235
- [21] †Al-Musawi, M., and **Kaczmarek, S.E.** (2020) A new carbonate-specific quantification procedure for determining elemental concentrations from portable energy-dispersive X-ray fluorescence (PXRF) data, *Applied Geochemistry*, v. 113, 14 p., doi:10.1016/j.apgeochem.2019.104491

- [20] †Manche, C.J. and **Kaczmarek, S.E.** (2019) Evaluating reflux dolomitization using a novel high-resolution record of dolomite stoichiometry: A case study from the Cretaceous of Central Texas, U.S.A., *Geology*, v. 47, p. 586-590, doi:10.1130/G46218.1.
- [19] Gregg, J.M., **Kaczmarek, S.E.**, Bish, D.L., Machel, H.G., and Fouke, B.W. (2019) Forum Comment: A dolomitization event at the oceanic chemocline during the Permian-Triassic transition, *Geology*, v. 47, p. e467, doi:10.1130/G46203C.1
- [18] †Hashim, M. and **Kaczmarek, S.E.** (2019) A review of the nature and origin of limestone microporosity, *Marine and Petroleum Geology*, v. 107, p. 527-554, doi:10.1016/j.marpetgeo.2019.03.037.
- [17] †Ryan, B.H., **Kaczmarek, S.E.**, and Rivers, J. (2019) Dolomite dissolution: An alternative pathway for the formation of palygorskite clay, *Sedimentology*, v. 66, p. 1803-1824, doi:10.1111/sed.12559
- [16] Caruthers, A.H., Grocke, D.R., **Kaczmarek, S.E.**, †Rine, M.J., Kuglitsch, J., and Harrison, W.B. (2018) The utility of organic carbon isotope data from the Salina Group halite (Michigan Basin): a new tool for stratigraphic correlation and paleoclimate proxy resource, *Geological Society of America (GSA) Bulletin*, v. 130, p. 1782-1790, doi:10.1130/B31972.1
- [15] †Rine, M.J., **Kaczmarek, S.E.**, and Garrett, J.D. (2017) A new sequence stratigraphic model for the Silurian A-1 Carbonate (Ruff Formation) of the Michigan Basin, in: *Paleozoic Stratigraphy and Resources of the Michigan Basin: Geological Society of America Special Paper 531* (Eds. G.M. Grammer, W.B. Harrison, III, and D.A. Barnes), p. 175-195, doi:10.1130/2017.2531(09)
- [14] **Kaczmarek, S.E.** and †Thornton, B. (2017) The effect of temperature on stoichiometry, cation ordering, and reaction rate in high-temperature dolomitization experiments, *Chemical Geology*, v. 468, p. 32-41, doi:10.1016/j.chemgeo.2017.08.004
- [13] Mondala, A., Shield, S., Gaviglio, K., and **Kaczmarek, S.E.**, (2017) Influence of fungal low molecular weight organic acids on extraction and speciation of runoff particulate-associated phosphorus: implications for non-point phosphorus recovery and beneficial reuse, *Environmental Progress and Sustainable Energy*, v. 36, p. 1910-1816, doi:10.1002/ep.12622
- [12] †Rine, M., Garrett, J., and **Kaczmarek, S.E.** (2017) A new facies architecture model for the Silurian Niagara-Lower Salina “Pinnacle” Reef Complexes of the Michigan Basin, in: *Characterization and Modeling of Carbonates - Mountjoy Symposium 1 SEPM Special Publication 109* (Eds. A. MacNeil, J. Lonnee, & R. Wood), p. 70-86, doi:10.2110/sepmssp.109.02
- [11] **Kaczmarek, S.E.**, Gregg, J.M., Bish, D., Machel, H., and Fouke, B. (2017) Dolomite, very-high magnesium calcite, and microbes – implications for the microbial model of dolomitization, in *Characterization and Modeling of Carbonates - Mountjoy Symposium 1* (Eds. A. MacNeil, J. Lonnee, & R. Wood) *SEPM Special Publication 109*, p. 7-20, doi:10.2110/sepmssp.109.01
- [10] Hasiuk, F.J., **Kaczmarek, S.E.**, and Fullmer, S. (2016) Geochemical constraints on microporosity formation, *Journal of Sedimentary Research*, v. 86, p. 1163-1178, doi:10.2110/jsr.2016.69
- [9] Winkelstern, I.Z., **Kaczmarek, S.E.**, Lohmann, K.C., and Humphrey, J. (2016) Calibration of dolomite clumped isotope thermometry, *Chemical Geology*, v. 443, p. 32-38, doi:10.1016/j.chemgeo.2016.09.021
- [8] **Kaczmarek, S.E.**, Fullmer, S., and Hasiuk, F.J. (2015) A universal classification scheme for the microcrystals that host limestone microporosity, *Journal of Sedimentary Research*, v. 85, p. 1197-1212, doi:10.2110/jsr.2015.79
- [7] Gregg, J.M., Bish, D., **Kaczmarek, S.E.**, and Machel, H. (2015) Mineralogy, nucleation and growth of dolomite in the laboratory and sedimentary environment: A review, *Sedimentology*, v. 62, p. 1749-1769, doi:10.1111/sed.12202 **Sedimentology Editors’ Pick 2015**
- [6] **Kaczmarek, S.E.** and Sibley, D.F. (2014) Direct physical evidence of dolomite recrystallization, *Sedimentology*, v. 61, no. 6, p. 1862-1882, doi:10.1111/sed.12119

- [5] Bohacs, K., Lamb-Wozniak, Demko, T., K., Eleson, J., McLaughlin, O., Lash, C., Cleveland, D., and **Kaczmarek, S.E.** (2013) Vertical and lateral distribution of lacustrine carbonate lithofacies at the parasequence scale in the Miocene Hot Spring Limestone, Idaho, USA: an analog addressing reservoir presence and quality, *AAPG Bulletin*, v. 97, no. 11, p. 1967-1995, doi:10.1306/07081312192
- [4] **Kaczmarek, S.E.**, and Sibley, D. F. (2011) On the evolution of dolomite stoichiometry and cation order during high-temperature synthesis experiments: An alternative model for the geochemical evolution of natural dolomites, *Sedimentary Geology*, v. 240, p. 30-40, doi:10.1016/j.sedgeo.2011.07.003
- [3] **Kaczmarek, S.E.**, Hicks, M.K., Fullmer, S.M., Steffen, K.L., and Bachtel, S.L. (2010) Mapping facies distributions on modern carbonate platforms through integration of multispectral Landsat data, statistics-based unsupervised classifications, and surface sediment data, *AAPG Bulletin*, v. 94, no. 10, p. 1581-1606, doi:10.1306/04061009175
- [2] **Kaczmarek, S.E.** and Hasiuk, F.J. (2008) Mapping surficial sediment distributions on Caicos Platform: A quantitative approach integrating statistical analysis of Landsat spectral data and field observations, *in: Developing Models and Analogs for Isolated Carbonate Platforms – Holocene and Pleistocene Carbonates of Caicos Platform, British West Indies* (eds. W. A. Morgan, and P. M. Harris), *SEPM Workshop* v. 22, p. 57-72, isbn: 978-1-56576-134-6
- [1] **Kaczmarek, S.E.** and Sibley, D.F. (2007) A comparison of nanometer-scale growth and dissolution features on natural and synthetic dolomite crystals: Implications for the origin of dolomite, *Journal of Sedimentary Research*, v. 77, p. 424-432, doi:10.2110/jsr.2007.035

