# K Mayer

List of Publications by Year
in descending order

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Version: 2024-02-01

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|---|---|---|---|
| 114<br>papers | 5,042<br>citations | 76326<br>40<br>h-index | 98798<br>67<br>g-index |
| 115<br>all docs | 115<br>docs citations | 115<br>times ranked | 4001<br>citing authors |

| # | Article | IF | Citations |
|---|---|---|---|
| 1 | Reactive transport codes for subsurface environmental simulation. Computational Geosciences, 2015, 19, 445-478. | 2.4 | 566 |
| 2 | Multicomponent reactive transport modeling in variably saturated porous media using a generalized formulation for kinetically controlled reactions. Water Resources Research, 2002, 38, 13-1-13-21. | 4.2 | 429 |
| 3 | Expanding the role of reactive transport models in critical zone processes. Earth-Science Reviews, 2017, 165, 280-301. | 9.1 | 207 |
| 4 | Reactive transport modeling in fractured rock: A state-of-the-science review. Earth-Science Reviews, 2005, 72, 189-227. | 9.1 | 164 |
| 5 | Modelling the biogeochemical cycle of silicon in soils: Application to a temperate forest ecosystem. Geochimica Et Cosmochimica Acta, 2008, 72, 741-758. | 3.9 | 156 |
| 6 | Rates of sulfate reduction and metal sulfide precipitation in a permeable reactive barrier. Applied Geochemistry, 2002, 17, 301-320. | 3.0 | 136 |
| 7 | Reactive transport modeling of an in situ reactive barrier for the treatment of hexavalent chromium and trichloroethylene in groundwater. Water Resources Research, 2001, 37, 3091-3103. | 4.2 | 132 |
| 8 | Offsetting of CO2 emissions by air capture in mine tailings at the Mount Keith Nickel Mine, Western Australia: Rates, controls and prospects for carbon neutral mining. International Journal of Greenhouse Gas Control, 2014, 25, 121-140. | 4.6 | 113 |
| 9 | Mobility and persistence of methane in groundwater in a controlled-release fieldÂexperiment. Nature Geoscience, 2017, 10, 289-294. | 12.9 | 106 |
| 10 | Use of dissolved and vapor-phase gases to investigate methanogenic degradation of petroleum hydrocarbon contamination in the subsurface. Water Resources Research, 2005, 41, . | 4.2 | 99 |
| 11 | Influence of surface passivation and water content on mineral reactions in unsaturated porous media: Implications for brucite carbonation and CO2 sequestration. Geochimica Et Cosmochimica Acta, 2015, 148, 477-495. | 3.9 | 94 |
| 12 | Investigating the role of gas bubble formation and entrapment in contaminated aquifers: Reactive transport modelling. Journal of Contaminant Hydrology, 2006, 87, 123-154. | 3.3 | 87 |
| 13 | Reactive transport modeling of processes controlling the distribution and natural attenuation of phenolic compounds in a deep sandstone aquifer. Journal of Contaminant Hydrology, 2001, 53, 341-368. | 3.3 | 86 |
| 14 | Vadose zone attenuation of organic compounds at a crude oil spill site â€" Interactions between biogeochemical reactions and multicomponent gas transport. Journal of Contaminant Hydrology, 2010, 112, 15-29. | 3.3 | 86 |
| 15 | Modelling the closure-related geochemical evolution of groundwater at a former uranium mine. Journal of Contaminant Hydrology, 2001, 52, 109-135. | 3.3 | 81 |
| 16 | CO<sub>2</sub>-Efflux Measurements for Evaluating Source Zone Natural Attenuation Rates in a Petroleum Hydrocarbon Contaminated Aquifer. Environmental Science & Technology, 2011, 45, 482-488. | 10.0 | 69 |
