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**EDUCATION**

University of Minnesota	Hydrogeology	1974-1981	Ph.D.
Penn State University	Geology	1969-1971	M.S.
University of Rhode Island	Geology	1965-1969	B.S.

**EMPLOYMENT**

Chair, Dept Earth Sciences	Syracuse University	2012-2017
Full Professor	Syracuse University	1993-present
Assistant Professor	Syracuse University	1982-1986.
Senior Hydrogeologist	Stearns & Wheler Engineers and Scientists	1985-1997
Hydrologist/Geochemist	U.S.Geological Survey	1976-1982
Geologist	Amerada Hess Corp.	1971-1973

**PROFESSIONAL RECOGNITION**

**President Elect Geological Society of America, 2018**

**Fellow American Geophysical Union, 2013**

**Fellow American Association Advancement of Science, 2012**

**Laura J. and L. Douglas Meredith Teaching Professor, Syracuse University, 2009**

**Lifetime National Associate Member**, The National Research Council (National Academy of Sciences), 2008

**The O.E. Meinzer Award In Hydrogeology**, Hydrogeology Division, Geological Society of America, 2005

**Wasserstrom Graduate Mentoring Prize**, Syracuse University, 2003

**Councilor of the Geological Society of America**, 2002-2005

**Distinguished Service Award**, Hydrogeologic Division, Geological Society of America, 2001

**Expert Witness to the United States Senate**, Subcommittee on Environment and Public Affairs, Wetland Characterization, June 26, 1997

**Expert Witness to the United States House of Representatives Committee on Science, Space and Technology**, Hydraulic Fracturing. April 23, 2015.

**Fellow**, Geological Society of America, elected 1995

**Birdsall Distinguished Lectureship in Hydrogeology**, Geological Society America, 1992-1993

**Chairman, National Water Science and Technology Board**, June 2010-2013.

Member National Water Science and Technology Board, **National Research Council**, 2008-2013

Committee on Techniques for Assessing Ground Water Contamination, **National Research Council, National Academy of Science**, 1991-1993.

Committee on Techniques for Wetland Delineation, **National Research Council, National Academy of Science**, 1993-1994.

Committee on U.S. Geological Survey Hydrologic Research: Regional Aquifer System Analysis, **National Research Council, National Academy of Science**, 1998-2000

Committee on U.S. Geological Survey Hydrologic Research: Water Use, **National Research Council, National Academy of Science**, 2000-2001

Committee on U.S. Geological Survey Hydrologic Research: Stream Information Program, **National Research Council, National Academy of Science**, 2001-2004

Chair, Committee on U.S. Geological Survey Hydrologic Research: River Science, **National Research Council, National Academy of Science**, 2002-2005

Committee on Groundwater Fluxes, **National Research Council, National Academy of Science**, 2002-2003.

Committee on River Science (Chair), **National Research Council, National Academy of Sciences**, 2003-2006.

Committee on the Future of USGS WRD, **National Research Council, National Academy of Sciences**, 2005-2008.

Committee on Environmental Impact of Coal-Gas Methane Production, **National Research Council, National Academy of Science** 2008-2010

Chair, Committee on 3rd Phase National Water Quality Assessment, USGS, **National Research Council, National Academy of Science** 2010-2012

**Book Editor, Geological Society of America**, 2007-2010

**Associate Editor, Hydrologic Processes**, 2006-2008

**Associate Editor, Geosphere**, 2005-2007

**Associate Editor, Geology**, 2005-2007.

**Associate Editor, Hydrogeology Journal**, 2005-present.

**Associate Editor, Water Resources Research**, 1993-1996; 2010-present

**Associate Editor, Wetlands**. 1995-1998

**Associate Editor, Ground Water**, 1997-2005.

**Editors' Citation for Excellence** in Refereeing - Water Resources Research, 1991

## **TEACHING EXPERIENCE**

### **Syracuse University**

Hydrogeology (advanced undergraduate/graduate)  
Contaminant Hydrogeology and Geochemistry (graduate)  
Groundwater and Solute Transport Modeling (graduate)  
Hydrogeochemistry (graduate)  
Aqueous Geochemistry (graduate)  
Wetland Hydrology and Geochemistry (Graduate)  
Case Studies in Hydrogeology (graduate)  
The Science of Water (undergraduate)  
World Water (undergraduate)

