

List of Publications

[Google Scholar](#) h-index = 39 (as of December 27, 2021), orcid.org/0000-0001-5374-6787, Researcher ID: A-5356-2010

BOOKS

Zhu C and Anderson GM (2002) *Environmental Applications of Geochemical Modeling*. Cambridge University Press, London, 304 pp. [weblink](#)

Zhu C, Anderson GM, Lu P (2017) *Theories and Applications of Geochemical Modeling*. Science Publication Co., Beijing, China, ISBN 978-7-03-053048-6, 351 pp (in Chinese).

REFEREED JOURNAL PUBLICATIONS

([‡]student or post-doc authors supervised by Zhu; * corresponding author when not the first author)

In Review:

Majeske N, Zhang XS, Sabaj MM, Gong L, **Zhu C**, Azad A. Inductive Predictions of Hydrologic Events Using a Long Short-Term Memory Network and the Soil and Water Assessment Tool. *Journal of Environmental Modelling and Software*, submitted August 19, 2021

Lu P, Zhang GR, Huang Y, Apps J, and **Zhu C**. Dawsonite as a temporary but effective sink for geological carbon storage " *International Journal of Greenhouse Gas Control*. Submitted on August 21, 2021.

Published or Available Online:

[86] Toupal J, Vann DR, Zhu C, Gieré R (2022) Geochemistry of surface waters around four hard-rock lithium deposits in Central Europe. *Journal of Geochemical Exploration* v234, 106937, <https://doi.org/10.1016/j.gexplo.2021.106937>.

[85] [‡]Kang JT, Bracco JN, Rimstidt JR, Zhu GH, Huang F, ***Zhu C** (2022). Ba attachment and detachment fluxes to and from barite surfaces in ¹³⁷Ba-enriched solutions with variable [Ba²⁺]/[SO₄²⁻] ratios near solubility equilibrium. *Geochimica et Cosmochimica Acta*. v317, 180-200, doi.org/10.1016/j.gca.2021.11.008. Acknowledged Haydn Murray chair endowment.

[84] Lu P, Zhang GR, Apps J, ***Zhu C**. (2022) Comparison of thermodynamic data files for PHREEQC. *Earth-Science Reviews*, <https://doi.org/10.1016/j.earscirev.2021.103888>. Acknowledged NSF-1926734, Murray chair endowment, FRSP-ER.

[83] Lu P, Luo P, Wei W, **Zhu C** (2022) Effects of gas saturation and reservoir heterogeneity on thermochemical sulfate reduction reaction in a dolomite reservoir, Puguang Gas Field, China. *Marine and Petroleum Geology*, v135, 105403, doi.org/10.1016/j.marpetgeo.2021.105402. Acknowledged PRF grant 57727-ND2.

[82] Zhang GR, *Lu P, Huang Y, Li GH, ***Zhu C** (2021) Investigation of mineral trapping processes based on coherent front propagation theory: A dawsonite-rich natural CO₂ reservoir as an example. *International Journal of Greenhouse Gas Control* v110, 103400, <https://doi.org/10.1016/j.ijggc.2021.103400>.

