

Curriculum Vitae -- Dr. DAVID A. BUDD

Department of Geological Sciences
University of Colorado
Boulder, CO 80309

web page: <http://www.colorado.edu/GeolSci/faculty/budd.html>

EDUCATION:

PhD.: 1984, The University of Texas at Austin, Austin, Texas.

M.S.: 1978, Duke University, Durham, North Carolina.

B.A.: 1976, The College of Wooster, Wooster, Ohio.

EMPLOYMENT HISTORY:

5/05-Present Professor, Dept. of Geological Sciences, University of Colorado, Boulder
9/90-Present Fellow, Energy & Minerals Applied Research Center, University of Colorado, Boulder
8/15-10/19 Fellow, Center for STEM Learning, University of Colorado, Boulder
6/93-5/05 Associate Professor, Dept. of Geological Sciences, University of Colorado, Boulder
1/87-6/93 Assistant Professor, Dept. of Geological Sciences, University of Colorado, Boulder
6/83-1/87 Senior Research Geologist, ARCO Exploration & Production, Dallas, Texas.

PROFESSIONAL AFFILIATIONS:

Society of Sedimentary Geologists (SEPM)
Geological Society of America
International Association of Sedimentologists

HONORS & AWARDS

Honorable Mention, 1993 Best Paper Award, Journal of Sedimentary Petrology
Fellow, Geological Society of America (elected, 1999)
Co-Editor, Journal of Sedimentary Research (elected 2000-2004)
Big 12 Faculty Fellowship (2002)
Best Paper Award (2016), Journal of Sedimentary Research (for Hunnington, Budd, et al. 2011)
Honorary Membership, Society of Sedimentary Geology (2019)

EXTERNAL FUNDED RESEARCH GRANTS (Sole PI unless otherwise noted):

5/1/18 to 8/31/20 - Nanopore Networks in Unconventional Chalk Reservoirs: Integrating Catagenesis with Mineral Diagenesis (American Chemical Society, Petroleum Research Fund, \$110,000)
8/1/15 to 7/30/18 - Niobrara Pore Systems, Phase II (Industry Consortium, \$177,000, sole PI)
9/1/12 to 11/30/15 - Unconventional Resource Consortium: Nanopore systems of the Niobrara Formation (Industry Consortium, \$350,000, PI)
10/1/10 to 9/30/13 - Collaborative Research: GARNET II Self-regulated learning and the affective domain in physical geology (National Science Foundation, \$52,813, PI) (extended to 3/30/2014)
1/1/10 to 12/31/11 - Analysis of variability in dolomites (AVID III consortium): Scaling (Industry Consortium, \$125,000) (extended to 6/30/2012)
7/1/08 to 6/30/10 - Collaborative Research: GARNET (Geological Sciences Affective Network) (National Science Foundation, \$58,267, Co-PI)
5/1/07 to 12/31/09 - Analysis of variability in dolomites (AVID II consortium): Origin(s), (Industry Consortium, \$80,000)
5/1/05 to 4/31/07 - Analysis of variability in dolomites (AVID I consortium): Implications for 3-D reservoir modeling, (Industry Consortium, \$60,000, Co-PI)
9/01/03 to 8/31/05 - Evolution of interparticle pore systems by cementation- versus compaction-dominated diagenesis in carbonate skeletal grainstones (American Chemical Society, Petroleum Research Fund, \$80,000)

- 5/01/01 to 8/31/03 – Retention of high matrix permeability in carbonates during progressive burial in a Cenozoic carbonate platform (American Chemical Society, Petroleum Research Fund, \$60,000)
- 4/1/98 to 4/31/01 – Quantification of subaerial exposure features in carbonate rocks (American Chemical Society, Petroleum Research Fund, \$50,000)
- 4/1/95 to 8/31/97 – Permeability variation and controls with burial depth in a Cenozoic carbonate platform (American Chemical Society, Petroleum Research Fund, \$50,000)
- 9/1/92 to 12/31/94 – A chemostratigraphic analysis of a Paleozoic upwelling zone in the Permian Phosphoria Sea, west-central Wyoming and eastern Idaho (American Chemical Society, Petroleum Research Fund, \$39,990)
- 4/1/90 to 9/30/92 – An actualistic model of cementation patterns in a modern regional carbonate aquifer (National Science Foundation; Budd, PI; H.L. Vacher, Co-PI; \$83,932)
- 9/1/90 to 8/31/92 – Quantification of diagenetic reservoir heterogeneity, Big Horn Basin, Wyoming (American Chemical Society, Petroleum Research Fund, \$39,993)
- 4/1/88 to 8/31/90 – Mineralogical stabilization and early cementation of carbonates with burial in seawater (American Chemical Society, Petroleum Research Fund, \$18,000)

OTHER FUNDED GRANTS (C0-PI unless otherwise noted):