| 17 | Reactive Transport Modeling of Trichloroethene Treatment with Declining Reactivity of Iron. Environmental Science & Technology, 2007, 41, 1432-1438. | 10.0 | 66 |
| 18 | Reactive Transport in Evolving Porous Media. Reviews in Mineralogy and Geochemistry, 2019, 85, 197-238. | 4.8 | 65 |

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|---|---|---|---|
| 19 | Process-based reactive transport modeling of a permeable reactive barrier for the treatment of mine drainage. Journal of Contaminant Hydrology, 2006, 85, 195-211. | 3.3 | 64 |
| 20 | Modeling Kinetic Processes Controlling Hydrogen and Acetate Concentrations in an Aquifer-Derived Microcosm. Environmental Science & Technology, 2003, 37, 3910-3919. | 10.0 | 62 |
| 21 | Implementation and evaluation of permeability-porosity and tortuosity-porosity relationships linked to mineral dissolution-precipitation. Computational Geosciences, 2015, 19, 655-671. | 2.4 | 60 |
| 22 | Three-dimensional density-dependent flow and multicomponent reactive transport modeling of chlorinated solvent oxidation by potassium permanganate. Journal of Contaminant Hydrology, 2009, 106, 195-211. | 3.3 | 57 |
| 23 | Effectiveness of various cover scenarios on the rate of sulfide oxidation of mine tailings. Journal of Hydrology, 2003, 271, 171-187. | 5.4 | 53 |
| 24 | Investigating Ebullition in a Sand Column Using Dissolved Gas Analysis and Reactive Transport Modeling. Environmental Science & Technology, 2006, 40, 5361-5367. | 10.0 | 51 |
| 25 | Reactive Transport Modeling of Column Experiments for the Remediation of Acid Mine Drainage. Environmental Science & Technology, 2004, 38, 3131-3138. | 10.0 | 50 |
| 26 | Integration of field measurements and reactive transport modelling to evaluate contaminant transport at a sulfide mine tailings impoundment. Journal of Contaminant Hydrology, 2006, 88, 1-22. | 3.3 | 50 |
| 27 | Comparison of numerical methods for simulating strongly nonlinear and heterogeneous reactive transport problemsâ€"the MoMaS benchmark case. Computational Geosciences, 2010, 14, 483-502. | 2.4 | 50 |
| 28 | Transport and Reaction Processes Affecting the Attenuation of Landfill Gas in Cover Soils. Journal of Environmental Quality, 2008, 37, 459-468. | 2.0 | 49 |
| 29 | Methane emissions and contaminant degradation rates at sites affected by accidental releases of denatured fuel-grade ethanol. Journal of Contaminant Hydrology, 2013, 151, 1-15. | 3.3 | 48 |
| 30 | Acidic Microenvironments in Waste Rock Characterized by Neutral Drainage: Bacteriaâ€"Mineral Interactions at Sulfide Surfaces. Minerals (Basel, Switzerland), 2014, 4, 170-190. | 2.0 | 47 |
| 31 | Transport Implications Resulting from Internal Redistribution of Arsenic and Iron within Constructed Soil Aggregates. Environmental Science & Technology, 2011, 45, 582-588. | 10.0 | 46 |
| 32 | Long-term monitoring of waste-rock weathering at the Antamina mine, Peru. Chemosphere, 2019, 215, 858-869. | 8.2 | 46 |
| 33 | Verification and intercomparison of reactive transport codes to describe root-uptake. Plant and Soil, 2006, 285, 305-321. | 3.7 | 45 |
| 34 | Characterizing Vadose Zone Hydrocarbon Biodegradation Using Carbon Dioxide Effluxes, Isotopes, and Reactive Transport Modeling. Vadose Zone Journal, 2012, 11, vzj2011.0204. | 2.2 | 45 |
| 35 | Benchmark reactive transport simulations of a column experiment in compacted bentonite with multispecies diffusion and explicit treatment of electrostatic effects. Computational Geosciences, 2015, 19, 535-550. | 2.4 | 45 |