- [81] **Zhu C**, ‡Zhang YL, Rimstidt JD, Gong L, †Burkhart, JA, Chen KY, Yuan HL (2021) Testing hypotheses of albite dissolution mechanisms at near-equilibrium using Si isotope tracers. *Geochimica et Cosmochimica Acta*. v303, 15-37. doi.org/10.1016/j.gca.2021.03.023. Acknowledged NSF-1926734, Murray chair endowment, FRSP-ER.
- [80] Majeske N, †Abesh B, **Zhu C**, Azad A. (2021) Inductive Predictions of Extreme Hydrologic Events in the Wabash River Watershed. In *Proceedings of 34th Conference on Neural Information Processing Systems (NeurIPS 2020) Vancouver, Canada*. (In this discipline, conference proceeding papers are peer-reviewed and have the same standing as journal articles). [Web link](#).
- [79] Lu P, Luo P, Zhang GR, Zhang S, ***Zhu C** (2020). A Mineral-Water-Gas Interaction Model of pCO₂ as a Function of Temperature in Sedimentary Basins. *Chemical Geology*. v.558, doi.org/10.1016/j.chemgeo.2020.119868, Acknowledged PRF grant 57727-ND2.
- [78] Zhang GR, Lu P, †Zhang YL, †Tu K, ***Zhu C** (2020) SupPHREEQC: A program to generate customized PHREEQC thermodynamic database based on Supcrtbl. *Computers & Geosciences*. v143. doi.org/10.1016/j.cageo.2020.104560. Acknowledged NSF-1926734, OVPR, Murray chair endowment, PRF grant 57727-ND2.
- [77] †Dierauer J, **Zhu C**, Gong L, Walsh A, Pamidighantam S, Wang J, Christie M, and Abeysinghe E (2020) FutureWater Indiana: A science gateway for spatiotemporal modeling of water in Wabash basin with a focus on climate change. In *Proceedings of CATCH THE WAVE AT PEARC20: Practice and Experience in Advanced Research Computing (PEARC '20)*. ACM, New York, NY, USA, 252-261. DOI: [10.1145/3311790.3396651](https://doi.org/10.1145/3311790.3396651). With acknowledgments to PfEC. (In this discipline, conference proceeding papers are peer-reviewed and have the same standing as journal articles).
- [76] †Wang JR, Liu GM, ***Zhu C** (2020) Evaluating precipitation products for hydrologic modeling over a large river basin in the Midwestern USA. *Hydrological Science Journal, Bulletin of International Association of Hydrologic Science*. v65(7), 1221-1238. [doi:10.1080/02626667.2020.1737868](https://doi.org/10.1080/02626667.2020.1737868). Acknowledged PfEC.
- [75] Barna JM, Fryar AE, Cao L, Currens BJ, Peng T, **Zhu C** (2020) Variability in Groundwater Flow and Chemistry in the Houzhai Karst Basin, Guizhou Province, China. *Environmental and Engineering Geoscience* v26(3), 273-289. <https://doi.org/10.2113/EEG-2306>.
- [74] †Dierauer JR, ***Zhu C**. (2020) Drought in the twenty-first century in a water-rich region: Modeling study of the Wabash River Watershed, USA. *Water*. v12(1), #181, [doi:10.3390/w12010181](https://doi.org/10.3390/w12010181). Acknowledged ERI/PfEC.
- [73] **Zhu C**, Rimstidt JD, †Zhang YL, †Kang JT, Schott J, Yuan HL (2020) Decoupling feldspar dissolution and precipitation rates at near-equilibrium with Si isotope tracers: Implications for modeling silicate weathering. *Geochimica et Cosmochimica Acta*. v271, 132-153. DOI: [10.1016/j.gca.2019.12.024](https://doi.org/10.1016/j.gca.2019.12.024). Acknowledged NSF-1926734, OVPR
- [72] Gong L, Rimstidt JD†, †Zhang YL, Chen KY, ***Zhu C** (2019) Unidirectional kaolinite dissolution rates at near-equilibrium and near-neutral pH conditions. *Applied Clay Science* v182, doi.org/10.1016/j.clay.2019.105284; acknowledged NSF-1926734, OVPR
- [71] †Zhang YL, Gong L, Chen KY, †Burkhart J, Yuan HL, ***Zhu C** (2020) A method for Si isotope tracer kinetics experiments: Using Q-ICP-MS to obtain ²⁹Si/²⁸Si ratios in aqueous solutions.

Chemical Geology v531, [Doi: 10.1016/j.chemgeo.2019.119337](https://doi.org/10.1016/j.chemgeo.2019.119337); acknowledged NSF-1926734, OVPR