- 7/17-6/18 - *Improving spatial visualization skills across the Geosciences Curriculum*, Chancellor's Award for Excellence in STEM Education, CU-Boulder, Anne Gold PI, Budd and others C0-PIs, \$ 8,835,
- 7/16-6/17 – *Flipping Geol 3430*, ASSETT Development Award, College of Arts & Sciences, CU-Boulder, \$3,957, Budd sole PI.
- 1/06 to 6/11 – *Geological Sciences in the Science Education Initiative at CU-Boulder* (Budd PI, many others Co-PI, Science Education Center, CU-Boulder, \$750,000)
- 7/01/03 to 6/30/04 – *A pilot study of lateral permeability heterogeneity within carbonate reservoirs using outcrop analogs*, Council on Research and Creative Work, University of Colorado, \$7,000.
- 10/01/01 to 9/30/09 – *Minority PhD Recruitment in the Department of Geological Sciences*, Alfred P. Sloan Foundation, \$2,000 per year per matriculated Sloan Scholar.
- 1992-1993 – *Acquisition of an automated carbonate preparation system for stable isotopic determinations*, National Science Foundation, James White PI, Budd, Andrews, and Cole Co-PIs; \$32,855.
- 1988-1989 – *Acquisition of an electron microprobe*, National Science Foundation, Charles Stern PI, Budd and many others Co-PI; \$250,300.

PEER-REVIEWED JOURNAL PUBLICATIONS

BUDD, D.A. and Perkins, R.D., 1980, Bathymetric zonation and paleoecological significance of microborings in Puerto Rican shelf and slope sediments: *Journal Sedimentary Petrology*, v. 50, p. 881-904.

BUDD, D.A., 1988, Aragonite-to-calcite transformation during freshwater diagenesis of carbonates: Insights from pore-water chemistry: *Geological Society of America Bulletin*, v. 100, p. 1260-1270.

BUDD, D.A., 1988, Petrographic products of freshwater diagenesis in Holocene ooid sands, Schooner Cays, Bahamas: *Carbonates & Evaporites*, v. 3, p. 143-164.

BUDD, D.A., 1989, Micro-rhombic calcite and microporosity in limestones: a geochemical study of the Lower Cretaceous Thamama Group of the Arabian Gulf: *Sedimentary Geology*, v. 63, p. 293-311.

BUDD, D.A. and Land, L.S., 1990, Geochemical imprint of meteoric diagenesis in Holocene ooid sands, Schooner Cays, Bahamas: Correlation of calcite cement geochemistry with extant groundwaters: *Journal of Sedimentary Petrology*, v. 60, p. 361-378.

BUDD, D.A. and Vacher, H.L., 1991, Predicting the thickness of fresh-water lenses in carbonate paleo-islands: *Journal of Sedimentary Petrology*, v. 61, p. 43-53.

Garfield, T.R., Hurley, N.F., and BUDD, D.A., 1992, Little Sand Draw field, Big Horn Basin, Wyoming: a hybrid dual- and single-porosity reservoir in the Phosphoria Formation: *American Assoc. of Petroleum Geologists Bulletin*, v. 76, p. 371-391.

BUDD, D.A., 1992, Dissolution of high-Mg calcite fossils and the formation of macroscopic biomolds during mineralogical stabilization: *Carbonates & Evaporites*, v. 7, p. 74-81.

BUDD, D.A., Hammes, U., and Vacher, H.L., 1993, Calcite cementation in the upper Floridan Aquifer: a modern example for confined-aquifer cementation models?: *Geology*, v. 21, p. 33-36.

BUDD, D.A., and Hiatt, E.E., 1993, Mineralogical stabilization of high-Mg calcite: geochemical evidence for intracrystal recrystallization within Holocene porcellaneous foraminifera: *Journal of Sedimentary Petrology*, v. 63, p. 261-274.

Jones, I.C., Vacher, H.L., and BUDD, D.A., 1993, Transport of Ca, Mg, and SO₄ in the Floridan Aquifer, west-central Florida: Implications to cementation rates: *Journal of Hydrology*, v. 143, p. 455-480.

Kaufman, D.S., Carter, L.D., Miller, G.H., Farmer, G.L., and BUDD, D.A., 1993, Strontium isotopic composition of Pliocene and Pleistocene molluscs from emerged marine deposits, North American Arctic: *Canadian Journal of Earth Science*, v. 30, p. 519-534.

Johnson, R.A. and BUDD, D.A., 1994, The utility of continual reservoir description: An example from Bindley Field, western Kansas: *American Association of Petroleum Geologists Bulletin*, v. 78, p. 722-743.

Saller, A.H., BUDD, D.A., and Harris, P.M., 1994, Unconformities and porosity development in carbonate strata: Ideas from a Hedberg Conference: *American Association of Petroleum Geologists Bulletin*, v. 78, p. 857-872.

Mowers, T.T., and BUDD, D.A., 1996, Quantification of porosity and permeability reduction due to calcite cementation using computer-assisted petrographic image analysis techniques: *American Association of Petroleum Geologists Bulletin*, v. 80, p. 309-322.

