

# John W Molson

## List of Publications by Year in descending order

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96  
papers

3,388  
citations

126907

33  
h-index

161849

54  
g-index

96  
all docs

96  
docs citations

96  
times ranked

2476  
citing authors

#	ARTICLE	IF	CITATIONS
1	Modeling of multicomponent reactive transport in groundwater: 1. Model development and evaluation. <i>Water Resources Research</i> , 1994, 30, 3137-3148.	4.2	193
2	Numerical simulations of pyrite oxidation and acid mine drainage in unsaturated waste rock piles. <i>Journal of Contaminant Hydrology</i> , 2005, 78, 343-371.	3.3	134
3	Thermal energy storage in an unconfined aquifer: 2. Model development, validation, and application. <i>Water Resources Research</i> , 1992, 28, 2857-2867.	4.2	132
4	Influence of aquifer and streambed heterogeneity on the distribution of groundwater discharge. <i>Hydrology and Earth System Sciences</i> , 2009, 13, 69-77.	4.9	110
5	Groundwater flow and heat transport for systems undergoing freeze-thaw: Intercomparison of numerical simulators for 2D test cases. <i>Advances in Water Resources</i> , 2018, 114, 196-218.	3.8	91
6	Modelling the effect of chemical heterogeneity on acidification and solute leaching in overburden mine spoils. <i>Journal of Hydrology</i> , 1998, 209, 166-185.	5.4	88
7	Analyses of water diversion along inclined covers with capillary barrier effects. <i>Canadian Geotechnical Journal</i> , 2009, 46, 1146-1164.	2.8	86
8	Dissolution and mass transfer of multiple organics under field conditions: The Borden emplaced source. <i>Water Resources Research</i> , 1999, 35, 683-694.	4.2	85
9	Thermal energy storage in an unconfined aquifer: 1. Field Injection Experiment. <i>Water Resources Research</i> , 1992, 28, 2845-2856.	4.2	81
10	Modelling the closure-related geochemical evolution of groundwater at a former uranium mine. <i>Journal of Contaminant Hydrology</i> , 2001, 52, 109-135.	3.3	81
11	Enhanced detection of hydraulically active fractures by temperature profiling in lined heated bedrock boreholes. <i>Journal of Hydrology</i> , 2013, 484, 1-15.	5.4	79
12	Impacts of predicted climate change on groundwater flow systems: Can wetlands disappear due to recharge reduction?. <i>Journal of Hydrology</i> , 2018, 563, 1169-1180.	5.4	75
13	Modeling of multicomponent reactive transport in groundwater: 2. Metal mobility in aquifers impacted by acidic mine tailings discharge. <i>Water Resources Research</i> , 1994, 30, 3149-3158.	4.2	73
14	Numerical Modelling of Flow and Capillary Barrier Effects in Unsaturated Waste Rock Piles. <i>Mine Water and the Environment</i> , 2005, 24, 172-185.	2.0	70
15	Biodegradation modelling of a dissolved gasoline plume applying independent laboratory and field parameters. <i>Journal of Contaminant Hydrology</i> , 2000, 46, 339-374.	3.3	68
16	Dynamics of carbon dioxide uptake in chrysotile mining residues – Effect of mineralogy and liquid saturation. <i>International Journal of Greenhouse Gas Control</i> , 2013, 12, 124-135.	4.6	65
17	CO <sub>2</sub> Sequestration in Chrysotile Mining Residues – Implication of Watering and Passivation under Environmental Conditions. <i>Industrial &amp; Engineering Chemistry Research</i> , 2012, 51, 8726-8734.	3.7	63
18	CO <sub>2</sub> -depleted warm air venting from chrysotile milling waste (Thetford Mines, Canada): Evidence for in-situ carbon capture from the atmosphere. <i>Geology</i> , 2012, 40, 275-278.	4.4	59