PENDING JOURNAL ARTICLES

† denotes student advisee

- †Al-Musawi, M., Kuglitsch, J., Harrison W., Voice, P., Griffith, E., Saltzman, M., and **Kaczmarek, S.E.** (in review) Cross basin correlation of the Llandovery carbonate succession (Michigan Basin) using global carbon excursions, *GSA Bulletin*
- †Rose, K. and Kaczmarek, S.E. (in preparation) Effect of CaCO₃ reactant mineralogy and size on dolomite stoichiometry, *Journal of Sedimentary Research*
- †Hashim, M.S., Rose, K., Cohen, H. and **Kaczmarek, S.E.** (in review) Effects of Na, K, Ca, and Mg concentrations on dolomite reaction rate, stoichiometry, and cation ordering: the role of salinity during dolomitization, *Chemical Geology*

CONFERENCE PROCEEDINGS

- [3] Zhan, X., Fullmer, S.M., Lu, C.P., **Kaczmarek, S.E.**, Harris, C.E. and Martinez, A. (2012) Study geophysical response of Middle East carbonate reservoir using computation rock physics approach (oral), Conference Proceedings, *Society of Exploration Geophysicists Annual Meeting*, DOI: <http://dx.doi.org/10.1190/segam2012-1137.1>.
- [2] Fullmer, S.M., **Kaczmarek, S.E.**, and Steffen, K.L. (2010) Modern carbonate facies: Moving from description to quantitative prediction, *in: Seismic Imaging of Depositional and Geomorphic Systems* (eds. L.A. Wood, T.T., Simo, and N.C. Rosen) *Proceedings from the 30th Annual GCSEPM Foundation Bob F. Perkins Research Conference*, p. 212-240.
- [1] Nugroho, D., Simo, T., Noeradi, D., Fullmer, S.M., Hicks, M.K., **Kaczmarek, S.E.**, Liu, C., Van Gorsel, J.T., Steffen, K., Ruf, Sapiie, B., Terrell, M. and Saikia, I. (2009) Significance of the sedimentology and stratigraphy for the evolution and demise of the Oligocene Rajamandala Limestone, Padalarang, West Java, Indonesia (oral), *Indonesia Petroleum Association, 29th Annual Convention Proceedings*, v. 33, paper no. IPA-G-161, 14 p.

OTHER WORKS

- [3] **Kaczmarek, S.E.** (2014) Book Review *The Boom: How Fracking Ignited the American Energy Revolution and Changed the World* by Russell Gold, Bridgewater Review, Bridgewater State University, v. 33, no. 2, November 2014, p. 39-40.
- [2] Bralower, T., Bahr, J., Baer, E., Doser, D., Feiss, G., Gunersen, L., **Kaczmarek, S.**, Moores, E., Perfit, M., and Williams, W. (2011) *Geological Society of America Position Statement: Expanding and Improving Geoscience in Higher Education*, GSA Geology & Public Policy Committee http://www.geosociety.org/documents/gsa/positions/pos18_HigherEd.pdf
- [1] **Kaczmarek, S.E.** and Sibley, D.F. (2004) *Humans and the Environment: Laboratory Exercises in Earth Science*, Hayden McNeil Publishing, Plymouth, MI, 281 p., ISBN 978-0-7380-2986-3

SPONSORED RESEARCH: (8 awards as PI: \$1,051,963 USD / 9 awards total: \$1,472,733 USD)

Extramural Grants/Contracts

- 2021-24 Collaborative research: experimentally evaluating the relationship between cation ordering and oxygen and clumped isotope fractionation in dolomite, *U.S. National Science Foundation (EAR-GG) #2120193*, PI (\$294,939).
- 2020-21 Diagenetic control on rock properties in Eocene limestones and dolostones in Qatar – Phase III, *ExxonMobil Research Qatar*, PI (\$150,000)
- 2019-22 Investigating the early diagenetic history of Miocene limestones and dolostones, Qatar, *ExxonMobil Research Qatar*, PI (\$150,000)
- 2018-21 Collaborative research: testing models of calcite microcrystal diagenesis through experiments, geochemistry, and advanced imaging, *U.S. National Science Foundation (EAR-SGP) #1828880*, PI (\$155,671).
- 2018-19 Unraveling the early diagenetic history of Eocene limestones and dolostones – Phase II, Qatar, *ExxonMobil Research Qatar*, WMU #09855, PI (\$95,000)
- 2017-20 Fostering interest in earth science teaching through the reflective practice of science, *U.S. National Science Foundation (DUE-IUSE-GEOPATHS-EXTRA) #1701007*, co-PI (\$365,883 + \$54,887 supplement).
- 2017 Unraveling the early diagenetic history of Eocene limestones and dolostones – Phase I, Qatar, *ExxonMobil Research Qatar*, WMU #09404, PI (\$60,000)
- 2016-18 Acquisition of a handheld XRF spectrometer to enhance sedimentary and paleoenvironmental research, *U.S. National Science Foundation (EAR-IF) #1636441*, PI (\$76,771)
- 2013-14 Petrographic investigation of microbial carbonate fabrics in the Brazilian pre-salt, *ExxonMobil Exploration Company*, PI (\$23,000)

Intramural Grants/Contracts, In-Kind Gifts

- 2021 Equipment Refresh Grant, May 2021 *WMU Office of Research & Innovation*, PI (\$3,000)
- 2021 Equipment Refresh Grant, Jan. 2021, *WMU Office of Research & Innovation*, PI (\$3,582)
- 2016 Acquisition of a Carl Zeiss AxioPlan2 research-grade petrographic microscope and digital accessories for petrological analysis of carbonate thin sections, *ExxonMobil Upstream Research Company*, PI (in-kind donation, approx. value: \$30,000)
- 2014-15 Creating an Accessible, Quantitative, and Inquiry-Based Geoscience Gateway Text *Bridgewater State University Gateways Grant*, PI (\$5,000)
- 2012 Writing quantitatively: integrating scientific writing in a data-intensive, upper-level geology course, *Bridgewater State University Teacher-Scholar Grant*, PI (\$5,000)