BUDD, D.A., 1997, Cenozoic dolomites of carbonate islands: their attributes and origins: *Earth Science Reviews*, v. 42, p. 1-47.

BUDD, D.A., Hammes, U., and Ward, W.B., 2000, Cathodoluminescence in calcite: New insights on Mn-activation, Fe-quenching, and sensitizing by Pb and Zn using synchrotron X-ray fluorescence, *Journal of Sedimentary Petrology*, v. 70, p. 217-226.

BUDD, D.A., 2001, Permeability loss with depth in the Cenozoic carbonate platform of west-central Florida, USA: *American Association of Petroleum Geologists Bulletin*, v. 85, p. 1253-1272.

Hiatt, E.E., and BUDD, D.A., 2001, Sedimentary phosphate formation in warm shallow waters: new insights into the paleoceanography of the Permian Phosphoria sea from analysis of phosphate oxygen isotopes: *Sedimentary Geology*, v. 145, p. 119-133.

BUDD, D.A., 2002, The relative roles of compaction and early cementation in the destruction of permeability in carbonate grainstones: a case study from the Paleogene of west-central Florida, USA: *Journal of Sedimentary Research*, v. 72, p. 116-128.

BUDD, D.A., Gaswirth, S.B., and Oliver, W.L., 2002, Quantification of macroscopic subaerial exposure features in carbonate rocks: *Journal of Sedimentary Research*, v. 72, p.917-928.

BUDD, D.A., Pack, S.M., and Fogel, M.L., 2002, The destruction of palaeoclimatic isotopic signals in Pleistocene carbonate soil nodules of Western Australia: *Palaeogeography, Palaeoclimatology, Palaeoecology*, v. 188, p. 249-273.

Hiatt, E.E., and BUDD, D.A., 2003, Extreme paleoceanographic conditions in a Paleozoic oceanic upwelling system: Organic Productivity and widespread phosphogenesis in the Permian Phosphoria Sea, in, Chan, M.A. and Archer, A.W., (eds.), *Extreme Depositional Environments: Mega End Members in Geologic Time: Geological Society of America Special Paper 370*, p. 245-264.

BUDD, D.A., and Vacher, H.L., 2004, Matrix permeability of the Upper Floridian Aquifer: *Hydrogeology Journal*, v. 12, p 531-549.

Pranter, M.J., Hirstius, C.B., and BUDD, D.A., 2005, Scales of lateral petrophysical heterogeneity within dolomite lithofacies as determined from outcrop analogs: Implications for 3-D reservoir modeling: *American Association of Petroleum Geologists Bulletin*, v. 89, p. 645-662.

Pranter, M.J., Zulfiquar, R., and BUDD, D.A., 2006, Reservoir-scale characterization and multiphase fluid-flow modelling of lateral petrophysical heterogeneity within dolomite facies of the Madison Formation, Sheep Canyon and Lysite Mountain, Wyoming, U.S.A.: *Petroleum Geoscience*, v. 12, p. 29-40.

Suzuki, Y. Iryu, I., Yamada, T., Aizawa, S., and BUDD, D.A., 2006, Origin of atoll dolomites distinguished by geochemistry and crystal chemistry: *Sedimentary Geology*, v. 183, p. 181-202.

Gaswirth, S.B., BUDD, D.A., and Crawford, B.R., 2006, Textural and stratigraphic controls on fractured dolomite in a carbonate aquifer system, Ocala Limestone, west-central Florida: *Sedimentary Geology*, v. 184, p. 241-254.

Vacher, H.L., Hutchins, W.C., and BUDD, D.A., 2006, Metaphors and models: the ASR bubble in the Floridan Aquifer: *Groundwater*, v. 44, p. 144-154

BUDD, D.A., Pranter, M.J., and Zulfiquar, R., 2006, Lateral periodic variations in the petrophysical and geochemical properties of dolomites: *Geology*, v. 34, p. 373-376.

Gaswirth, S.B., BUDD, D.A., and Farmer, L.G., 2007, The role and impact of regionally extensive freshwater-seawater mixing zones in the maturation of regional dolomite bodies within the proto Floridan Aquifer: *Sedimentology*, v. 54, p. 1065-1092.

Melzer, S.E., and BUDD, D.A., 2008, Retention of high permeability during shallow burial (300 to 500 m) of carbonate grainstones: *Journal of Sedimentary Research*, v. 78, p. 548-561.

Manzello, D.P., Kleypas, J.A., BUDD, D.A., Eakin, C.M., Glynn, P., and Langdon, C., 2008, Poorly cemented coral reefs of the eastern tropical Pacific: possible insights into reef development in a high CO₂ world: *Proceedings National Academy of Science*, v. 105, p. 10450-10455.

Sweeney, I.J., Chin, K., Hower, J.C., BUDD, D.A., and Wolfe, D.G., 2009, Fossil wood from the Moreno Hill Formation: unique expressions of wood mineralization and implications for the processes of wood preservation: *International Journal of Coal Geology*, v. 79, p. 1-17.