| 36 | Molybdenum and zinc stable isotope variation in mining waste rock drainage and waste rock at the Antamina mine, Peru. Science of the Total Environment, 2016, 550, 103-113. | 8.0 | 44 |

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|---|---|---|---|
| 37 | Solution of the MoMaS reactive transport benchmark with MIN3Pâ€"model formulation and simulation results. Computational Geosciences, 2010, 14, 405-419. | 2.4 | 43 |
| 38 | Benchmarks for multicomponent reactive transport across a cement/clay interface. Computational Geosciences, 2015, 19, 635-653. | 2.4 | 43 |
| 39 | The impact of evolving mineralâ€"waterâ€"gas interfacial areas on mineralâ€"fluid reaction rates in unsaturated porous media. Chemical Geology, 2016, 421, 65-80. | 3.3 | 43 |
| 40 | Barometric-pumping controls fugitive gas emissions from a vadose zone natural gas release. Scientific Reports, 2019, 9, 14080. | 3.3 | 43 |
| 41 | Benchmarks for multicomponent diffusion and electrochemical migration. Computational Geosciences, 2015, 19, 523-533. | 2.4 | 42 |
| 42 | Microbial and geochemical controls on waste rock weathering and drainage quality. Science of the Total Environment, 2018, 640-641, 1004-1014. | 8.0 | 37 |
| 43 | Identification, spatial extent and distribution of fugitive gas migration on the well pad scale. Science of the Total Environment, 2019, 652, 356-366. | 8.0 | 37 |
| 44 | A detailed field-based evaluation of naphthenic acid mobility in groundwater. Journal of Contaminant Hydrology, 2009, 108, 89-106. | 3.3 | 36 |
| 45 | Can argillaceous formations isolate nuclear waste? Insights from isotopic, noble gas, and geochemical profiles. Geofluids, 2015, 15, 381-386. | 0.7 | 36 |
| 46 | Multicomponent reactive transport modeling of acid neutralization reactions in mine tailings. Water Resources Research, 2004, 40, . | 4.2 | 34 |
| 47 | High resolution spatial and temporal evolution of dissolved gases in groundwater during a controlled natural gas release experiment. Science of the Total Environment, 2018, 622-623, 1178-1192. | 8.0 | 33 |
| 48 | Changes in mineral reactivity driven by pore fluid mobility in partially wetted porous media. Chemical Geology, 2017, 463, 1-11. | 3.3 | 32 |
| 49 | Advancing knowledge of gas migration and fugitive gas from energy wells in northeast British Columbia, Canada. , 2019, 9, 134-151. | | 32 |
| 50 | Reactive transport benchmarks for subsurface environmental simulation. Computational Geosciences, 2015, 19, 439-443. | 2.4 | 31 |
| 51 | Identification of key parameters controlling dissolved oxygen migration and attenuation in fractured crystalline rocks. Journal of Contaminant Hydrology, 2008, 95, 141-153. | 3.3 | 30 |
| 52 | Comparison of unsaturated flow and solute transport through waste rock at two experimental scales using temporal moments and numerical modeling. Journal of Contaminant Hydrology, 2014, 171, 49-65. | 3.3 | 28 |
| 53 | Parallelization of MIN3P-THCm: A high performance computational framework for subsurface flow and reactive transport simulation. Environmental Modelling and Software, 2017, 95, 271-289. | 4.5 | 28 |
| 54 | Hydro-biogeochemical impacts of fugitive methane on a shallow unconfined aquifer. Science of the Total Environment, 2019, 690, 1342-1354. | 8.0 | 28 |

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| 55 | Aggregateâ€Scale Heterogeneity in Iron (Hydr)oxide Reductive Transformations. Vadose Zone Journal, 2009, 8, 1004-1012. | 2.2 | 26 |
| 56 | Benchmark problems for reactive transport modeling of the generation and attenuation of acid rock drainage. Computational Geosciences, 2015, 19, 599-611. | 2.4 | 26 |