PENDING PROPOSALS

- 2023-24 EA: A new portable XRF spectrometer to continue sedimentary and paleoenvironmental research, *U.S. National Science Foundation (EAR-IF) #2240200*, PI (\$82,310)
- 2023-28 Pathways to Science Teaching: Engaging Preservice Teachers in the Authentic Practice of Science, *U.S. National Science Foundation (NSF—DUE-NOYCE) #2301825*, Co-PI (\$1,275,329)

UNFUNDED PROPOSALS

- 2021 MRI: Acquisition of a Scanning Electron Microscope for Cross-Disciplinary Engineering, Science, and Medical, Research, Education and Outreach, *U.S. National Science Foundation (NSF-MRI), #2116929*, co-PI (\$580,000)
- 2019 MRI: Acquisition of a High-Resolution Transmission Electron Microscope for Interdisciplinary Research and Education in Southwest Michigan, *U.S. National Science Foundation, (NSF-MRI), #1919678*, co-PI (\$1,191,265)
- 2016 The significance of long-term trends in the organic carbon isotope record: assessing repeated paleoclimatic perturbations and mass extinctions in the highly dynamic Silurian evaporative interior continental Michigan Basin, USA, *U.S. National Science Foundation (EAR-SGP), #1704732*, co-PI (\$494,667).
- 2016 Using laboratory experiments to reconcile discrepancies between theoretical calculations and field observations of temperature-induced Mg isotope ($\delta^{26}\text{Mg}$) fractionation in natural dolomites, *American Chemical Society, Petroleum Research Fund (New Directions)*, PI (\$110,000)

AWARDS & RECOGNITION

- 2018 Western Michigan University Excellence in Discovery Award: “Largest new external funding award to faculty member within first three years”
- 2018 WMU Department of Geological & Environmental Sciences Faculty Service Award
- 2017 WMU nomination: Blavatnik Award for Young Scientists
- 2014 Award of Excellence “Top 10” Oral Presentation, American Association of Petroleum Geologists Annual Convention, April 2014.
- 2011-14 Conference Travel Awards, Bridgewater State University Center for Advancement of Research and Scholarship Faculty (4 awards)
- 2005 Big Horn Basin Field School Award, ExxonMobil Exploration Company
- 2004 Pringle-Drake Endowed Fellowships for Academic Excellence, Michigan State University Department of Geological Sciences
- 2003 Department of Geological Sciences Travel Grant for Academic Excellence, Michigan State University
- 2003 Pringle-Drake Endowed Fellowships for Academic Excellence, Michigan State University Department of Geological Sciences

INVITED LECTURES

- [17] **Northwestern University, Department of Earth & Planetary Sciences, Feb. 3, 2023**
- [16] Missouri University, Department of Geological Sciences, Feb. 18, 2022
- [15] Grand Valley State University, Department of Geology, Feb. 3, 2020
- [14] Oklahoma State University, Boone Pickens School of Geology, Nov. 7, 2019
- [13] Texas A&M University, Department of Geology & Geophysics, Oct. 26, 2018
- [12] Michigan State University, Department of Earth & Environmental Sciences, Nov. 10, 2017
- [11] Petroleum Technology Transfer Council, Western Michigan University, Mar. 16, 2017
- [10] Kansas University, Department of Geology, Nov. 11, 2016

- [9] Central Michigan University, Department of Earth & Atmospheric Sciences, Apr. 28, 2016
- [8] Indiana University, Department of Geological Sciences, Dec. 7, 2015
- [7] Iowa State University, Department of Geological and Atmospheric Sciences, Oct. 6, 2015
- [6] Western Michigan University, Department of Geosciences, Feb. 9, 2014
- [5] Utah Valley University, Department of Earth Science, Mar. 7, 2011
- [4] Bentley University, Department of Natural and Applied Sciences, Feb. 18, 2011
- [3] Bridgewater State University, Department of Earth Sciences, Feb. 17, 2011
- [2] ExxonMobil Exploration Company, Houston, TX, July 12, 2005
- [1] Shell Oil Company, Houston, TX, Feb. 14, 2005

EDITORIAL POSITIONS & JOURNAL REVIEWS

Editorships

co-Editor (elect), *Journal of Sedimentary Research* (starts Jan. 2023)
Associate Editor, *Journal of Sedimentary Research* (June 2015-present)

Funding Agency Reviewer

American Chemical Society Petroleum Research Fund, Natural Sciences and Engineering Research Council of Canada; National Environmental Research Council, United Kingdom; Agence Nationale de la Recherche, France

Journal Reviewer

Nature Communications; Geology; Earth and Planetary Science Letters; Sedimentology; Geochimica et Cosmochimica Acta; Nature Scientific Reports; Communications Earth & Environment (Nature), GSA Bulletin; Geophysical Research Letters; Journal of Sedimentary Research; Marine and Petroleum Geology; AAPG Bulletin; Advances in Carbonate Exploration and Reservoir Analysis; Crystal Growth and Design; Carbonates and Evaporites; Chemical Papers; Mineralogia

PROFESSIONAL AFFILIATIONS

- 2002- American Association of Petroleum Geologist (AAPG)
- 2003- Geological Society of America (GSA)
- 2005- Society for Sedimentary Geology (SEPM)
- 2010- International Association of Sedimentologists (IAS)
- 2015- American Association of University Professors (AAUP)
- 2022- American Geophysical Union (AGU)

PROFESSIONAL SERVICE - EXTERNAL

- 2020 Session chair 2020 Virtual AAPG/SEPM Conference (Houston, TX)
- 2019 Abstract reviewer, 2020 AAPG/SEPM Conference (Houston, TX)
- 2018 Sub-theme chair/organizer, AAPG/SEPM Conference (Salt Lake, UT)
- 2016 Oral session chair & awards judge, AAPG/SEPM Conference (Calgary, Canada)
- 2014 Session organizer/chair, AAPG/SEPM Conference (Houston, TX)
- 2013 Session organizer/chair, AAPG/SEPM Conference (Pittsburg, PA)
- 2011 Oral session organizer/chair, AAPG/SEPM Conference (Houston, TX)
- 2010 GSA Geology & Public Policy Committee member: Expanding and improving geoscience in higher education

PROFESSIONAL SERVICE - UNIVERSITY

Western Michigan University (University-WMU; College of Arts & Sciences-CAS; Department-GES)

2021-24 WMU Faculty Senate: GES Department Representative
2021- GES Awards/Scholarship Committee
2021-22 WMU Strategic Plan Academic Excellence Subcommittee
2021-22 GES Faculty (Professor) Search Committee (Chair)
2019-20 GES Faculty (Professor) Search Committee (Chair, COVID-impacted)
2019-20 GES Faculty (Specialist) Search Committee (Chair)
2018- GES Awards Committee (Chair)
2019 WMU Associate Vice President for Research Search Committee
2017- WMU Grade and Program Dismissal Appeals Committee
2017- WMU Academic Integrity Committee
2016-20 CAS Dissertation Completion Fellowships Committee
2016-17 GES Faculty (Professor) Search Committee
2015- GES Graduate Admissions Committee
2015-21 GES Field Trip Committee (Chair)
2015-21 GES Academic Program Assessment Committee
2015-21 GES Fundraising Committee