Thyne, G., Tomasso, M., Bywater-Reyes, S., BUDD, D.A., and Reyes, B., 2010, Characterization of porosity and permeability for CO₂ sequestration models in the Mississippian Madison Group, Moxa Arch-LaBarge Platform, southwestern Wyoming: *Rocky Mountain Geology*, v. 45, p. 133-150.

Maliva, R.G., BUDD, D.A., Clayton, E.A., Missimer, T.M., and Dickson, J.A.D., 2011, Insights into the dolomitization process and porosity modification in sucrosic dolomites, Avon Park Formation (Middle Eocene), east-central Florida: *Journal of Sedimentary Research*, v. 81, 218-232.

***Huntington, K.W., BUDD, D.A., Wernicke, B.P., and Eiler, J.M., 2011, Use of clumped-isotope thermometry to constrain temperature of crystallization for diagenetic calcite: *Journal of Sedimentary Research*, v. 81, 656-669. (*recipient of annual Best Paper Award, Journal of Sedimentary Research*)

Wysession, M.E., LaDue, N., BUDD, D.A., Campbell, K., Conklin, M., Kappel, E., Lewis, G., Reynolds, R., Ridky, R.W., Taber, J., Tewksbury, B., and Tuddenham, P., 2012, Developing and Applying a Set of Earth Science Literacy Principles: *Journal of Geoscience Education*, v. 60, p. 95-99.

Wang, Y. and BUDD, D.A., 2012, Stress-induced chemical waves in sediment burial diagenesis: *Nature Communications*, v. 3, article 685, DOI:10.1038/ncomms1684.

Gilbert, L.A., Stempien, J., McConnell, D., BUDD, D.A., Jones, M.H., Knight, C.C., Matheney, R.K., Perkins, D., van der Hoeven Kraft, K.J., and Wirth, K.R., 2012, Not Just “Rocks for Jocks”: Who Are Introductory Geology Students and Why Are They Here?: *Journal of Geoscience Education*, v. 60, p. 360-371.

Frost, E.L., BUDD, D.A., and Kerans, C., 2012, Syndepositional deformation in a high-relief carbonate platform and its effect on early fluid-flow as revealed by dolomite patterns: *Journal of Sedimentary Research*, v. 82, p. 913-932.

BUDD, D.A., Frost, E.L., Huntington, K.W., and Allwardt, P.F., 2013, Syndepositional deformation features in high-relief carbonate platforms: long-lived conduits for diagenetic fluids: *Journal of Sedimentary Research*, v. 83, p. 12-36.

BUDD, D.A., van der Hoeven Kraft, K. J., McConnell, D.A., and Vislova, T., 2013, Characterizing teaching in introductory geology courses: Measuring classroom practices: *Journal of Geoscience Education*, v. 61, p. 461-475.

Manzello, D.P., Enochs, I.C., Bruckner, A., Renaud, P.G., BUDD, D.A., Carlton, R., and Glynn, P.W., 2014, Galápagos coral reef persistence after ENSO warming across an acidification gradient: *Geophysical Research Letters*, v. 41, doi:10.1002/2014GL062501

Barnes, F.S., BUDD, D.A., Lim, M., and Freeman, E.R., 2015, Compressed Air Energy Storage (CAES), *in*, Cabeza, L.F., and Yan, J., eds, *Handbook of Clean Energy Systems, Volume 5 – Energy Storage*: John Wiley & Sons, London, p. 2717-2742.

BUDD, D.A., and Mathias, W.D., 2015, Formation of lateral patterns in rock properties by dolomitization: Evidence from a Miocene reaction front (Bonaire, Netherlands Antilles): *Journal of Sedimentary Research*, v. 85, p. 1082-1101.

Wang, Y., and BUDD, D.A., 2016, Self-organized pattern formation in geochemical systems, *in* Budd, D.A., Hajek, E.A., and Purkis, S., eds., *Autogenic Dynamics and Self-Organization in Sedimentary Systems: SEPM Special Publication 106*, p. 67-82. (published online 10-28-2016, doi:10.2110/sepmsp.106.09)

BUDD, D.A., Hajek, E.A., and Purkis, S.J., eds., 2017, Introduction to autogenic dynamics and self-organization in sedimentary systems, in Budd, D.A., Hajek, E.A., and Purkis, S., eds., *Autogenic Dynamics and Self-Organization in Sedimentary Systems: SEPM Special Publication 106*, p. 1-4.

Alqattan, M.A., and BUDD, D.A., 2017, Dolomite and dolomitization of the Late Permian Khuff-C reservoir in Ghawar Field, Saudi Arabia: *American Association of Petroleum Geologists Bulletin*, v. 101, p. 1715-1745.