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19	On the use of mean groundwater age, life expectancy and capture probability for defining aquifer vulnerability and time-of-travel zones for source water protection. <i>Journal of Contaminant Hydrology</i> , 2012, 127, 76-87.	3.3	59
20	Field experimental cells to evaluate the hydrogeological behaviour of oxygen barriers made of silty materials. <i>Canadian Geotechnical Journal</i> , 2007, 44, 245-265.	2.8	55
21	Reactive transport modelling of mine tailings columns with capillarity-induced high water saturation for preventing sulfide oxidation. <i>Applied Geochemistry</i> , 2009, 24, 1312-1323.	3.0	55
22	Field evidence of CO <sub>2</sub> sequestration by mineral carbonation in ultramafic milling wastes, Thetford Mines, Canada. <i>International Journal of Greenhouse Gas Control</i> , 2016, 47, 110-121.	4.6	55
23	Geochemical transport modelling of drainage from experimental mine tailings cells covered by capillary barriers. <i>Applied Geochemistry</i> , 2008, 23, 1-24.	3.0	50
24	Comparative study of five Québec ultramafic mining residues for use in direct ambient carbon dioxide mineral sequestration. <i>Chemical Engineering Journal</i> , 2014, 245, 56-64.	12.7	49
25	Numerical investigation of methane and formation fluid leakage along the casing of a decommissioned shale gas well. <i>Water Resources Research</i> , 2015, 51, 4592-4622.	4.2	49
26	Large-Scale Dispersion in a Sandy Aquifer: Simulation of Subsurface Transport of Environmental Tritium. <i>Water Resources Research</i> , 1996, 32, 3253-3266.	4.2	46
27	Groundwater Flow Quantification in Fractured Rock Boreholes Using Active Distributed Temperature Sensing Under Natural Gradient Conditions. <i>Water Resources Research</i> , 2019, 55, 3285-3306.	4.2	45
28	Groundwater hydrogeochemistry in permafrost regions. <i>Permafrost and Periglacial Processes</i> , 2019, 30, 90-103.	3.4	44
29	Accurate and direct quantification of native brucite in serpentine ores – New methodology and implications for CO <sub>2</sub> sequestration by mining residues. <i>Thermochimica Acta</i> , 2013, 566, 281-291.	2.7	39
30	Reactive transport modelling of the hydro-geochemical behaviour of partially oxidized acid-generating mine tailings with a monolayer cover. <i>Applied Geochemistry</i> , 2017, 78, 219-233.	3.0	38
31	Characterizing the Two-Dimensional Thermal Conductivity Distribution in a Sand and Gravel Aquifer. <i>Soil Science Society of America Journal</i> , 2006, 70, 1281-1294.	2.2	36
32	Modelling the impact of physical and chemical heterogeneity on solute leaching in pyritic overburden mine spoils. <i>Ecological Engineering</i> , 2001, 17, 91-101.	3.6	34
33	Humic acid enhanced remediation of an emplaced diesel source in groundwater. <i>Journal of Contaminant Hydrology</i> , 2002, 54, 277-305.	3.3	34
34	Migration and fate of ethanol-enhanced gasoline in groundwater: A modelling analysis of a field experiment. <i>Journal of Contaminant Hydrology</i> , 2011, 119, 25-43.	3.3	34
35	Impact of temperature and oxygen availability on the dynamics of ambient CO <sub>2</sub> mineral sequestration by nickel mining residues. <i>Chemical Engineering Journal</i> , 2014, 240, 394-403.	12.7	34
36	Groundwater occurrence in cold environments: examples from Nunavik, Canada. <i>Hydrogeology Journal</i> , 2016, 24, 1497-1513.	2.1	34