Bridgewater State University (University-BSU; College of Science & Math -CSM; Department-GEOL)

2014-15 BSU Provost Search Committee
2014 CSM Summer Bridge Research Program (Faculty Mentor)
2014-15 CSM NSF Noyce Teacher-Scholars Program
2014 CSM Open Lab Night Outreach Program (Faculty Mentor)
2012-15 GEOL Program Assessment Committee (Chair)
2011-15 Geology Club (Faculty Advisor)

TEACHING EXPERIENCE

**denotes graduate course*

Western Michigan University (2015-present)

Carbonate Petrology (*lecture & lab*)*
Physical Geology (*lecture & lab*)
Carbonate & Evaporite Depositional Systems (*lecture & lab*)*
Sedimentation & Stratigraphy (*lecture & lab*)
Advanced Earth Materials (*lecture & lab*)
Geological Communications (*lecture*)*

Bridgewater State University (2011-2015)

Geodynamics (*lecture & lab*)
Earth Systems History (*lecture & lab*)
Special Topics in Geology*
Sedimentary Geology (*lecture & lab*)
Ancient Energy: Geology of Fossil Fuels (*lecture & lab*)
Carbonate Petrology (*independent study*)
Paleontology (*lecture & lab*)
Historical Geology (*lecture & lab*)

ExxonMobil Upstream Research Company (2007-2011)

Carbonate Depositional Processes, Heron Island, Australia (*field*)
Carbonate Petrography (*lecture*)

Fundamentals of Subsurface Interpretation (*lecture*)
Carbonate Seismic Stratigraphy (*lecture*)
Basic Carbonate Facies (*lecture and field*)
Fundamentals of Structure and Stratigraphy (*field*)
Carbonate Sequence Stratigraphy & Predictive Concepts (*field*)
Advanced Petroleum Exploration Concepts (*lecture*)

Michigan State University (2001-2005)

Sedimentology and Stratigraphy (*lab TA*)
Humans and the Environment (*lab TA and Coordinator*)

STUDENT RESEARCH ADVISEES

Graduate Students, Current

- 2021- Ariel Martin (Ph.D.) Experimentally evaluating the relationship between cation ordering and oxygen and clumped isotope fractionation in dolomite – expected *spring 2025*
- 2020- Ashley Scott (Ph.D.) Evaluating dolomitization mechanisms in the Saluda (Ordovician) Formation using mineralogical, geochemical, and petrographical proxies – *expected: spring 2024*
- 2019- Mohammed Al-Musawi (Ph.D.) Diagenesis of the Miocene Limestones and Dolostones of Qatar – *expected: spring 2023*

Graduate Students, Completed

- 2018-22 Mohamed Hashim (Ph.D.) Physicochemical controls on calcite microcrystal morphology as determined in laboratory synthesis and dissolution experiments – *expected: spring 2022* (NSF Schlanger Fellow, All University Research Award, NSF-sponsored Post-doc researcher: Woods Hole Oceanographic Institute)
- 2018-21 Sarah Hayes (M.S.) Using Hg variations to evaluate environmental changes during the Niagara-Salina (Silurian) transition in the Michigan Basin – *December 2021* (Geologist TetraTech, Kalamazoo, MI) https://scholarworks.wmich.edu/masters_theses/5237
- 2018-21 Katharine Rose (M.S.) Impact of Calcium Carbonate Reactant Size and Mineralogy on Dolomite Stoichiometry. *August 2021* (Intern ExxonMobil, Houston, TX; Ph.D. student Mississippi State University, Starkville, MS) https://scholarworks.wmich.edu/masters_theses/5224
- 2015-21 Cameron Manche (Ph.D.) Dolomite stoichiometry and cation ordering as a proxy for dolomitizing conditions – *June 2021* (post-doc researcher, Texas A&M; Adjunct Faculty San Jacinto State University) <https://scholarworks.wmich.edu/dissertations/3705/>
- 2016-20 Brooks Ryan (Ph.D.) Geochemical and petrological study of the diagenetically altered Cenozoic carbonates of central Qatar – *June 2020* (post-doc researcher WMU, Geologist Chevron, Houston, TX) <https://scholarworks.wmich.edu/dissertations/3562/>
- 2016-19 Hanna Cohen (M.S.) Evaluating the effects of sodium, potassium, magnesium, and calcium concentrations on dolomite stoichiometry, cation ordering, and reaction rate – *December 2019* (High-School Science Teacher, Chicago, IL) https://scholarworks.wmich.edu/masters_theses/5096/
- 2016-19 Mohammed Al-Musawi (M.S.) Chronostratigraphic Correlation of the Burnt Bluff Group across the Michigan Basin, USA – *July 2019* (Ph.D. student WMU) https://scholarworks.wmich.edu/masters_theses/4588
- 2017-19 Zaid Nadhim (M.S.) Depositional Facies and Sequence Stratigraphic Model for the Silurian Reefs, Michigan Basin, USA – *July 2019* (Intern Chesapeake Oil, Oklahoma City, OK; Intern ExxonMobil Exploration, Houston, TX; Ph.D. student Colorado School of Mines)

- https://scholarworks.wmich.edu/masters_theses/4308
- 2015-19 Matthew Rine (Ph.D.) Application of geochemistry to develop a new regional-scale sequence stratigraphic and chronostratigraphic framework for the Silurian (Wenlockian) Niagara-Lower Salina of the Michigan Basin – April 2019 (*Geologist, Consumers Energy, Jackson, MI*) <https://scholarworks.wmich.edu/dissertations/3409>
- 2016-18 Matthew Hemenway (M.S.) Application of Handheld ED-XRF for High-Resolution Chemo-Stratigraphy in Texturally Homogeneous Carbonate Mudstones: Salina A-1 Carbonate (Silurian), Michigan Basin – July 2018 (*Geologist, Premier Oilfield Group, Houston, TX*) https://scholarworks.wmich.edu/masters_theses/3704/