| 57 | Solubility controls for molybdenum in neutral rock drainage. Geochemistry: Exploration, Environment, Analysis, 2012, 12, 21-32. | 0.9 | 24 |
| 58 | Evaluation of Seasonal Factors on Petroleum Hydrocarbon Vapor Biodegradation and Intrusion Potential in a Cold Climate. Ground Water Monitoring and Remediation, 2014, 34, 60-78. | 0.8 | 23 |
| 59 | Stochastic multicomponent reactive transport analysis of low quality drainage release from waste rock piles: Controls of the spatial distribution of acid generating and neutralizing minerals. Journal of Contaminant Hydrology, 2017, 201, 30-38. | 3.3 | 23 |
| 60 | Tracing Molybdenum Attenuation in Mining Environments Using Molybdenum Stable Isotopes. Environmental Science & Technology, 2019, 53, 5678-5686. | 10.0 | 23 |
| 61 | Mobilization of Metal(oid) Oxyanions through Circumneutral Mine Waste-Rock Drainage. ACS Omega, 2019, 4, 10205-10215. | 3.5 | 22 |
| 62 | MIN3P-HPC: A High-Performance Unstructured Grid Code for Subsurface Flow and Reactive Transport Simulation. Mathematical Geosciences, 2021, 53, 517-550. | 2.4 | 22 |
| 63 | Manganese Valence in Oxides Formed from in Situ Chemical Oxidation of TCE by KMnO<sub>4</sub>. Environmental Science & Technology, 2010, 44, 5934-5939. | 10.0 | 21 |
| 64 | Evaluation of single- and dual-porosity models for reproducing the release of external and internal tracers from heterogeneous waste-rock piles. Journal of Contaminant Hydrology, 2018, 214, 65-74. | 3.3 | 19 |
| 65 | Metal mobility during in situ chemical oxidation of TCE by KMnO4. Journal of Contaminant Hydrology, 2006, 88, 137-152. | 3.3 | 18 |
| 66 | Spatial and Temporal Fluctuations of Poreâ€Gas Composition in Sulfidic Mine Waste Rock. Vadose Zone Journal, 2016, 15, 1-13. | 2.2 | 18 |
| 67 | Determination of mineral dissolution regimes using flow-through time-resolved analysis (FT-TRA) and numerical simulation. Chemical Geology, 2016, 430, 1-12. | 3.3 | 18 |
| 68 | Localized Sulfide Oxidation Limited by Oxygen Supply in a Fullâ€Scale Wasteâ€Rock Pile. Vadose Zone Journal, 2018, 17, 1-14. | 2.2 | 18 |
| 69 | Biogeochemical processes controlling the mobility of major ions and trace metals in aquitard sediments beneath an oil sand tailing pond: Laboratory studies and reactive transport modeling. Journal of Contaminant Hydrology, 2013, 151, 55-67. | 3.3 | 17 |
| 70 | The importance of conceptual models in the reactive transport simulation of oxygen ingress in sparsely fractured crystalline rock. Journal of Contaminant Hydrology, 2010, 112, 64-76. | 3.3 | 16 |
| 71 | Scale dependence of effective geochemical rates in weathering mine waste rock. Journal of Contaminant Hydrology, 2020, 234, 103699. | 3.3 | 16 |
| 72 | Electrical Monitoring of In Situ Chemical Oxidation by Permanganate. Ground Water Monitoring and Remediation, 2007, 27, 77-84. | 0.8 | 15 |

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| 73 | Diel plant water use and competitive soil cation exchange interact to enhance NH4 + and K+ availability in the rhizosphere. Plant and Soil, 2017, 414, 33-51. | 3.7 | 15 |
| 74 | Laboratory-scale experimental and modelling investigations of 222Rn profiles in chemically heterogeneous LNAPL contaminated vadose zones. Science of the Total Environment, 2019, 681, 456-466. | 8.0 | 15 |
| 75 | Impacts of water table fluctuations on actual and perceived natural source zone depletion rates. Journal of Contaminant Hydrology, 2021, 238, 103771. | 3.3 | 15 |