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37	Comparative performance of cover systems to prevent acid mine drainage from pre-oxidized tailings: A numerical hydro-geochemical assessment. <i>Journal of Contaminant Hydrology</i> , 2018, 214, 39-53.	3.3	34
38	Reactive transport modelling of acid mine drainage within discretely fractured porous media: Plume evolution from a surface source zone. <i>Environmental Modelling and Software</i> , 2012, 38, 259-270.	4.5	33
39	Three-dimensional numerical simulations of methane gas migration from decommissioned hydrocarbon production wells into shallow aquifers. <i>Water Resources Research</i> , 2016, 52, 5598-5618.	4.2	33
40	Performance of passive systems for mine drainage treatment at low temperature and high salinity: A review. <i>Minerals Engineering</i> , 2019, 134, 325-344.	4.3	33
41	Pathline Density Distributions in a Null-space Monte Carlo Approach to Assess Groundwater Pathways. <i>Ground Water</i> , 2020, 58, 189-207.	1.3	32
42	Guidelines for cold regions groundwater numerical modeling. <i>Wiley Interdisciplinary Reviews: Water</i> , 2020, 7, e1467.	6.5	32
43	Preventing Acid Mine Drainage with an Elevated Water Table: Long-Term Column Experiments and Parameter Analysis. <i>Water, Air, and Soil Pollution</i> , 2010, 213, 437-458.	2.4	31
44	Numerical modeling of contaminated neutral drainage from a waste-rock field test cell. <i>Applied Geochemistry</i> , 2013, 33, 346-356.	3.0	31
45	Benchmarking Numerical Freeze/Thaw Models. <i>Energy Procedia</i> , 2015, 76, 301-310.	1.8	31
46	Isotopic evidence of passive mineral carbonation in mine wastes from the Dumont Nickel Project (Abitibi, Quebec). <i>International Journal of Greenhouse Gas Control</i> , 2017, 60, 10-23.	4.6	31
47	Issues and Options in the Delineation of Well Capture Zones under Uncertainty. <i>Ground Water</i> , 2018, 56, 366-376.	1.3	29
48	Controls on permafrost thaw in a coupled groundwater-flow and heat-transport system: Iqaluit Airport, Nunavut, Canada. <i>Hydrogeology Journal</i> , 2017, 25, 657-673.	2.1	28
49	Does river restoration affect diurnal and seasonal changes to surface water quality? A study along the Thur River, Switzerland. <i>Science of the Total Environment</i> , 2015, 532, 91-102.	8.0	27
50	Influence of Transient Flow on Contaminant Biodegradation. <i>Ground Water</i> , 2001, 39, 276-282.	1.3	26
51	Delineating baseflow contribution areas for streams – A model and methods comparison. <i>Journal of Contaminant Hydrology</i> , 2016, 195, 11-22.	3.3	26
52	Acid groundwater in an anoxic aquifer: Reactive transport modelling of buffering processes. <i>Applied Geochemistry</i> , 2009, 24, 890-899.	3.0	25
53	Emulation of ambient carbon dioxide diffusion and carbonation within nickel mining residues. <i>Minerals Engineering</i> , 2014, 59, 39-44.	4.3	24
54	Fracture-induced hydrothermal convection in the oceanic crust and the interpretation of heat-flow data. <i>Geophysical Research Letters</i> , 1996, 23, 929-932.	4.0	23