Undergraduate Students

- 2021-22 Sara Al-Qamshouai, Petrological characterization of the dolomite host rock and Shilajit material in the Al Amerat Cave, Muscat, Oman (WMU Lee Honors College undergraduate thesis)
- 2016 Jacqueline Snow, Evaluating fluid flow direction from dolomite stoichiometry in the Silurian Pinnacle Reefs, Michigan Basin (CMU undergraduate thesis)
- 2014-15 Brian Thornton, Temperature dependence of dolomitization of aragonite ooids, (*M.S. Indiana University*)
- 2015 Michael Avila, The effect of NaCl and KCl concentrations on dolomite stoichiometry and cation ordering
- 2015 Alexandros Mouratidis, Effect of fluid Mg/Ca on dolomitization of aragonite ooids
- 2014 Jeremy Foote, An empirical determination of the relationship between mass-based percentages and XRD-determined ratios of mixed calcite and dolomite samples (*M.S. Mississippi State University, Physical Scientist United States Geological Survey*)
- 2013-14 Jeremy Foote, Size-Frequency Distribution of *Orbitolina Texana* Foraminifera, *BSU Undergraduate Review*, v. 10, p. 79-84 (*M.S. Mississippi State University*)
- 2013-14 Dylan Lundgren, The effect of NaCl on the rate of dolomitization – evidence from high-temperature laboratory experiments, (*M.S. University of New Hampshire*)
- 2014 Krista Greeley, Effect of reactant surface area on the rate of dolomitization: findings from high-temperature laboratory experiments (*Summer Bridge Program*)
- 2012-13 John DeMille, The effect of NaCl on the stability of dolomite – evidence from 1-D geochemical models
- 2012-13 Brittney Cudnik, Laboratory-determined dolomitization reaction curve for aragonite ooids.
- 2012 Jennifer Fruzzetti, The effect of hydrochloric acid strength on the nanometer-scale dissolution topography of calcite crystal surfaces, *BSU Undergraduate Review*, v. 9, p. 32-36.
- 2012 Stephanie Martin, The effect of [NaCl] on the experimental rate of dolomitization at high temperature

MEDIA COVERAGE

- 2021 Western leads NSF-funded, multi-university research into ancient rocks, *WMU News*, September 2021, <https://wmich.edu/news/2021/09/65485%20>
- 2021 Immersive program aims to empower next generation of science teachers, *WMU News*, July 2021, <https://wmich.edu/news/2021/07/64891>
- 2009 Featured Research Article: Global Satellite View Revealing - Facies mapping aids carbonate understanding, *AAPG Explorer Magazine*, August 2009, p. 18 – 22,

<https://www.aapg.org/Portals/0/docs/Explorer/2009/08aug/08augExplorer09.pdf?ver=2009-10-27-101806-000>

PUBLISHED CONFERENCE ABSTRACTS

† denotes student advisee, * presenter if other than first author, ‡ invited talk

2022

- [95] †Scott, A., and **Kaczmarek, S.** (2022). Application of a high-resolution diagenetic characterization to investigate dolomitization in the Upper Ordovician (Richmondian) Saluda Formation, Madison, Indiana (poster), *AGU Fall Meeting*, Dec. 12-16, Chicago, IL, #1075214
- [94] †Martin, A., Winkelstern, I., Pedersen, S., and **Kaczmarek, S.**, (2022). Dolomite as a paleoclimate proxy: The relationship between cation order and oxygen isotope fractionation in experimental dolomites (poster), *AGU Fall Meeting*, Dec. 12-16, Chicago, IL, #1118779
- [93] **Kaczmarek, S.**, †Scott, A., Manche, C., and Ryan, B. (2022). Reevaluating evaporative reflux dolomitization in peritidal carbonates (oral), *GSA North-Central/Southeastern Joint Section Meeting*, 7-8 April 2022, Cincinnati, OH, v. 54, no. 4, <https://doi.org/10.1130/abs/2022NC-374674>.
- [92] †Scott, A., and **Kaczmarek, S.** (2022). Systematic diagenetic characterization of the Upper Ordovician (Richmondian) Saluda Formation, Cincinnati Arch region, USA (poster), *GSA North-Central/Southeastern Joint Section Meeting*, 7-8 April 2022, Cincinnati, OH, v. 54, no. 4, <https://doi.org/10.1130/abs/2022NC-374534>.
- [91] †Martin, A., **Kaczmarek, S.**, Winkelstern, I., and Pedersen, S. (2022). The link between cation ordering and oxygen isotope fractionation in experimental dolomites (poster), *GSA North-Central/Southeastern Joint Section Meeting*, 7-8 April 2022, Cincinnati, OH, v. 54, no. 4, <https://doi.org/10.1130/abs/2022NC-374770>.
- [90] †Al-Musawi, M., **Kaczmarek, S.**, Harrison, W., Voice, P., Kuglitsch, J., Griffith, E., and Saltzman, M. (2022). $\delta^{13}\text{C}_{\text{carb}}$ chronostratigraphic correlation of the Llandovery carbonate succession across the Michigan Basin (oral), *GSA North-Central/Southeastern Joint Section Meeting*, 7-8 April 2022, Cincinnati, OH, v. 54, no. 4, <https://doi.org/10.1130/abs/2022NC-375453>.
- [89] †Hashim, M., and **Kaczmarek, S.**, (2022). Rhombic Calcite Microcrystals as A Proxy for Meteoric Diagenesis (oral), *GSA North-Central/Southeastern Joint Section Meeting*, 7-8 April 2022, Cincinnati, OH, v. 54, no. 4, <https://doi.org/10.1130/abs/2022NC-375708>.
- [88] †Hayes, S., Them, T., Yuan, W., Liu, M., Caruthers, A., **Kaczmarek, S.** (2022). A new sedimentary mercury record to evaluate the Silurian Niagara-Salina transition, Michigan Basin, USA (oral), *GSA North-Central/Southeastern Joint Section Meeting*, 7-8 April 2022, Cincinnati, OH, v. 54, no. 4, <https://doi.org/10.1130/abs/2022NC-375782>.
- [87] Osborne, L., Lukoczki, G., **Kaczmarek, S.E.**, Fichtner, V., Schurr, S., and Strauss, H. (2022) A detailed re-examination of Ca-Mg-carbonate sediments in Lagoa Vermelha using Rietveld refinement (poster), *GSA North-Central/Southeastern Joint Section Meeting*, 7-8 April 2022, Cincinnati, OH, v. 54, no. 4, <https://doi.org/10.1130/abs/2022NC-375226>.