## Short Courses

Wetland Hydrogeology and Geochemistry, 1995, Short Course, Geol. Society of America  
Applied Groundwater Geochemistry, Geol. Society of America, National Meeting 2000, 2002;  
MA and NY Dept. Natural Resources and Environmental Conservation, 1990-1994;  
Licensed Site Professionals Association of Mass (1999); Environmental Professionals of  
Connecticut, 2001; Central New York Association of Professional Geologists (1997).  
Geological Society of America National Meeting, 2002.  
Tracer Methods in Hydrology, Licensed Site Professionals Association of Mass (1999);  
Environmental Professionals of Connecticut, 2007; Central New York Association of  
Professional Geologists (2005).  
Visual Modflow Groundwater Modeling for Managers, City of New York Dept. Environmental  
Protection, 1999  
Pesticide Transport and Fate, Montana Department Environmental Quality, 2000  
Co-Chair, Teaching Hydrogeology in the 21<sup>st</sup> Century, NSF Workshop, Lincoln, Neb., spring  
2006.

## ADVISING

Masters of Science Students (Current employment/status)

1. David Chason—Peat Material Properties (High School Teacher)
2. Kristen Franz-Begor—Paleohydrogeochemistry Sandstone Aquifer, Wisconsin (Consultant)
3. Dave Boldt—3-D Groundwater Flow Model Lost River Peatland, MN (U.S. Geological Survey)
4. Gerry Gould—3-D Groundwater flow model bedrock aquifers SW NY (Consultant)
5. Robert Sustokowski—Medina Fm. Brine Geochemistry (Consultant)
6. Anne Veeger—Hydrogeology of Tug Hill Aquifer, NY (Professor Univ. Rhode Island)
7. Anna Martini—Trace element geochemistry of brines (Professor Amherst College)
8. Brenda Lint—Hydrogeologic atlas, Oneida County, NY (Environmental Regulator, State of Texas)
9. Marian Bernt—Trace metals in oil contaminated aquifer substrate (U.S. Geological Survey)
10. Christine Gachowski—Acid rain buffering (Consultant)
11. Mary Lou Perkins—Hydrogeology of Beaver Lake, NY (Upstate Freshwater Institute, NY)
12. Steve Winkley—Hydrogeologic Atlas of Onondaa County, NY
13. (Environmental Regulator, State of New York)
14. Rick Noll—Hydrogeochemistry of the Lockport Dolomite, Niagara Falls NY (Consultant)
15. John Noble—Hydrogeochemistry of Onondaga County, NY (Consultant)
16. Barbara Hill—Trace metals in peat, Lost River Peatland, NY (PhD Student, SU)
17. Nan Rutkowski (ESF)—trace metals in peat, Glacial Lake Agassiz Peatlands, MN (Environmental Regulator, State of New York)
18. Phil Bennett (ESF)—Organic- silica interactions and surface chemistry (Professor, Univ. Texas)
19. Dan Jenkins (ESF)—Isotopic geochemistry in Nepal ground water (Consultant)
20. Jim McNamara—Hydrogeology of Malloryville Wetlands, NY (Boise State)
21. Karen Goldenburg—Geochemical Simulation of Groundwater Mixing Models (Consultant)

22. Yiping Shen--Geochemistry of peatland waters (Owner of consulting company)
23. Dan Verillo—Geochemistry of fracture fillings in Lockport Dolomite (Consultant)
24. Kathy Ferguson—Geochemical evaluation of groundwater flow system, Manlius, NY (Exxon)
25. Dan Ours—Dilation in peat (Consultant)
26. Dave Lipson—Ternary diagram approaches in BTEX solute transport (Consultant)
27. Matt Erbe—Ternary diagram approaches in solvent solute transport (Consultant)
28. Monica Coyne--Wetland remediation of nutrients (High School teacher)
29. Pat Korths--Trace metals in peat, northern MN (Consultant)
30. Larae Mishler--CATSCAN visualization of peat porosity (Consultant)
31. Jeff McKenzie--Solute transport in peatlands and methanogenesis in peatlands
32. Keri Leskniak --geochemistry of the Saratoga Springs (Exxon-Mobil)
33. John Bartos--dedolomitization and modeling ground water (Consultant)
34. Mark Flusche-paleohydrology of Andean lakes (Arcadis)
35. Amanda Baudauf--Geochemistry of Regional Groundwater flow systems western New York (unknown)
36. Edward Epp--Onondaga Brine (Virginia DNR)
37. Nick Azzolina--Catskill wetland water quality (Owns own company)
38. Nate Krane--Hyperheic zone interaction (Consultant, GES)
39. Jessica Meets (Karst Hydrology; Maine DEC)
40. Melody Kight (with T. Endreny SUNY, Shale bed methane; Private Legal Practice)
41. Zeno Levy (wetland geochemistry, Vermont DEC)
42. Xi Chen (shale bed methane; PetroChina)
43. Xiangyu Mu (lake groundwater interaction (Oil and Gas industry, Houston)
44. Max Gade (landfill contamination; Consultant, Houston).
45. Jeff Spradlin (trace metals in shale and water, Arcadis consulting)