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55	Groundwater dynamics within a watershed in the discontinuous permafrost zone near Umiujaq (Nunavik, Canada). <i>Hydrogeology Journal</i> , 2020, 28, 833-851.	2.1	22
56	New tools for stimulating dissolution and carbonation of ultramafic mining residues. <i>Canadian Journal of Chemical Engineering</i> , 2014, 92, 2029-2038.	1.7	20
57	Simulating the impact of climate change on the groundwater resources of the Magdalen Islands, QuÃ©bec, Canada. <i>Journal of Hydrology: Regional Studies</i> , 2015, 3, 400-423.	2.4	19
58	Passive Mineral Carbonation of Mg-rich Mine Wastes by Atmospheric CO <sub>2</sub> . <i>Energy Procedia</i> , 2017, 114, 6083-6086.	1.8	19
59	Direct Simulation of Ground Water Age in the Rabis Creek Aquifer, Denmark. <i>Ground Water</i> , 1998, 36, 577-582.	1.3	18
60	Oxygenated gasoline release in the unsaturated zone, Part 2: Downgradient transport of ethanol and hydrocarbons. <i>Journal of Contaminant Hydrology</i> , 2011, 125, 70-85.	3.3	18
61	Mass fluxes of xenobiotics below cities: challenges in urban hydrogeology. <i>Environmental Earth Sciences</i> , 2011, 64, 607-617.	2.7	18
62	Column Tests to Characterise the Hydrogeochemical Response of Pre-oxidised Acid-Generating Tailings with a Monolayer Cover. <i>Water, Air, and Soil Pollution</i> , 2014, 225, 1.	2.4	18
63	Development of a three-dimensional geological model, based on Quaternary chronology, geological mapping, and geophysical investigation, of a watershed in the discontinuous permafrost zone near Umiujaq (Nunavik, Canada). <i>Hydrogeology Journal</i> , 2020, 28, 813-832.	2.1	18
64	A conceptual model for talik dynamics and icing formation in a river floodplain in the continuous permafrost zone at Salluit, Nunavik (Quebec), Canada. <i>Permafrost and Periglacial Processes</i> , 2021, 32, 468-483.	3.4	17
65	Field-Scale Modeling of Benzene, Toluene, Ethylbenzene, and Xylenes (BTEX) Released from Multiple Source Zones. <i>Bioremediation Journal</i> , 2012, 16, 156-176.	2.0	15
66	Evolution of fluid flow and heat distribution over geological time scales at the margin of unconfined and confined carbonate sequences - A numerical investigation based on the Buda Thermal Karst analogue. <i>Marine and Petroleum Geology</i> , 2016, 78, 738-749.	3.3	15
67	Three-dimensional numerical simulation of the hydrothermal system within TAG-Like sulfide mounds. <i>Geophysical Research Letters</i> , 1996, 23, 3475-3478.	4.0	13
68	Insights from four decades of model development on the Waterloo Moraine: A review. <i>Canadian Water Resources Journal</i> , 2014, 39, 149-166.	1.2	13
69	Atmospheric Carbon Mineralization in an Industrial-Scale Chrysotile Mining Waste Pile. <i>Environmental Science &amp; Technology</i> , 2018, 52, 8050-8057.	10.0	13
70	Numerical simulations of shallow groundwater flow and heat transport in continuous permafrost setting under impact of climate warming. <i>Canadian Geotechnical Journal</i> , 2019, 56, 436-448.	2.8	13
71	Regional groundwater flow dynamics and residence times in ChaudiÃ©re-Appalaches, QuÃ©bec, Canada: Insights from numerical simulations. <i>Canadian Water Resources Journal</i> , 2018, 43, 214-239.	1.2	12
72	Salinity and low temperature effects on the performance of column biochemical reactors for the treatment of acidic and neutral mine drainage. <i>Chemosphere</i> , 2020, 243, 125303.	8.2	12