2021

- [86] †Rose, K. and **Kaczmarek, S.E.** (2021) Insights into dolomite cation ordering using XRD full width half maximum data (poster), *AGU Fall Meeting 2021*, Dec. 13-17, New Orleans, LA. Abstract ID: 962480
- [85] †Hashim, M. and **Kaczmarek, S.E.** (2021) The role of fluid:solid ratio in dictating the diagenetic pathway of carbonate metastable sediments (invited talk), *AGU Fall Meeting 2021*, Dec. 13-17, New Orleans, LA. Abstract ID: 822931

- [84] †Hashim, M., Burke, J., Hardisty, D., and **Kaczmarek, S.E.** (2021) An experimental investigation of iodine incorporation into dolomite: implications for the iodine redox proxy (oral), *AGU Fall Meeting 2021*, Dec. 13-17, New Orleans, LA. Abstract ID: 869012
- [83] †Paul, C., Bunton, C., Carver, J., Garneau, K., Markou, K., Norlien, D., Salome, B., Bertman, S.B., Davis, L.E., **Kaczmarek, S.E.**, and Petcovic, H.L. (2019) Talking SHIF: an exploration of human impact on creek health (poster), *GSA Connects 2021*, Portland, OR, 10-13 Oct., doi: 10.1130/abs/2021AM-369745
- [82] Petcovic, H. L., Bertman, S.B., Davis, L.E., **Kaczmarek, S.E.**, Koch, K., Long, V., and Vellom, P. (2019) Preparing preservice teachers to engage in NGSS science and engineering practices: the pathways to science teaching program (oral), *GSA Connects 2021*, Portland, OR, 10-13 Oct., doi: 10.1130/abs/2021AM-369893
- (81) †Al-Musawi, M., **Kaczmarek, S.E.**, and Rivers, J.M., (2020) Early diagenesis in a mixed carbonate-siliciclastic depositional system, early lessons from the Dam Formation in Qatar (oral), *American Association of Petroleum Geologists (AAPG) International Meeting for Applied Geoscience and Energy*, 26 Sept. – 1 Oct., Denver, CO, #6321
- [80] †Hashim, M., Burke, J., Hardisty, D., and **Kaczmarek, S.E.** (2021) †An Experimental Investigation of Iodine Incorporation into Dolomite: Implications for the Iodine Redox Proxy (oral), *Midwest Geobiology Symposium*, Sept. 25, Indianapolis, IN. *Best Student Paper Award*
- 2020
- [79] Jiong, J., Yang, J., Wang, G., **Kaczmarek, S.**, Lu, W., and Wu, Q. (2020) Investigations on the effect of current density on the performance of Si@SiO_x anode, *AIChE Conference* (virtual), 19 Nov., #600840
- [78] †Hashim, M., and **Kaczmarek, S.E.** (2020) The role of fluid:solid ratio in explaining the inhibition of calcite growth by magnesium, *Goldschmidt Virtual 2020*, June 21-26, doi.org/10.46427/gold2020.970
- 2019
- [77] †Rose, K., and **Kaczmarek, S.** (2019) Effect of reactant surface area and mineralogy on dolomite stoichiometry, *American Geophysical Union (AGU) Fall Meeting*, San Francisco, CA, 9-13 Dec., no. PP41C-1574.
- [76] †Hashim, M., and **Kaczmarek, S.** (2019) Reaction rate as the fundamental control on calcite microcrystal size (oral), *American Geophysical Union (AGU) Fall Meeting*, San Francisco, CA, 9-13 Dec., no. PP41C-1572.
- [75] Oishi, H., Burrell, J., Melnik, D., Miller, B., Mroczek, R., Schira, R., Swinehart J., Van Delinder, E., Bertman, S.B., Davis, L.E., Ellis, T.D., **Kaczmarek, S.E.**, and Petcovic, H.L. (2019) Benthic macroinvertebrates reflect water quality along Portage Creek, Michigan, USA (poster), *American Geophysical Union (AGU) Fall Meeting*, San Francisco, CA, 9-13 Dec., no. H53M-1964.
- [74] Petcovic, H. L., Davis, L.E., Bertman, S.B., Ellis, T.D., **Kaczmarek, S.E.**, Koch, K., Long, V., Ruhf, R., and Vellom, P. (2019) Pathways to Science Teaching immerses preservice teachers in field-based earth science research and K-8 teaching, *American Geophysical Union (AGU) Fall Meeting*, San Francisco, CA, 9-13 Dec. no. ED23F-1070.
- [73] Teoh, C.P., †Rose, K. Laya-Pereira, and **Kaczmarek, S.** (2019) Controls of high-Mg calcite on the dolomitization of carbonate deposits: an experimental study (poster), *Geological Society of America Abstracts with Programs*, v. 51(5), Paper No. 262-17, GSA Annual Meeting, September 22-25, Phoenix, AZ.

- [72] †Manche, C. and **Kaczmarek, S.E.** (2019) Evaluating the relationship between stoichiometry and cation ordering in ancient dolomites (poster), *American Association of Petroleum Geologists Annual Conference*, May 19-22, San Antonio, TX
- [71] †Hashim, M., and **Kaczmarek, S.E.** (2019) Experimental insights on mineralogical stabilization in carbonates (oral), *American Association of Petroleum Geologists Annual Conference*, May 19-22, San Antonio, TX, #353
- [70] †Ryan, B.H., **Kaczmarek, S.E.**, and Rivers, J.L. (2019) Elucidating dolomitizing conditions and potential recrystallization using textural and geochemical relationships, a case study from the Umm er Radhuma Formation, Qatar (oral), *American Association of Petroleum Geologists Annual Conference*, May 19-22, San Antonio, TX, #281
- [69] Albader, A., Laya, J. Miller, B., and **Kaczmarek, S.E.** (2019) Oomolds in a Marine Realm? A Case Study from the Permian Basin's Happy Spraberry Field (poster) *American Association of Petroleum Geologists Annual Conference*, May 19-22, San Antonio, TX, #281
- [68] Teoh, C., Jacquemyn, C., Laya, J., Hasiuk, F.J., **Kaczmarek, S.E.**, and Whitaker, F.F. (2019) Geometric quantification of dolomitized clinofolds using digital outcrop models and surface-based modeling: insights for geobody connectivity from outcrop analogs (poster), *American Association of Petroleum Geologists Annual Conference*, May 19-22, San Antonio, TX, #