BUDD, D.A., and Park, A.J., 2018, Formation of bed-scale spatial patterns in dolomite abundance during early replacive dolomitization: I. Mechanisms and feedbacks revealed by reaction-transport modeling: *Sedimentology*, v. 65: p. 209–234. doi:10.1111/sed.12400

Gold, A., Pendergast, P., Ormand, BUDD, D.A, C., Stempien, J., Stroh, J., Kravitz, K., Quintanilla, A., and Mueller, K., 2018, Spatial skills among undergraduate students – importance of gender, motivation, academic training, and childhood play: *Geosphere*. doi:10.1130/GESO1494.1

Gold, A., Pendergast, P., Ormand, BUDD, D.A, C., Stempien, J., Mueller, K., and Kravitz, K., 2018, Improving spatial thinking skills among undergraduate Geology students through short online training sessions. *International Journal of Science Education*. DOI: 10.1080/09500693.2018.1525621

BUDD, D.A., and Park, A.J., 2019, Bed-scale spatial patterns in dolomite abundance: II. Effect of varied fluid chemistry, flow rate, precursor mineralogy, temperature, textural heterogeneity, nucleation density, and bed geometry: *Sedimentology*, v. 66, p. 2721-2748. DOI-10.1111/sed.12613

Medina, D.A., and BUDD, D.A., 2020, Critical Diagenetic Features Controlling Intergranular Flow Paths and Matrix Permeability in the Codell Sandstone, Northeastern Colorado. *Mountain Geologist*, v. 57, p.95-120.

Petrash. D.A., Bialik, O.R., Staudigel, P, Konhauser, K.O., and, BUDD, D.A., 2021, Biogeochemical reappraisal of the freshwater-seawater mixing zone diagenetic model. *Sedimentology*, v. 68, p. 1797-1830. 1st published online, 2/1/2021.

Simon, R.E., Johnson, S.C., Khatib, O., Raschke, M.R., and BUDD, D.A., 2021, Nanoscale investigation of heterogeneity in oil-filled pores. *Fuel*, v. 300, 120836 (doi.org/10.1016/j.fuel.2021.120836).

IN REVIEW/REVISION/REPERATION

Prince, K., Laya, J. C., Manche, C.J., Jacquemyn, C., BUDD, D.A., Zhan, H., *in preparation*, Current pumping - a new seawater dolomitization model: Evidence from fluid flow modeling and sedimentological analysis *Sedimentology*.

Simon, R.E., BUDD, D.A., Snell, K. A., and Sepulveda, J., *in preparation*, Thermal and diagenetic evolution of the Cretaceous Niobrara Formation, Denver Basin, U.S.A. *Basin Research*

BUDD, D.A., Peterson, C., Ball, W.E., Burt, C.C., and Michaels, J.M.H., *in preparation*, Framework pore systems of a chalk-marl unconventional reservoir, Niobrara Formation, Colorado. *The Mountain Geologist*.

EDITED BOOKS

BUDD, D.A. and Harris, P.M., eds., 1990, Carbonate - Siliciclastic Mixtures: Society of Sedimentary Geology (SEPM), Reprint Series No. 14, 277 p.

BUDD, D.A., Saller, A.H., and Harris, P.M., eds., 1995, Unconformities and porosity in carbonate strata: American Association of Petroleum Geologists, Memoir 63, 313 pp.

BUDD, D.A., Hajek, E., and Purkis, S. eds., 2017, Autogenic Dynamics and Self-Organization in Sedimentary Systems: Society of Sedimentary Geology (SEPM), Tulsa, OK, Special Publication 106, 220 pp.

OTHER PUBLICATIONS

Loucks, R.G. and BUDD, D.A., 1981, Diagenesis and reservoir potential of the Smackover Formation, South Texas: Gulf Coast Association Geological Societies Transactions, v. 31, p. 338-346.

Bebout, D.G., BUDD, D.A., and Schatzinger, R.A., 1981, Depositional and diagenetic history of the Sligo and Hosston Formations (Lower Cretaceous) in South Texas: Univ. of Texas, Bureau Economic Geology, Reports of Investigations No. 109, 70p

BUDD, D.A. and Loucks, R.G., 1981, Smackover and lower Buckner Formations, South Texas: depositional patterns on a Jurassic carbonate ramp: Univ. of Texas, Bureau Economic Geology, Reports of Investigations No. 112, 38p.

BUDD, D.A. and Perkins, R.D., 1982, Endoliths and the depth of the photic zone - Reply: Journal Sedimentary Petrology, v. 52, p. 1334.

Loucks, R.G., Brown, A.A., Achauer, C.W., and BUDD, D.A., 1985, Carbonate gravity-flow sedimentation on low-angle slopes off the Wolfcampian north-west shelf of the Delaware Basin: in, Harris, P.M. and Crevello, P.D. (eds.), Deep-Water Carbonates: Buildups, Turbidites, Debris Flows, and Chalks: Society Economic Paleontologists & Mineralogists, Core Workshop Notes No. 6, p. 56-92.