| 76 | A study of Zn and Mo attenuation by waste-rock mixing in neutral mine drainage using mixed-material field barrels and humidity cells. Applied Geochemistry, 2017, 84, 114-125. | 3.0 | 14 |
| 77 | Manganese and trace-metal mobility under reducing conditions following in situ oxidation of TCE by KMnO4: A laboratory column experiment. Journal of Contaminant Hydrology, 2011, 119, 13-24. | 3.3 | 13 |
| 78 | Atmospheric noble gases as tracers of biogenic gas dynamics in a shallow unconfined aquifer. Geochimica Et Cosmochimica Acta, 2014, 128, 144-157. | 3.9 | 13 |
| 79 | Decalcification of cracked cement structures. Computational Geosciences, 2015, 19, 673-693. | 2.4 | 13 |
| 80 | Mineralogical controls on drainage quality during the weathering of waste rock. Applied Geochemistry, 2019, 108, 104376. | 3.0 | 13 |
| 81 | Poregas distributions in waste-rock piles affected by climate seasonality and physicochemical heterogeneity. Applied Geochemistry, 2019, 100, 305-315. | 3.0 | 13 |
| 82 | Geochemical and mineralogical assessment of reactivity in a full-scale heterogeneous waste-rock pile. Minerals Engineering, 2020, 145, 106089. | 4.3 | 13 |
| 83 | Release of geogenic uranium and arsenic results in water-quality impacts in a subarctic permafrost region of granitic and metamorphic geology. Journal of Geochemical Exploration, 2020, 217, 106607. | 3.2 | 13 |
| 84 | Modeling Vadose Zone Processes during Land Application of Foodâ€Processing Waste Water in California's Central Valley. Journal of Environmental Quality, 2008, 37, S43-57. | 2.0 | 12 |
| 85 | Determination of spatially-resolved porosity, tracer distributions and diffusion coefficients in porous media using MRI measurements and numerical simulations. Journal of Contaminant Hydrology, 2011, 125, 47-56. | 3.3 | 12 |
| 86 | Using noble gas tracers to constrain a groundwater flow model with recharge elevations: A novel approach for mountainous terrain. Water Resources Research, 2015, 51, 8094-8113. | 4.2 | 12 |
| 87 | Measuring mineral dissolution kinetics using on-line flow-through time resolved analysis (FT-TRA): an exploratory study with forsterite. Chemical Geology, 2015, 413, 107-118. | 3.3 | 12 |
| 88 | The Art of Reactive Transport Model Building. Elements, 2019, 15, 117-118. | 0.5 | 12 |
| 89 | Numerical Modeling of a Laboratory-Scale Waste Rock Pile Featuring an Engineered Cover System. Minerals (Basel, Switzerland), 2020, 10, 652. | 2.0 | 12 |
| 90 | Spatiotemporal variability of fugitive gas migration emissions around a petroleum well. Atmospheric Pollution Research, 2021, 12, 101094. | 3.8 | 12 |

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|---|---|---|---|
| 91 | Evaluating methods for quantifying cation exchange in mildly calcareous sediments in Northern Alberta. Applied Geochemistry, 2012, 27, 2511-2523. | 3.0 | 11 |
| 92 | Unintentional contaminant transfer from groundwater to the vadose zone during source zone remediation of volatile organic compounds. Journal of Contaminant Hydrology, 2017, 204, 1-10. | 3.3 | 11 |
| 93 | Diffusionâ€“reaction studies in low permeability shale using X-ray radiography with cesium. Applied Geochemistry, 2013, 39, 49-58. | 3.0 | 10 |
| 94 | A benchmark for microbially mediated chromium reduction under denitrifying conditions in a biostimulation column experiment. Computational Geosciences, 2015, 19, 479-496. | 2.4 | 10 |
| 95 | Tracking Diverse Minerals, Hungry Organisms, and Dangerous Contaminants Using Reactive Transport Models. Elements, 2019, 15, 81-86. | 0.5 | 10 |