2018

- [67] †Hashim, M., and **Kaczmarek, S.E.** (2018) Using laboratory experiments to investigate the controls on LMC microcrystal textures (poster), *Geological Society of America Annual Meeting*, Nov. 4-7, Indianapolis, IN, #321083 (121-15).
- [66] †Al-Musawi, M., and **Kaczmarek, S.E.** (2018) An integrated shelf to basin chemo- and chronostratigraphic correlation of the Burnt Bluff Group (BBG) carbonates, Michigan Basin, U.S.A (oral), *Geological Society of America Annual Meeting*, Nov. 4-7, Indianapolis, IN, #323425 (74-2).
- [65] Petcovic, H., Bertman, S., Ellis, T., **Kaczmarek, S.**, Koch, K., Long, V., Ruhf, R., Tinigin, L., and Vellom, P. (2018) Pathways to science teaching: integrating research and teaching experience for future K-12 science teachers (poster), *Geological Society of America Annual Meeting*, Nov. 4-7, Indianapolis, IN, #315414 (30-2).
- [64] Allen, A., Borja, C., Brau, T., Deanda, C., Doorlag, M., Older, B., Passmore, E., Wolschlager, K., Ellis, T., **Kaczmarek, S.**, Petcovic, H., and Tinigin, L. (2018) The effects of land use and precipitation on road salt runoff in Portage Creek, Kalamazoo, Michigan, USA (poster), *Geological Society of America Annual Meeting*, Nov. 4-7, Indianapolis, IN, #317797 (34-4).
- [63] †Ryan, B., **Kaczmarek, S.E.**, and Rivers, J. (2018) Dolomite and palygorskite: an alternative pathway for the formation of palygorskite clay (oral), *American Association of Petroleum Geologists Annual Conference*, May 20-23, Salt lake City, UT, #2824856. **AAPG Award 4th Place Oral Presentation.**
- [62] †Hashim, M. and **Kaczmarek, S.E.** (2018) Genetic origin and diagenetic transformation of LMC microcrystal textures in limestones (poster), *American Association of Petroleum Geologists Annual Conference*, May 20-23, Salt lake City, UT, #2855212.
- [61] †Cohen, H. and **Kaczmarek, S.E.** (2018) Evaluating the effects of fluid chemistry on dolomite stoichiometry and reaction rate (poster), *American Association of Petroleum Geologists Annual Conference*, May 20-23, Salt lake City, UT, #2855811.
- [60] †Manche, C., and **Kaczmarek, S.E.** (2018) Evaluating dolomite stoichiometry as a proxy for the chemistry of dolomitizing fluids (oral), *American Association of Petroleum Geologists Annual Conference*, May 20-23, Salt lake City, UT, #2847232.
- [59] †Al-Musawi, M. and **Kaczmarek, S.E.** (2018) Application of XRF, biostratigraphic, and carbon isotope data to establish a sequence stratigraphic framework and depositional facies model for

the Burnt Bluff Group, Michigan Basin, USA (poster), *American Association of Petroleum Geologists Annual Conference*, May 20-23, Salt lake City, UT, #2855260.

- [58] †Hemenway, M., **Kaczmarek, S.E.**, and †Rose, K. (2018) Application of handheld ED-XRF for high-resolution chemostratigraphy in texturally homogeneous carbonate mudstones: Salina A-1 Carbonate (Silurian), Michigan Basin (poster), *American Association of Petroleum Geologists Annual Conference*, May 20-23, Salt lake City, UT, #2837835.
- [57] Hasiuk, F.J. and **Kaczmarek, S.E.** (2018) Carbonate chemostratigraphy caveat: micrite undergoes diagenesis (poster), *American Association of Petroleum Geologists Annual Conference*, May 20-23, Salt lake City, UT, #2856164
- [56] Pei Teoh, C., Laya, J.C., Whitaker, F., Gabellone, T., Tucker, M., Manche, C., and **Kaczmarek, S.E.**, Miller, B. (2018) Unravelling reflux dolomitization: why size matters (poster), *American Association of Petroleum Geologists Annual Conference*, May 20-23, Salt lake City, UT, #2857418.
- [55] †Al-Musawi, M. and **Kaczmarek, S.E.** (2018) Application of high-resolution ED-XRF data to establish a sequence stratigraphic framework of homogeneous carbonate rocks, Michigan Basin, USA (poster), *Geological Society of America – North-Central Meeting 52*, April 16-17, Ames, IA, #313282.
- [54] †Nadhim, Z.N. and **Kaczmarek, S.E.** (2018) (poster), A statistical approach for constraining facies volumes in the Niagaran pinnacle reefs, Michigan Basin, *Geological Society of America – North-Central Meeting 52*, April 16-17, Ames, IA, #313283.
- [53] **Kaczmarek, S.E.**, †Voice, P.J., Petcovic, H.L., and Harrison III, W.B. (2018) Bridging the gap: using geochemical data to integrate geology and chemistry in K-12 education (oral), *Geological Society of America – North-Central Meeting 52*, April 16-17, Ames, IA, #312546.

2017

- [52] Laya, J.C., Whitaker, F., Pei Teoh, C., Tucker, M., Gabellone, T., Manche, C., and **Kaczmarek, S.E.**, (2017) Spatial distribution of dolomitization within a complex stratigraphy in an isolated carbonate platform, Bonaire, Netherlands Antilles (poster), *International Association of Sedimentologists Annual Conference*, Oct. 10-12, Toulouse, France.
- [51] †Cohen, H.F. and **Kaczmarek, S.E.** (2017) Evaluating the effects of fluid NaCl and KCl concentrations on reaction rate, major cation composition, and cation ordering during high-temperature dolomitization experiments (poster), *Geological Society of America 2017 Annual Meeting*, Oct. 22-25, 2017, Seattle, WA, #306364
- [50] †Manche, C.J. and **Kaczmarek, S.E.** (2017) High-frequency Cyclicity in dolomite stoichiometry in the Upper Glen Rose Formation: implications for penecontemporaneous dolomitization (poster), *SEPM/CSPG 2017 Mountjoy Carbonate Research Conference – Carbonate Pore Systems*, June 25-30, 2017, Austin, TX.
- [49] **Kaczmarek, S.E.**, Hasiuk, F.J., and Fullmer, S.M. (2017) The fundamentals of limestone microporosity (oral), *SEPM/CSPG 2017 Mountjoy Carbonate Research Conference – Carbonate Pore Systems*, June 25-30, 2017, Austin, TX.
- [48] **Kaczmarek, S.E.** (2017) Controls on the development of cation ordering in dolomite (poster), *AAPG/SEPM Annual Meeting*, April 2-5, 2017, Houston, TX.
- [47] Caruthers, A.H., **Kaczmarek, S.E.**, †Rine, M., and Grocke, D. (2017) Organic carbon isotopes from halites: a new approach to studying evaporite sequences (oral), *AAPG/SEPM Annual Meeting*, April 2-5, 2017, Houston, TX.

2016

- [46] †Rine, M., Caruthers, A., **Kaczmarek, S.**, and Gocke, D. (2016) The Silurian Ireviken and Mulde Events recorded in the evaporitic Michigan Basin: links between sea level, the carbon cycle, and

oceanic anoxia (poster), *SEPM Research Conference: Oceanic Anoxic Events*, Nov. 2-7, 2016, Austin, TX.