- [70] ‡Zhang YL, ‡Hu B, Teng YG, *Zhu C (2019) A library of BASIC scripts of reaction rates for geochemical modeling using PHREEQC. *Computers & Geosciences*, v133, doi.org/10.1016/j.cageo.2019.104316; acknowledged NSF-1926734, OVPR
- [69] ‡Zhang YL, Rimstidt JD, Huang Y, *Zhu C (2019) Kyanite far from equilibrium dissolution rate at 0–22 °C and pH of 3.5–7.5. *Acta Geochimica* 38: 1-9. Acknowledged NSF-1225733 and IU. [Web link](#).
- [68] ‡Hu B, Teng YG, ‡Zhang YL, *Zhu C (2019) Review: The projected hydrological cycle under the scenario of 936 ppm CO₂ in 2100. *Hydrogeology Journal*, 27(1): 31-53, [DOI 10.1007/s10040-018-1844-9](https://doi.org/10.1007/s10040-018-1844-9); acknowledged PfEC/ERI.
- [67] ‡Zhang GR, Lu P, Luo P, Sonnenthal E, Huang Y, *Zhu C (2019) Effects of natural gas acidic components on local porosity generation in a carbonate reservoir: Insights from reactive transport modeling. *AAPG Bulletin* 103(12): 2975-3001, <https://doi.org/10.1306/04151917422> Acknowledged PRF grant 57727-ND2
- [66] Teng, YG, ‡Hu B, Zheng J, Wang JS, Zhai YZ, Zhu C (2018) Water quality responses to the interaction between surface water and groundwater along the Songhua River, NE China. *Hydrogeology Journal*, 26(5): 1591-1607. <https://doi.org/10.1007/s10040-018-1738-x>
- [65] ‡Zhang GR, ‡Kang JT, Wang TX, *Zhu C (2017) Review and outlook for agromineral research in agriculture and climate mitigation. *Soil Research*. 56(2): 113-122, <https://doi.org/10.1071/SR17157>.
- [64] Rimstidt, JD, ‡Zhang Y, *Zhu C (2016) Rate equations for sodium catalyzed amorphous silica dissolution. *Geochimica et Cosmochimica Acta* 195: 120-125. doi.org/10.1016/j.gca.2015.07.030
- [63] Zhu C, ‡Liu ZY, ‡Wang C, ‡Schaefer A, ‡Lu P, ‡Zhang GR, ‡Zhang YL, Georg RB, Rimstidt JD, Yuan HL (2016) Measuring silicate mineral dissolution rates using Si isotope doping. *Chemical Geology*, 445: 146-163, [doi:10.1016/j.chemgeo.2016.02.027](https://doi.org/10.1016/j.chemgeo.2016.02.027)
- [62] ‡Zimmer K, ‡Zhang YL, ‡Lu P, ‡Chen YY, ‡Zhang GR, *Zhu C (2016) SUPCRTBL: A revised and extended thermodynamic dataset and software package of SUPCRT92. *Computers & Geosciences* 90: 97-111, [doi:10.1016/j.cageo.2016.02.013](https://doi.org/10.1016/j.cageo.2016.02.013). EAR-1225733
- [61] ‡Zhang GR, ‡Lu P, ‡Zhang YL, Wei XM, *Zhu C (2016) Impacts of mineral reaction kinetics and regional groundwater flow on long-term CO₂ fate at Sleipner. *Energy & Fuel* 30(5): 4159-4180, [doi: 10.1021/acs.energyfuels.5b02556](https://doi.org/10.1021/acs.energyfuels.5b02556)
- [60] He HT, Zhang, ST, Zhu C, Liu Y (2016) Equilibrium and kinetic Si isotope fractionation factors and their implications for Si isotope distributions in the Earth's surface environments. *Acta Geochimica* 35(1), 15-24, [doi: 10.1007/s11631-015-0079-x](https://doi.org/10.1007/s11631-015-0079-x).
- [59] ‡Liu ZY, ‡Zhang YL, Yuan HL, Rimstidt JD, *Zhu C (2016) A stable isotope doping method to test the range of applicability of detailed balance. *Geochemical Perspective Letters* 2(1): 78-86, [doi: 10.7185/78_geochemlet.1608](https://doi.org/10.7185/78_geochemlet.1608)
- [58] Yan W, Fan TL, Wang HY, Zhu C, Gao ZQ, Meng X, Sun YZ, Yang F (2017) Micropaleontology and paleoclimate during the early Cretaceous in the Lishu depression, Songliao Basin, Northeast China. *Geoscience Frontiers* 8(1), 93-106. <https://doi.org/10.1016/j.gsf.2015.12.005>