#### PhD. (Current position/status)

1. Phil Bennett—Silica organic complexes (Prof. Univ. Texas)
2. Ed Romanowicz—Methane in peatlands (Prof. SUNY Plattsburgh)
3. Andy Reeve—Peatland hydrogeological and solute transport modeling (Prof. Univ. Maine)
4. Jennifer Rivers--Nutrient cycling in peatlands, carbon budgets (Prof. BC, Harvard, NE Conservatory of Music.)
5. Martin Otz—Natural organics in wetlands and lakes (Consultant, ERM)
6. Jeff McKenzie---modeling heat flow in wetlands (Prof. and Chair EAR, McGill University)
7. Laura Lautz--Riparian arid wetlands (Professor, Syracuse University)
8. Li Jin (hyporheic interaction, Prof, SUNY-Cortland)
9. Mimi Sarkar (nutrients in wetlands, Arcadis)
10. Zeno Levy (wetland geochemistry, Vermont DEC)

Academic Advisor to ~150 undergraduate EAR students over the years

Many advisory and defense committees for many grad students advised by others in EAR, SUNY-ESF, Cornell, University of Waterloo, and UCLA. I never kept track serving on a advisory or defense committee for students other than my own since, I did it as a matter of course and professional responsibility. I believe I now serve on about 6 MS and PhD committees for students at SU and ESF and elsewhere.

**SYRACUSE UNIVERSITY SERVICE ( I honestly have not put all of what I did on my cv since I consider service part of being a good academic citizen. But below are some of what I recall I have done over the years)**

Curriculum Committee (in the 1990's)  
Committee on Athletic Programs (for about a decade, first as member and at the end as Chair (2000's)  
Fulbright Committee (2010- 2016)  
Committee on Tenure and Promotion (the one reviewing if the process is followed by colleges—I served one year and then I resigned in protest).  
Committee on Academic Leaves (1990's)  
Committee on Academic Integrity (2000's)  
EAR Departmental Committees of all Kinds  
Chair of Various Dept T and P and Search Committees  
Various Ad Hoc Committees to Develop new PhD Programs in Water and the One University One University Plan Committee (2015).  
Meredith Awards Committee (2009-2016).  
Academic Conflict of Interest Committee (2013-2017)

**RESEARCH SUPPORT (Total of ~4 million to my program at SU; not total grant amount including PI's at other Institutions. My part in general, was 1/3<sup>th</sup> of the total).**

1. Hydrogeology and Geochemistry of a Raised-bog Complex, Glacial Lake Agassiz Peatlands, State of Minnesota, \$10,408 awarded, June 1982-December 1983.
2. Origin of Sedimentary Witherite ( $\text{BaCO}_3$ ), Senate Research Committee of Syracuse University, \$3,850, July 1, 1984.
3. IPA Agreement: Regional Aquifer-Systems Analysis (RASA) and Hazardous Waste Hydrology Programs. U.S. Geological survey, \$23,854, June 1984-June 1986; June 1989.
4. The effect of Pleistocene glaciation on formation-water chemistry and migration of oil, southern New York and northwestern Pennsylvania, Petroleum Research Fund, \$30,230, October 1985- October 1987.
5. The Hydrogeology of Onondaga County, New York. Onondaga Environmental Management Council, \$15,000, June 1, 1987-June 1, 1988.
6. The Effect of Organic Acids on the Solubility of Quartz. Petroleum Research Fund, \$35,000, September 1, 1987-September 1, 1989.
7. The Geochemistry of Ground Water in Bedrock Formations, Niagara Falls, New York. U.S. Geological Survey, \$165,094, January 1, 1987-December 30, 1991.
8. Trace Metal Retention and Transport in Mineral Soils Impacted by Leachate Application to Wetlands, U.S. Geological Survey, \$20,000, May 1989-May 1992.
9. Upstate Freshwater Institute Fellowship, \$5,750, 1989.
10. Intergovernmental Personnel Agreement, U.S. Geological Survey, \$5,000, 1989.