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73	A conceptual model for groundwater flow and geochemical evolution in the southern Outaouais Region, Qu�bec, Canada. <i>Applied Geochemistry</i> , 2015, 58, 62-77.	3.0	11
74	Experimental and numerical evaluation of single-layer covers placed on acid-generating tailings. <i>Geotechnical and Geological Engineering</i> , 2017, 35, 1421-1438.	1.7	11
75	Efficiency of batch biochemical reactors for mine drainage treatment at low temperature and high salinity. <i>Applied Geochemistry</i> , 2019, 103, 40-49.	3.0	10
76	Parameter sensitivity analysis of a two-dimensional cryo-hydrogeological numerical model of degrading permafrost near Umiujaq (Nunavik, Canada). <i>Hydrogeology Journal</i> , 2020, 28, 905-919.	2.1	10
77	Understanding shallow and deep flow for assessing the risk of hydrocarbon development to groundwater quality. <i>Marine and Petroleum Geology</i> , 2016, 78, 728-737.	3.3	9
78	Case Studies of Geothermal System Response to Perturbations in Groundwater Flow and Thermal Regimes. <i>Ground Water</i> , 2023, 61, 255-273.	1.3	9
79	Groundwater age in fractured porous media: Analytical solution for parallel fractures. <i>Advances in Water Resources</i> , 2012, 37, 127-135.	3.8	8
80	Hydrogeology and hydrogeochemistry of the Chaudi�re River watershed aquifers, Qu�bec, Canada. <i>Canadian Water Resources Journal</i> , 2014, 39, 32-48.	1.2	8
81	Three-dimensional Numerical Modeling of Cryo-hydrogeological Processes in a River-Talik System in a Continuous Permafrost Environment. <i>Water Resources Research</i> , 2022, 58, .	4.2	8
82	Pumping Optimization Under Uncertainty in an Island Freshwater Lens Using a Sharp-Interface Seawater Intrusion Model. <i>Water Resources Research</i> , 2022, 58, .	4.2	8
83	Three-dimensional simulation of the Home Island freshwater lens: preliminary results. <i>Environmental Modelling and Software</i> , 1998, 14, 181-190.	4.5	7
84	Numerical Evaluation of Grouting Scenarios for Reducing Water Inflows from Major Faults in Underground Excavations. <i>Mine Water and the Environment</i> , 2019, 38, 497-506.	2.0	7
85	High-pressure injection of dissolved oxygen for hydrocarbon remediation in a fractured dolostone aquifer. <i>Journal of Contaminant Hydrology</i> , 2010, 118, 13-26.	3.3	6
86	Semi-automated filtering of data outliers to improve spatial analysis of piezometric data. <i>Hydrogeology Journal</i> , 2015, 23, 851-868.	2.1	6
87	Numerical modelling of permafrost dynamics under climate change and evolving ground surface conditions: application to an instrumented permafrost mound at Umiujaq, Nunavik (Qu�bec), Canada. <i>Ecoscience</i> , 0, , 1-21.	1.4	6
88	Application of Geo-electrical Tomography in Coupled Hydro-mechanical-Chemical Investigations in Heap Leaching. <i>Mine Water and the Environment</i> , 2019, 38, 197-212.	2.0	5
89	Topical Collection: Hydrogeology of a cold-region watershed near Umiujaq (Nunavik, Canada). <i>Hydrogeology Journal</i> , 2020, 28, 809-812.	2.1	4
90	Physical and geochemical transport modelling of pre-oxidised acid-generating tailings with a monolayer cover. , 2011, , .		3

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91	In-situ pilot-scale passive biochemical reactors for Ni removal from saline mine drainage under subarctic climate conditions. <i>Journal of Water Process Engineering</i> , 2021, 41, 102062.	5.6	2
92	Factors affecting river turbidity in a degrading permafrost environment: the Tasiapik River, Umiujaq (Nunavik). <i>Arctic Science</i> , 0, , .	2.3	2
93	Discussion of "Variations in moisture content for a soil cover over a 10 year period". <i>Canadian Geotechnical Journal</i> , 2007, 44, 103-106.	2.8	1
94	Numerical modelling in support of a conceptual model for groundwater flow and geochemical evolution in the southern Outaouais Region, Quebec, Canada. <i>Canadian Water Resources Journal</i> , 2018, 43, 240-261.	1.2	1
95	Long-Term Temperature Evaluation of a Ground-Coupled Heat Pump System Subject to Groundwater Flow. <i>Energies</i> , 2020, 13, 96.	3.1	1
96	Groundwater/Grundwasser/Eaux souterraines: Nothing is lost in translation. <i>Grundwasser</i> , 2018, 23, 123-123.	1.4	0