- [57] †Zhang GR, †Peng L, †Zhang YL, Wei XM, ***Zhu C** (2015) Effects of rate law formulation on predicting CO₂ sequestration in sandstone formations. *International Journal of Energy Research* 39(14): 1890-1908, [doi: 10.1002/er.3374](https://doi.org/10.1002/er.3374).
- [56] Dasgupta S, Siegel DI, **Zhu C**, Chanton J, Glaser PH (2015) Geochemical mixing in peatland waters: The role of organic acids. *Wetlands* 35(3): 567-575, [doi: 10.1007/-015-06462](https://doi.org/10.1007/-015-06462).
- [55] †Lu P, Oelkers EH, †Konishi H, ***Zhu C** (2015) Coupled Alkali Feldspar Dissolution and Secondary Mineral Precipitation in Batch Systems: 5. Results of K-feldspar hydrolysis experiments. *Acta Geochimica* 34(1): 1-12, [doi: 10.1007/s11631-014-0029-z](https://doi.org/10.1007/s11631-014-0029-z)
- [54] **Zhu C**, †Zhang GR, †Lu P, †Meng LF, Ji X (2015) Benchmark modeling of the Sleipner CO₂ plume: Calibration to seismic data for the uppermost layer and model sensitivity analysis. *The International Journal of Greenhouse Gas Control* 43: 233-246, [doi: 10.1016/j.ijggc.2014.12.016](https://doi.org/10.1016/j.ijggc.2014.12.016)
- [53] Gruber C, **Zhu C**, Georg, RB, Zakon J, Ganor J (2014) Resolving the gap between laboratory and field rates of feldspar weathering. *Geochimica et Cosmochimica Acta* 147: 90–106, <https://doi.org/10.1016/j.gca.2014.10.013>.
- [52] Gruber C, Harpaz L, **Zhu C**, Bullen TD, Ganor J (2013) A new approach for measuring dissolution rates of silicate minerals by using silicon isotope. *Geochimica et Cosmochimica Acta* 104: 261-280, <https://doi.org/10.1016/j.gca.2012.11.022>.
- [51] †Lu P, Fu Q, Seyfried Jr. WE, Jones K, and ***Zhu C** (2013) Coupled alkali feldspar dissolution and secondary mineral precipitation in batch systems: 2. Effects of CO₂ and implications for carbon sequestration. *Applied Geochemistry* 30: 75-90, [doi: 10.1016/j.apgeochem.2012.04.005](https://doi.org/10.1016/j.apgeochem.2012.04.005).
- [50] Ji X, **Zhu C** (2013) Predicting possible effects of H₂S impurity on CO₂ transportation and geological storage. *Environmental Science & Technology* 47: 55-62, <https://doi.org/10.1021/es301292n>.
- [49] Ji X, **Zhu C** (2012) A SAFT Equation of State for the Quaternary H₂S-CO₂-H₂O-NaCl system. *Geochimica et Cosmochimica Acta* 91: 40–59, [doi: 10.1016/j.gca.2012.05.023](https://doi.org/10.1016/j.gca.2012.05.023).
- [48] †Liu Y, †Lu P, Griffith C, Soong Y, Hedges SW, Hellevang H, **Zhu C** (2012) CO₂-caprock-brine interaction: Reactivity experiments on Eau Claire Shale and a review of literature. *The International Journal of Greenhouse Gas Control* 7: 153–167, [https://doi: 10.1016/j.ijggc.2012.01.012](https://doi.org/10.1016/j.ijggc.2012.01.012).
- [47] **Zhu C**, Rehrey CG, Treadwell B, Johnson CC (2012) Looking Back to Move Ahead: How Students Learn Deep Geological Time by Predicting Future Environmental Impacts. *Journal of College Science Teaching - A peer-reviewed journal published by the National Science Teachers Association* 41(3): 61-66. [Weblink](#). in ERIC (Education Resources Information Center)
- [46] †Lu P, Nuhfer NT, Kelly S, Li Q, Konishi H, Elswick E, ***Zhu C** (2011) Pb²⁺ coprecipitation with iron oxyhydroxide nano-particles. *Geochimica et Cosmochimica Acta* 75: 4547-4561, [doi:10.1016/j.gca.2011.05.035](https://doi.org/10.1016/j.gca.2011.05.035).
- [45] **Zhu C** and Schwartz FW (2011) Hydrogeochemical processes and their controls on water quality and water management. *Elements* 7(3): 169-174, [doi: 10.2113/gselements.7.3.169](https://doi.org/10.2113/gselements.7.3.169)
- [44] Oelkers OH, Hering J, **Zhu C** (2011) Water: Is there a global crisis. *Elements* 7(3): 157-162, [doi: 10.2113/gselements.7.3.157](https://doi.org/10.2113/gselements.7.3.157)
- [43] Su W, Zhang H, Hu R, Ge X, Xia B, †Chen Y, **Zhu C** (2011) Mineralogy and geochemistry of gold-bearing arsenian pyrite from the Shuiyindong Carlin-type gold deposit, Guizhou, China: Implications for gold depositional processes. *Mineralium Deposita* 47(6): 653–662, [doi: 10.1007/s00126-011-0328-9](https://doi.org/10.1007/s00126-011-0328-9).