| 96 | Numerical investigation of flow instabilities using fully unstructured discretization for variably saturated flow problems. Advances in Water Resources, 2020, 143, 103673. | 3.8 | 10 |
| 97 | A benchmark for multi-rate surface complexation and 1D dual-domain multi-component reactive transport of U(VI). Computational Geosciences, 2015, 19, 585-597. | 2.4 | 8 |
| 98 | Reactive Transport of Manureâ€Derived Nitrogen in the Vadose Zone: Consideration of Macropore Connectivity to Subsurface Receptors. Vadose Zone Journal, 2019, 18, 1-18. | 2.2 | 8 |
| 99 | Geochemical Controls on Uranium Release from Neutral-pH Rock Drainage Produced by Weathering of Granite, Gneiss, and Schist. Minerals (Basel, Switzerland), 2020, 10, 1104. | 2.0 | 8 |
| 100 | Controls of uncertainty in acid rock drainage predictions from waste rock piles examined through Monte-Carlo multicomponent reactive transport. Stochastic Environmental Research and Risk Assessment, 2020, 34, 219-233. | 4.0 | 7 |
| 101 | Modeling of Thermal-Hydrological-Chemical (THC) Processes During Waste Rock Weathering Under Permafrost Conditions. Frontiers in Water, 2021, 3, . | 2.3 | 7 |
| 102 | Thermal-Hydrological-Chemical Modeling of a Covered Waste Rock Pile in a Permafrost Region. Minerals (Basel, Switzerland), 2021, 11, 565. | 2.0 | 7 |
| 103 | Investigating the Influence of Structure and Heterogeneity in Waste Rock Piles on Mass Loading Ratesâ€”A Reactive Transport Modeling Study. Frontiers in Water, 2021, 3, . | 2.3 | 7 |
| 104 | Persistence of Uranium in Old and Cold Subpermafrost Groundwater Indicated by Linking <sup>234</sup>U-<sup>235</sup>U-<sup>238</sup>U, Groundwater Ages, and Hydrogeochemistry. ACS Earth and Space Chemistry, 2021, 5, 3474-3487. | 2.7 | 6 |
| 105 | Reactive transport modeling of 90Sr sorption in reactive sandpacks. Journal of Hazardous Materials, 2014, 280, 685-695. | 12.4 | 5 |
| 106 | A reactive transport benchmark on modeling biogenic uraninite re-oxidation by Fe(III)-(hydr)oxides. Computational Geosciences, 2015, 19, 569-583. | 2.4 | 5 |
| 107 | Evaluation of the Potential for Dissolved Oxygen Ingress into Deep Sedimentary Basins during a Glaciation Event. Geofluids, 2018, 2018, 1-20. | 0.7 | 5 |
| 108 | Towards quantifying subsurface methane emissions from energy wells with integrity failure. Atmospheric Pollution Research, 2021, 12, 101223. | 3.8 | 5 |

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| 109 | Quantifying natural source zone depletion at petroleum hydrocarbon contaminated sites: A comparison of 14C methods. Journal of Contaminant Hydrology, 2021, 240, 103795. | 3.3 | 4 |
| 110 | Reactive transport modelling the oxalate-carbonate pathway of the Iroko tree; Investigation of calcium and carbon sinks and sources. Geoderma, 2022, 410, 115665. | 5.1 | 4 |
| 111 | Travel time-based modelling of nitrate reduction in a fractured limestone aquifer by pyrite and iron carbonates under pore size limitation. Journal of Contaminant Hydrology, 2022, 248, 103983. | 3.3 | 2 |
| 112 | Reactive transport investigations of the long-term geochemical evolution of a multibarrier system including bentonite, low-alkali concrete and host rock. Applied Geochemistry, 2022, 143, 105385. | 3.0 | 2 |
| 113 | 7. Reactive Transport in Evolving Porous Media. , 2019, , 197-238. | | 1 |
| 114 | The nature of gas production patterns associated with methanol degradation in natural aquifer sediments: A microcosm study. Journal of Contaminant Hydrology, 2022, 247, 103988. | 3.3 | 0 |