Noble, R.S., and BUDD, D.A., 1993, Sequence boundary indicators and porosity at the top of the Floridan Aquifer: a high resolution quantitative core analysis, *in*, A. Saller, D.A. BUDD, R. Mitchell, and P.M. Harris, eds., *Unconformities and Porosity Development in Carbonate Strata: Recognition, Controls, & Predictive Strategies*: Proceedings, American Association of Petroleum Geologists Hedberg Conference, July 13-16, 1993, Vail, CO.

BUDD, D.A., 1994, The hydrochemistry of early meteoric diagenesis in a Holocene deposit of biogenic carbonates -- Discussion: Journal of Sedimentary Petrology, p. 412-414.

BUDD, D.A., 1998, Carbonates: Geotimes, v. 43, p. 32-33.

BUDD, D.A., 1999, Carbonates: Geotimes, v. 44, p. 32-33.

BUDD, D.A., and Vacher, H.L., 2002, Facies control on matrix permeability in the Upper Floridan Aquifer, west-central Florida: Implications to diffuse flow, *in* Martin, J.B., Wicks, C.M., and Sasowsky, I.D., eds., *Hydrogeology and Biology of Post-Paleozoic Carbonate Aquifers*: Karst Waters Institute Special Publication No. 7, p. 14-24.

Hirstus, C., Pranter, M., and BUDD, D.A., 2004, Characterization and modeling of multiple scale of lateral petrophysical heterogeneity within dolomite rock fabrics as determined from outcrop analogs, *in*, C. Feazel, A. Byrnes, J. Honefenger, B. Leibrecht, B. Loucks, S. McCants, and A. Saller, eds., *Carbonate Reservoir Characterization and Simulation: From Facies to Flow Units*: Proceedings, AAPG Hedberg Conference, March, 2004, El Paso, Tx.

Park, A.J., BUDD, D.A., Thyne, G., Tuncay, K., and Ortoleva P.J., 2004, Chemical and mechanical disequilibrium in sediments: diagenesis, compaction, and mass transfer, *in*, R. Lander, S. Laubach, J. Olson, J. Welton, and N. Woodward, eds., *Structural Diagenesis: Fundamental Advances and New Applications from a Holistic View of Mechanical and Chemical Processes*: Proceedings, American Association of Petroleum Geologists Hedberg Conference, Feb. 8-11, 2004, Austin, TX.

Katz, D., Sonnenfeld, M., and BUDD, D., 2009, Stratigraphic and diagenetic partitioning, lateral diagenetic reservoir heterogeneity, and tectonic breccias of the Mississippian Madison Limestone, Montana and Wyoming: AAPG Annual Convention Field Trip, Rocky Mountain Section – SEPM, Denver, CO., 152 p.

Florea, L. J., Budd, D.A., and Brinkman, R., 2009, Caves and Karst of West-Central Florida, *in* A.N. Palmer and M. Palmer, eds, *Caves and Karst of the USA*: National Speological Society, Huntsville, AL. p. 189-196.

BUDD, D.A., and Park, A.J., 2011, Bed-scale reactive transport modeling of dolomitization and the emergence of lateral patterns during dolomitization, *in* Engel, A.S., Engel, S.A., Moore, P.J., and DuChene. H., eds., *Carbonate Geochemistry: Reactions and Processes in Aquifers and Reservoirs*: Karst Waters Institute Special Publication No. 16, p. 10-13.

Frost, E.L., BUDD, D., Kerans, C., Huntington, K., and Allwardt, T., 2012. Syndepositional deformation and its effect on fluid-flow through reflux dolomitization, burial, and exhumation. In: Kerans, C., and Bellian, J.A., (eds.), *Digital Geospatial Context for 3-D Source-to-Sink Models: New Insights into the Classic Shelf to Basin System of the Guadalupe and Delaware Mountains*: SEPM Research Conference, Carlsbad, New Mexico, p. 101-108.

Michaels, J. and BUDD, D.A., 2014, Pore systems of the B-chalk zone in the Niobrara Formation, Denver-Julesburg Basin, Colorado: Proceedings, Unconventional Resources Technology Conference (URTEC), Denver, CO, August 24-27, 2014, 5 pp (URTEC paper 1922247).

Murphy, N.W., Jakowsky, B.M., Mellon, M.T., and Budd, D.A., 2014, Thermophysical properties of four terrestrial indurated materials and their implication for Martian duricrusts: 45th Lunar and Planetary Science Conference, (Lunar and Planetary Science XL), March 21-27, 2014, The Woodlands, Texas. <https://www.hou.usra.edu/meetings/lpsc2014/pdf/2690.pdf>

BUDD, D.A., 2016, Making geologic sense of pore-system characterizations in carbonate-rich mudrocks: examples from the Niobrara Formation, *in*, Houston Geological Society, Applied Geoscience Conference Proceedings: Integrated Approaches to Unconventional Reservoir Assessment and Optimization, March 8-9, 2016, 10 pp.