- [42] Pham VTH, †Lu P, Aagaard P, **Zhu C**, Hellevang H (2011) On the potential of CO₂-water-rock interactions for CO₂ storage using a modified kinetic model. *The International Journal of Greenhouse Gas Control* 5(4): 1002-1015, doi:10.1016/j.ijggc.2010.12.002.
- [41] †Liu Y, †Lu P, **Zhu C**, Xiao Y (2011) Coupled reactive transport modeling of CO₂ Sequestration in the Mt. Simon Sandstone Formation, Midwest U.S.A. *The International Journal of Greenhouse Gas Control* 5(2): 294-307, doi: 10.1016/j.ijggc.2010.08.008.
- [40] †Lu P, Fu Q, Seyfried WE Jr, †Hereford AG, ***Zhu C** (2011) Navajo Sandstone-Brine-CO₂ interaction: Implications for Geological Carbon Sequestration. *Environmental Earth Sciences* 62(1): 101-118, doi: 10.1007/s12665-010-0501-y.
- [39] †Lu P and ***Zhu C** (2011) Arsenic Eh-pH Diagrams at 25 °C and 1 bar. *Environmental Earth Sciences* 62(8): 1673 – 1683, doi: 10.1007/s12665-010-0652-x.
- [38] Ji X and **Zhu C** (2010) Modelling of phase equilibria in the H₂S-H₂O system with statistical associating fluid theory. *Energy & Fuels* 24: 6208-6213, doi:10.1021/ef100847j.
- [37] McKnight-Whitford A, Chen B, Naranmandura H, **Zhu C**, Le XC (2010) New Method and Detection of High Concentrations of Monomethylarsonous Acid Detected in Contaminated Groundwater. *Environmental Science & Technology* 44: 5875-5880, doi: 10.1021/es100273b.
- [36] **Zhu C** and Kipfer R (2010) Noble Gas Evidence for the Passing of the Southern Branch of Jet Streams in Late Pleistocene over Black Mesa, Arizona, USA. *Geology* 38 (1): 83-86, doi: 10.1130/G30369.1
- [35] †Liu Y, Le C, McKnight-Whitford A, Xia Y, Wu F, Elswick E, Johnson CC, ***Zhu C** (2010) Antimony Speciation and Contamination of Waters in Xikuangshan Sb Mining and Smelting Area, China. *Environmental Geochemistry and Health* 32(5): 401-414, doi: 10.1007/s10653-010-9284-z.
- [34] **Zhu C**, †Lu P, †Zheng Z, Ganor J (2010) Coupled Alkali Feldspar Dissolution and Secondary Mineral Precipitation in Batch Systems: 4. Numerical modeling of reaction path. *Geochimica et Cosmochimica Acta* 74: 3963-3983, doi: 10.1016/j.gca.2010.04.012.
- [33] **Zhu C** and †Lu P (2009) Alkali Feldspar Dissolution and Secondary Mineral Precipitation in Batch Systems: 3. Saturation States of Product Minerals and Reaction Paths. *Geochimica et Cosmochimica Acta* 73: 3171-3120, doi: 10.1016/j.gca.2009.03.015.
- [32] **Zhu C** (2009) Geochemical modeling of reaction paths and networks. In: Oelkers EH and Schott J (eds) *Thermodynamics and Kinetics of Water-rock Interactions*, Review in Mineralogy and Geochemistry v70: Mineralogical Society of America, pp 533-569, doi: 0.2138/rmg.2009.70.12.
- [31] Georg RB, **Zhu C**, Reynolds RC, Halliday AN (2009) Stable silicon isotopes of groundwater, feldspars, and clay coatings in the Navajo Sandstone aquifer, Black Mesa, Arizona, USA. *Geochimica et Cosmochimica Acta* 73: 2229-2241, doi: 10.1016/j.gca.2009.02.005
- [30] Fu Q, P †Lu, †Konishi H, Dilmore R, Xu H, Seyfried W E Jr, **Zhu C** (2009) Coupled alkali-feldspar Dissolution and Secondary Mineral Precipitation in Batch Systems: 1. New Experimental Data at 200°C and 300 bars. *Chemical Geology* 91(3): 955-964, doi: 10.1016/j.chemgeo.2008.09.014
- [29] †Yang C, Samper J, **Zhu C**, Jones SB (2009), Numerical modeling of the development of a preferentially leached layer on feldspar surfaces. *Environmental Geology* 57: 1639-1647, doi: 10.1007/s00254-008-1445-3.