- [45] **Kaczmarek, S.**, Gregg, J., Bish, D., and Machel, H. (2016) Unscrambling dolomite and calcite (oral), *Dolomieu Conference*, Selva Gardena (Wolkenstein), Italy, October 4-7, 2016.
- [44] †Rine, M., Garrett, J., **Kaczmarek, S.E.**, and Harrison, W. (2016) A sequence stratigraphic model for the Silurian A-1 Carbonate of the Michigan Basin, *Eastern Section AAPG*, Lexington, KY, Sept. 25-27, *AAPG Best Student Paper Award*
- [43] **Kaczmarek, S.E.**, Whitaker, F.F., †Avila, M., †Lewis, D., and Saccocia, P.J. (2016) A case for caution when using geochemical models to make predictions about dolomite (oral), *AAPG/SEPM Annual Meeting*, June 20-22, Calgary, Canada.
- [42] †Manche, C.J. and **Kaczmarek, S.E.** (2016) Evaluation of mercury intrusion capillary pressure results: Development of a new methodological approach for analyzing carbonates (poster), *AAPG/SEPM Annual Meeting*, June 20-22, Calgary, Canada.
- [41] Hasiuk, F.J. and **Kaczmarek, S.E.** (2016) A review of limestone microporosity occurrence through the Phanerozoic Eon (oral), *AAPG/SEPM Annual Meeting*, June 20-22, Calgary, Canada.
- [40] †Rine, M., **Kaczmarek, S.E.**, Barnes, D.A., and Harrison, W. (2016) A new sequence stratigraphic model for the Niagara-Lower Salina Reef Complex of the Guelph Formation, Michigan Basin, U.S.A. (poster), *AAPG/SEPM Annual Meeting*, June 20-22, Calgary, Canada, *SEPM Best Student Paper Award*
- [39] †Snow, J., †Rine, M., Agardy, R., and **Kaczmarek, S.** (2016) Testing the refluxing brine hypothesis with XRD-determined dolomite stoichiometry: a case study from the Silurian reefs of the Michigan Basin (poster), Paper No. 275196, Geological Society of America, North-Central Meeting, April 18-19, 2016, Champaign, IL
- [38] †Rine, M., Caruthers, A., **Kaczmarek, S.**, and Harrison, W. (2016) The Silurian Mulde Event recorded in the Niagara-Lower Salina reef complexes in the evaporitic Michigan Basin: a chemostratigraphic approach (oral), Paper No. 275062, Geological Society of America, North-Central Meeting, April 18-19, 2016, Champaign, IL

2015

- [37] **Kaczmarek, S.E.**, Gregg, J.M., Bish, D.L., and Machel, H.G. (2015) Dolomite, high-magnesium calcite, and microbes (oral), *SEPM/CSPG Inaugural Mountjoy Carbonate Research Conference – Advances in Characterization and Modeling of Complex Carbonate Reservoirs*, August 23-28, 2015, Banff, Canada†.
- [36] **Kaczmarek, S.E.** and †Thornton, B. (2015) Development and evolution of cation order during dolomitization (poster), *15th Bathurst Meeting of Carbonate Sedimentologists*, July 13-16, University of Edinburgh, U.K.
- [35] Machel, H., Gregg, J.M., Bish, D. and **Kaczmarek, S.E.** (2015) Microbial dolomite that isn't dolomite (oral), *15th Bathurst Meeting of Carbonate Sedimentologists*, July 13-16, University of Edinburgh, U.K.
- [34] **Kaczmarek, S.E.** and Hasiuk, F.J. (2015) SEM evidence of biotic influence in Brazilian pre-salt carbonates (oral), *2015 AAPG/SEPM Annual Meeting*, May 31 – June 3, Denver, CO.
- [33] Hasiuk, F.J. and **Kaczmarek, S.E.** (2015) Geochemical evidence of biotic influence in Brazilian pre-salt carbonates (oral), *2015 AAPG/SEPM Annual Meeting*, May 31 – June 3, Denver, CO.
- [32] †Thornton, B. and **Kaczmarek, S.E.** (2015) Stepwise reaction pathway and temperature-dependence of dolomitization of aragonite ooids (poster), *2015 AAPG/SEPM Annual Meeting*, May 31 – June 3, Denver, CO.

2014

- [31] **Kaczmarek, S.E.**, Fullmer, S.M. and Hasiuk, F.J. (2014) An SEM-based classification scheme for limestone microporosity (oral), *2014 AAPG Annual Meeting*, Houston, TX, **AAPG Award of Excellence "Top 10" Oral Presentation.**
- [30] Hasiuk, F.J., **Kaczmarek, S.E.** and Fullmer, S.M. (2014) Geochemical constraints on microporosity formation (oral), *2014 AAPG/SEPM Annual Meeting*, Houston, TX.
- [29] Hasiuk, F.J., Eleson, J.W. and **Kaczmarek, S.E.** (2014) Biotic vs. abiotic origin of Brazilian pre-salt "microbialites": a test for geochemistry (oral), *2014 AAPG/SEPM Annual Meeting*, Houston, TX.
- [28] Eleson, J.W., Bohacs, K., Carter, B., DeGraff, J., *Demko, T.M., Fabijanic, M., French, M., Gomez, L., Guidry, S., Jones, G., Lamb-Wozniak, K., Varga, A., Trainor, D. and **Kaczmarek, S.E.** (2014) Conventional core as the Rosetta Stone for pre-salt RQ: insights and observations within upper sag pre-salt microbialites from conventional core of the 3-Esso-4A-SPS (Guarani-1-ST) well, BM-S-22, Santos Basin, offshore Brazil (oral), *2014 AAPG Annual Meeting*, Houston, TX.

2013

- [27] †Martin, S.L., †Cudnik, B., †DeMille, †J., Montoya, C., †Barrie, E. and ***Kaczmarek, S.E.** (2013), The effect of salinity on the rate of dolomitization (poster), *2013 AAPG Annual Meeting*, Pittsburg, PA.
- [26] Eleson, J. and **Kaczmarek, S.E.** (2013) Implications of reservoir quality development and distribution from initial petrographic investigations of lacustrine microbial carbonates of the Yacoraite Formation, northwestern Argentina (oral), *2013 AAPG Annual Meeting*, Pittsburg, PA.

2012

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ADDITIONAL CONFERENCE/WORKSHOP ACTIVITY

*† denotes student advisee, * presenter if other than first author, ‡ invited talk*

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- [–] Caruthers, A. †Rine, M., Grocke, D., **Kaczmarek, S.**, Harrison, W., Kuglitsch, J., and Barnes, D., 2016, Using carbon-isotope analysis in the Michigan Basin to determine depositional timing of the Niagaran reefs and the overlying Salina A-1 Evaporite and A-1 Carbonate, Michigan Petroleum Technology Transfer Council Spring 2016 Meeting, March 16, 2016, Mt. Pleasant, MI.
- [–] Rine, M, Caruthers, A., **Kaczmarek, S.**, Barnes, D., and Harrison, W., 2016, Using a combination of chemo-, bio-, and sequence-stratigraphy to resolve the chronostratigraphic relationships of the Niagara-Lower Salina Reef Complexes throughout the Michigan Basin, Michigan Petroleum Technology Transfer Council Spring 2016 Meeting, March 16, 2016, Mt. Pleasant, MI.