PRESENTATION ABSTRACTS (*graduate student, **undergraduate student)

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102. Bahadori, A., Rasbury, T., BUDD, D.A., Kerans, C., Frost, N., Lucia, J.F., Bishop, J.W., and Ward, B.W., 2016, Laser Ablation U-Pb Dating of Carbonates: Permian Basin, Texas and New Mexico, USA: International Association of Sedimentologists, Dolomieu Conference on Carbonate Platforms and Dolomite, October 4-7, 2016.
103. Gold, A., Pendergast, P., Stempien, J., Ormand, C., BUDD, D.A., Mueller, K., and *Kravitz, K., 2016, The importance of spatial reasoning skills in undergraduate Geology students and the effect of weekly spatial skill training – with a specific focus on the gender gap: Geological Society of America, Abstracts with Program, v. 48, no. 7.
104. *Simon, R., and BUDD, D.A., 2017, Understanding the Scale of Calcite Mass Transfer in a Nanoporous Reservoir, Cretaceous Niobrara Formation, Denver Basin, Colorado: American Association of Petroleum Geologists Annual Convention Program, v. 26.
105. *Simon, R., and BUDD, D.A., 2017, Diagenetic controls on the spatial variability of carbonate pore systems within the Niobrara chalk-marl reservoirs of the Denver-Julesburg Basin, Colorado: Proceedings, 2017 Mountjoy Research Conference, Society for Sedimentary Geology, Tulsa, OK.
106. *Simon, R., Khatib, O., BUDD, D.A., and Raschke, M., 2018, *In-situ* chemical analysis of hydrocarbons at a nanopore scale, Cretaceous Niobrara Formation, Denver Basin, Colorado: American Association of Petroleum Geologists Annual Convention Program, v. 27.
107. *Simon, R., and BUDD, D.A., 2019, Chalk full of surprises: Colorado's Niobrara Formation as a global outlier in Cretaceous chalk reservoir diagenesis? Rocky Mountain SEPM Student Poster Symposium, April 3, 2019, Denver, CO.
108. BUDD, D.A., AND *Medina, D.A., 2019, Peripheral grain replacements by clays control matrix permeability in the Codell Sandstone, northeastern Colorado. Rocky Mountain Section AAPG, Annual Meeting, Cheyenne, WY, Sept. 15-19, 2019.

109. *Simon, R., and BUDD, D.A., 2019, Isotopic evolution of the Niobrara Chalk and the implications to water mass mixing in the Cretaceous Western Interior Seaway. Rocky Mountain Section AAPG, Annual Meeting, Cheyenne, WY, Sept. 15-19, 2019.

110. *Simon, R., Johnson, S.C., Khatib, O., Raschke, M.B., and Budd, D.A., 2019, *In-situ* chemical analysis of hydrocarbons at a nanopore scale, Cretaceous Niobrara Formation, Denver Basin, Colorado: Geological Society of America, Abstracts with Program, v. 51, no. 7.

111. *Eckland, A., Budd, D.A., Arthurs, L., *Harrison, L., and *Wernicke L., 2020, The Spring 2020 transition from in-person to remote teaching & learning in Geological Sciences, CU-Boulder: An analysis of instructors' and students' experiences: American Geophysical Union, Joint Assembly 2020.

MS THESES DIRECTED

Timothy Garfield, 1990	Reed A. Johnson, 1990	Theodore Mowers, 1993
Brenton Johnson, 1994	Robinson Noble, 1994	Nicholas Loizeaux, 1995
Kevin A. Dumont, MS 2000	Suellen Metzler, 2004	Donna Beares, 2004
Marisol Ortiz, MS 2009	Gina Bribesca, 2010	Whitney Mathias, 2011
Robert Jaecks, MS 2012	Julian Michaels, 2014	Mohammed Al-Qattan, 2014
Connor Burt, MS 2015	Ellen Wilcox, 2015	Wesley Ball, 2015
Craig Peterson, 2017	Daniel Medina, 2017	

PhD THESES DIRECTED

Ursula Hammes, 1992	William J. Clark, 1994	Scott W. Tinker, 1996
Eric E. Hiatt, 1997	Hernan Santos, 1999	Stephanie Gaswirth, 2004
Adel Aboketf, 2013	Rebekah Simon, 2020	

TEACHING (*denotes courses taught recently)

FYSM 1000 - Our Geologic Dependencies (freshman seminar, non-majors)
* GEOL 1010 - Introduction to Geology I – Physical Geology
GEOL 1020 - Introduction to Geology II – History of the Earth
GEOL 1150 – Water, Energy, and the Environment
GEOL 2100 - Environmental Geology (non-majors)
GEOL 2700 - Introduction to Field Geology
* GEOL 3430 - Sedimentology and Stratigraphy
GEOL 5020 – Physics, Chemistry, and Biology of Sedimentary Systems
GEOL 5565 – Carbonate Sedimentary Environments
GEOL 5700 – Teaching and Learning in the Geosciences
* GEOL 6310 – Sedimentary Petrography and Diagenesis