- [28] Dilmore R, †Lu P, Soong Y, Allen D, Hedges SW, Fu JK, Dobbs C, Degalbo A, **Zhu C** (2008) Sequestration of CO₂ in mixtures of bauxite residue and saline wastewater. *Energy & Fuels* 22(1): 343-353, doi: [10.1021/ef7003943](https://doi.org/10.1021/ef7003943)
- [27] Duan Z, Sun R, Liu R, **Zhu C** (2007) Accurate thermodynamic model for H₂S solubility in pure water and brines. *Energy & Fuels* 21: 2056-2065, doi: [10.1021/ef070040p](https://doi.org/10.1021/ef070040p)
- [26] Hu J, Duan Z, **Zhu C**, Chou I (2007) PVTx properties of the CO₂-H₂O and CO₂-H₂O-NaCl systems below 647K: Assessment of experimental data and thermodynamic models. *Chemical Geology* 238: 249-267, doi: [10.1016/j.chemgeo.2006.11.011](https://doi.org/10.1016/j.chemgeo.2006.11.011)
- [25] †Hereford AG, Keating E, Guthrie G, ***Zhu C** (2007) Reactions and reaction rates in the regional aquifer beneath Pajarito Plateau, north-central New Mexico. *Environmental Geology* 52(5): 965-977, doi: [10.1007/s00254-006-0539-z](https://doi.org/10.1007/s00254-006-0539-z).
- [24] †Yang C, Park M, **Zhu C** (2007) A Method for Estimating In Situ Reaction Rates from Push-Pull Experiments for Arbitrary Solute Background Concentrations. *Environmental Geosciences and Engineering* 13(4): 345-354. [Weblink](#)
- [23] Ganor J, †Lu P, †Zheng Z, and **Zhu C** (2007) Bridging the gap between laboratory measurements and field estimations of weathering using simple calculations. *Environmental Geology* 53 (3): 599-610, doi: [10.1007/s00254-007-0675-0](https://doi.org/10.1007/s00254-007-0675-0).
- [22] **Zhu C**, Veblen DR, Blum AE, Chipera S (2006) Naturally weathered feldspar surfaces in the Navajo Sandstone aquifer, Black Mesa, Arizona: Electron microscopic characterization. *Geochimica et Cosmochimica Acta* 70(18): 4600-4616, doi: [10.1016/j.gca.2006.07.013](https://doi.org/10.1016/j.gca.2006.07.013).
- [21] Stubbs JE, Elbert DC, Veblen DR, **Zhu C** (2006) Electron microbeam investigation of uranium-contaminated soils from Oak Ridge, TN, USA. *Environmental Science & Technology* 40: 2108-2113, doi: [10.1021/es0518676](https://doi.org/10.1021/es0518676)
- [20] †Strazisar BR, ***Zhu C**, Hedges SW (2006) Preliminary modeling of the long-term fate of CO₂ following injection into deep geological formations. *Environmental Geosciences* 13(1): 1-15, doi: [10.1306/eg.09280404023](https://doi.org/10.1306/eg.09280404023)
- [19] Duan Z, Sun R, **Zhu C**, Chou I (2006) An improved model for the calculation of CO₂ solubility in aqueous solutions containing Na⁺, K⁺, Ca²⁺, Mg²⁺, Cl⁻, and SO₄²⁻. *Marine Chemistry* 98: 131-139, doi: [10.1016/j.marchem.2005.09.001](https://doi.org/10.1016/j.marchem.2005.09.001)
- [18] **Zhu C** (2005) In situ feldspar dissolution rates in an aquifer. *Geochimica et Cosmochimica Acta* 69(6): 1435-1453, doi: [10.1016/j.gca.2004.09.005](https://doi.org/10.1016/j.gca.2004.09.005)
- [17] †Martin S, ***Zhu C**, Rule J, Nuhfer NT, Ford R, Hedges S, Yee S (2005) A high resolution TEM-AEM, pH titration, and modeling study of Zn²⁺ coprecipitation with ferrihydrite. *Geochimica et Cosmochimica Acta* 69(6): 1543-1553, doi: [10.1016/j.gca.2004.08.032](https://doi.org/10.1016/j.gca.2004.08.032)
- [16] **Zhu C** (2004) Coprecipitation in the barite isostructural family: 1. Binary mixing properties. *Geochimica et Cosmochimica Acta* 68(16): 3327-3337, doi: [10.1016/j.gca.2003.10.014](https://doi.org/10.1016/j.gca.2003.10.014)
- [15] **Zhu C** (2004) Coprecipitation in the barite isostructural family: 2. Numerical simulations of precipitation kinetics and reactive transport. *Geochimica et Cosmochimica Acta* 68(16): 3339-3349, doi: [10.1016/j.gca.2003.10.013](https://doi.org/10.1016/j.gca.2003.10.013)
- [14] **Zhu C**, Winterle JR, †Love EI (2003) Late Pleistocene and Holocene recharge rates from the chloride mass balance method and chloride-36 data. *Water Resources Research* 39(8): 1182, doi: [10.1029/2003WR001987](https://doi.org/10.1029/2003WR001987)
- [13] **Zhu C** (2003) A case against K_d-based transport model: Natural attenuation at a mill tailings site. *Computers & Geosciences* 29: 351-359, doi: [10.1016/S0098-3004\(03\)00010-4](https://doi.org/10.1016/S0098-3004(03)00010-4)

- [12] **Zhu C**, Anderson GM, Burden DS (2002) Natural attenuation reactions at a uranium mill tailings site, western USA. *Ground Water* 40(1-2): 5-13. [Weblink](#)
- [11] **Zhu C** (2002) Estimation of surface precipitation constants from linear free energy correlation. *Chemical Geology* 188: 23-32. [Weblink](#)
- [10] Penn RL, **Zhu C**, Xu H, Veblen DR (2001), Iron oxide coatings on sand grains from the Atlantic coastal plain: HRTEM characterization. *Geology* 29 (9): 843-846. [Weblink](#)
- [9] **Zhu C**, Hu FQ, Burden DS (2001) Multi-component reactive transport modeling of natural attenuation of an acid ground water plume at a uranium mill tailings site. *Journal of Contaminant Hydrology* 52(1-2): 85-108. [Weblink](#)
- [8] **Zhu C**, and Burden DS (2001) Mineralogical compositions of aquifer matrix as necessary initial conditions in reactive contaminant transport models. *Journal of Contaminant Hydrology* 51(3-4): 145-161. [Weblink](#)
- [7] **Zhu C** (2000) Estimate of recharge from radiocarbon dating of groundwater and numerical flow and transport modeling. *Water Resources Research* 36(9): 2607-2620. [Weblink](#)
- [6] **Zhu C** and Murphy WM (2000) On radiocarbon dating of ground water. *Ground Water* 38(6): 802-804. [Weblink](#)
- [5] **Zhu C**, Waddell RK, Star I, Ostrander M (1998) Responses of groundwater in the Black Mesa basin, northeastern Arizona to paleoclimatic changes during late Pleistocene and Holocene. *Geology* 26: 127-130. [Weblink](#)
- [4] **Zhu C**, Xu H, Ilton E, Veblen DR, Henry D, Tivey MK, Thompson G (1994) TEM-AEM observations of high-Cl biotite and amphibole and possible petrological implications. *American Mineralogist* 79: 909-920. [Weblink](#)
- [3] **Zhu C** (1993) New pH sensor for hydrothermal fluids. *Geology* 21: 983-986. [Weblink](#)
- [2] **Zhu C** and Sverjensky DA (1992) F-Cl-OH partitioning between apatite and biotite. *Geochimica et Cosmochimica Acta* 56: 3435-3467. [Weblink](#)
- [1] **Zhu C** and Sverjensky DA (1991) Partitioning of F-Cl-OH between minerals and hydrothermal fluids. *Geochimica et Cosmochimica Acta* 55: 1837-1858. [Weblink](#)