PROFESSIONAL SERVICE

General

Co-Convener, Cutting Edge Workshop – Preparing for an Academic Career (July 2013)
Co-Convener, NSF End-User EarthCube Workshop for Sedimentary Geology (March 2013)
American Geological Institute Committee on Academic Classification & Certification (2012-present)
National Steering Committee, NSF Earth Science Literacy Initiative (2008-2009)
National Science Foundation, Division of Undergraduate Education, CCLI Panel (1999)
National Science Foundation, Division of Undergraduate Education, CCD/UFE Panel (1997)

Society of Sedimentary Geology (SEPM)

Technical Program Committee, Mountjoy Research Conference (June, 2017)
Chair, Nominating Committee (2015)

Co-Convener, Autogenic Dynamics in Sedimentary Systems, SEPM Research Conference, August 2014
Chair, Twenhofel Medal Selection Committee (2014)
President-elect/President, April 2011- May 2013
SEPM Vice Chair, 2009 AAPG/SEPM Annual Meeting, Denver, CO
Co-Editor, Journal of Sedimentary Research (April, 2000 to April 2004)
Co-Chair, Student Sessions, Annual Meeting, Salt Lake City (2003) and Dallas (2004)
Technical Program Committee, Research Conference on Fluid Flow in Carbonate Rocks (Sept., 1998)
Sedimentology Councilor, Executive Council (1993-95)
Chair, Pettijohn Medal Selection Committee (1993-1995)
Associate Editor, Journal Sedimentary Petrology (1992-94)
New Programs Committee (1988-89; 1993-94)
Publications Committee (1985-88)

Geological Society of America

General co-Chair, 1999 Geological Society of America Annual Meeting, Oct. 24-28, Denver, CO

American Association of Petroleum Geologists

Field Trip Co-Leader, *Stratigraphic and Diagenetic Partitioning, Lateral Reservoir Heterogeneity, and Tectonic Breccias of the Madison Limestone, Montana and Wyoming*, 2009 ACE
Co-Chair, Early Diagenesis Session, AAPG/SEPM National Meeting, Houston, TX, 2002
Poster Sessions Co-Chair, AAPG/SEPM National Meeting, Denver, 1994
Co-Convener, AAPG Hedberg Research Conference, July, 1993

SERVICE TO THE UNIVERSITY

Departmental (since 2005)

Salary Equity Committee (2019- 2022)
Chair, Trower Primary Unit Evaluation Committee (Fall, 2021)
Mahan Primary Unit Evaluation Committee (Fall, 2021)
Chair, Arthurs Primary Unit Evaluation Committee (Fall, 2019, Fall 2020)
Benson Petroleum Geologist Search Committee (2019-2020)
Curriculum Assessment Committee (2017-2020)
Tutoring Room, Faculty Director (2012-2020)
Ad Hoc Committee for Assessing the Spring 2020 transition to remote teaching
Ad Hoc Rock Lab Committee (2017-2020; Chair 2019-2020)
Undergraduate Curriculum Committee (2015-2016, Sp 2017, 2017-2019)
Snell Primary Unit Evaluation Committee (Fall, 2018)
Departmental Executive Committee (2005-2006; 2006-2007; 2007-2008; 2012-2013, 2015-2016, 2017-2018)
Chair, Sedimentologist Search Committee (2016-2017)
Mahan Primary Unit Evaluation Committee (Fall, 2015)
Chair, Mueller Primary Unit Evaluation Committee (Fall, 2014)
Graduate Curriculum Committee (2013-2015)
Graduate Admission & Financial Aid Committee (2004-2005; 2005-2006 (chair); 2011-2012; 2013-2014)
EMARC Interim Director (2012-2013)
ARPAC Strategic Plan Committee Chair (2011)
Coordinator, Science Education Initiative (2006-2011)
Chair, Tilton Primary Unit Evaluation Committee (Fall, 2010)
Chair, Eberle Primary Unit Evaluation Committee (Fall, 2009)
Chair, Sloan Minority PhD recruitment (2001-2006)
Chair, Aqueous Geochemist Search Committee (2004-2005)

College & Campus (since 2000)

Office of Undergraduate Education, First Year Experience Advisory Committee (2018-2020)

Office of Undergraduate Education, Foundations of Excellence First-Year Experience Self Study, Faculty Committee Chair, (2017-2018)

ASSETT Faculty Fellow, Sp 2017, 2017-2018

Geosciences & Environmental Sciences Review Panel, Innovative Seed Grant Program (spring 2012)

Advisory Board, Science Education Initiative (2006-2011)

Search Committee, Geotechnology & Geomechanics, Dept. Civil, Environmental, & Architectural Engineering (2009-2010)

A&S Council Executive Committee (2002-2003)

A&S Grievance Committee (2000-2002, Chair, 2002-2003)

A&S Council (2000-2003)

Chair, ad hoc review committee of the Mountain Research Station (Spring, 2002)