CONFERENCE PROCEEDINGS

- [10] **Zhu, C**, †Zhang YL, Rimstidt JD, Yuan HL (2019) Measuring reaction rates at equilibrium with the isotope doping method. *Proceedings of the 16th International Symposium on Water-Rock Interaction WRI-16*, Tomsk, Russian, July 21-26, 2019. 10.1051/e3sconf/20199813003
- [9] Zhang G, Lu P, Ji X, **Zhu C** (2017) CO₂ plume migration and fate at Sleipner, Norway: Calibration of numerical models, uncertainty analysis, and reactive transport modelling of CO₂ trapping to 10,000 years. *Energy Procedia* 114: 2880-2895. doi: 10.1016/j.egypro.2017.03.1410.
- [8] Zhang GR, Lu P, **Zhu C** (2014) Model predictions via history matching of CO₂ plume migration at the Sleipner Project, Norwegian North Sea. *Energy Procedia* 63: 3000-3011, doi: 10.1016/j.egypro.2014.11.323
- [7] **Zhu, C**, †Liu Z, †Schaefer A, †Wang C, †Zhang G, Gruber C, Ganor G, Georg RB (2014) Silicon isotopes as a new method of measuring silicate mineral reaction rates at ambient temperature. *Procedia Earth and Planetary Science* 10: 189-193, doi: 10.1016/j.proeps.2014.08.055

- [6] Ji X and **Zhu C** (2013) A SAFT Equation of State for the H₂S-CO₂-H₂O-NaCl system and applications for CO₂ - H₂S transportation and geological storage. *Energy Procedia* 37: 3780-3791. doi: 10.1016/j.egypro.2013.06.274.
- [5] **Zhu C**, Lu P (2013) Coupling of dissolution and precipitation reactions as the main contributor to the apparent discrepancy between lab and field reaction rates. *Procedia of Earth and Planetary Sciences* 7: 948-952, doi: 10.1016/j.proeps.2013.03.051.
- [4] Ji X and **Zhu C** (2010) Modelling of phase equilibria in the H₂S-H₂O system with statistical associating fluid theory. Proceedings of the 19th International Congress of Chemical and Process Engineering CHISA 2010 and the 7th European Congress of Chemical Engineering ECCE-7, Prague, August 28 - September 1, 2010, 9 pages.
- [3] **Zhu C**, Blum AE, Veblen DR (2004) Feldspar dissolution rates and clay precipitation in the Navajo aquifer at Black Mesa, Arizona, USA. *Proceedings of the Eleventh International Symposium on Water-Rock Interaction WRI-11*, Vol. 2 (ed. R. B. Wanty and R. R. I. Seal), 27 June-2 July 2004, Saratoga Springs, New York, A.A. Balkema, pp. 895-899. [Weblink](#)
- [2] Soong Y, Allen DE, McCarthy-Jones JR, Harrison DK, Hedges SH, Baltrus JP, **Zhu C** (2004) Preliminary experimental results of CO₂ sequestration with brine. *Proceedings of the Eleventh International Symposium on Water-Rock Interaction WRI-11*, Vol. 2 (ed. R. B. Wanty and R. R. I. Seal), 27 June-2 July 2004, Saratoga Springs, New York, A.A. Balkema, pp. 597-600
- [1] **Zhu C**, Yeh G, Waddell RK (1996) A new approach to modeling metal contaminant transport associated with mining wastes, *Proceedings of Tailings & Mining Waste* 96: 341-250.

BOOK CHAPTERS

Ji X and **Zhu C** (2015) CO₂ storage in deep saline aquifers. In: Morreale B, Shi F (eds) *Novel Materials for Carbon Dioxide Mitigation Technology*, Elsevier, pp 299-332. <http://dx.doi.org/10.1016/B978-0-444-63259-3.00010-0>

Zhu C (2012) Geochemical modeling in environmental and geological studies. In: Meyers RA (ed) *Encyclopedia of Sustainability Science and Technology*, Springer, doi: 10.1007/978-1-4419-0851-3.

Kelly S, †Lu P, Newville MG, Bolin T, Chattopadhyay S, Shibata T, **Zhu C** (2008) Molecular structure of Lead (II) coprecipitated with Iron(III) oxyhydroxide. In: Barnett M and Kent D (eds) *Adsorption of Metals by Geomedia II: Variables, Mechanisms, and Model Applications*, Elsevier, pp 67-94, doi: [10.1016/S1571-9197\(07\)07003-6](https://doi.org/10.1016/S1571-9197(07)07003-6).

BOOK REVIEWS

Zhu (2017) *Geochemical Rate Models: An Introduction to Geochemical Kinetics*. By J. Donald Rimstidt (2013) Cambridge University Press, 232 p. \$84.99 Hardback, ISBN: 9781107029972. *American Mineralogist* 101: 921-922

COMMENTARIES

Zhu C (2011) The globalization of Chinese geosciences: A threat or an opportunity? *Elements* 7(6): 367-368. [Weblink](#)