11. Mechanisms controlling the production and transport of gases and solutes within a large boreal peat basin, Department of Energy, \$466,608, June 1990-June 1993.
12. Two major peat basins in boreal America: sources, sinks or steady-state reservoirs in the global carbon cycle? NSF, \$256,127, June 1990-June 1993.
13. Geochemical controls over heavy metal contamination in ground water associated with the FreshKills Landfill, Wehren Engineering, \$81,400, February 1991-February 1993.
14. Determination of substrate stratigraphy and depth to bedrock under peatland landforms, NSF, \$28,522, (NSF Research Opportunity Award (ROA), June 1992-June, 1993.
15. Transient changes in methane storage and transport, Glacial Lake Agassiz Peatlands, DOE, \$380,000, June 1993-June 1995.
16. Collaborative Research: Hydrogeologic Drivers for the Carbon Dynamics in Large Peatlands NSF-DEB-9615429, \$158,702,04/01/1997-03/31/2002
17. Evaluation of sewage galley systems in Putnam County, Department of Environmental Protection, City of New York, \$242,000, September 1997-June, 2000.
18. East of Hudson Terrestrial Process Studies, Department of Environmental Protection, City of New York, \$140,000, January 1999-June 2003;
19. Terrestrial Process Studies, Research Foundation State of New York, \$82,000, 2000-2003
20. Ocean Drilling Program Leg 195, NSF, \$40,000, May 15, 2001- August 15, 2003
21. Monitoring Wetlands in the Catskill Region, EPA, \$101,647, October 15, 2003-October 15, 2005
22. Fate and Transport of Salt Contamination in the Surficial Aquifer Near Alder Creek (NY, Gilbert & Ildiko Butler Foundation, April 1, 2003 to March 31, 2006, \$7,670.00
23. Water flux and nitrogen cycling in the hyporheic zones of a semi-arid watershed: Hydrologic and geomorphic driving forces in a transitional climate, NSF, \$744,069 , 2005-2008.
24. An integrated hydrology, geochemistry and geophysics module for geoscience field camps, \$60,000, NSF to the University of Missouri (Branson Field Camp, 2005-2007.
25. Investigating Earth Science in Urban Schoolyards: An Outreach and Professional Development Model for Elementary Schools, NSF, \$62,567
26. Collaborative Research: An Interdisciplinary Investigation of Groundwater-Carbon Coupling in Large Peat Basins and its Relation to Climate Change, NSF, 2006-2010,\$354,232
27. Evaluation of Water Injection in Chinese Oilfields, \$200,000, China Trading Company, 2012-2015

28. RAPID: Developing sensitive tests for detecting water chemistry changes associated with shale bed methane production in the Appalachian Basin, \$50,000, NSF, 2012-2014
29. Collaborative Research: Hydrology and Geochemistry of Prairie Pothole Lake Sedimentary Pore Waters: Implications for the Attenuation of Pesticides, NSF, \$235,000, 2012-present

## PROFESSIONAL SOCIETY MEMBERSHIP

Geological Society of America (1980's to present)  
 American Geophysical Union (1980's to present)  
 Association of Wetland Scientists (1990-1997)  
 National Groundwater Association (1980's to present)

## REFEREED PUBLICATIONS

### Books:

1. National Research Council, 1994, **Groundwater Vulnerability Assessment**, National Academy Press 204p.
2. National Research Council, 1995, **Wetland Characteristics and Boundaries**, National Academy Press 306p.
3. National Research Council, 2000, **Investigating Groundwater Systems on Regional and National Scales**, National Academy Press, 143p.
4. National Research Council, 2003, **Water Use Science: Improving The Water Use Program of the U.S. Geological Survey**, National Academy Press, 210p..
5. National Research Council, 2003, **Groundwater Fluxes across Interfaces**, National Academy Press, 76p.
6. National Research Council, 2004, **Assessing the National Streamflow Information System**, National Academy Press, 176p.
7. National Research Council, 2006, **River Science at USGS**, National Academy Press, 206p.
8. Siegel, D.I, 2006 "*From Lokshen to Lo Mein: The Jewish Love Affair with Chinese Food.*" Gefen Press, Jerusalem and New York. Not science!

### Articles (By Year)

1. Olcott, P.G. and **Siegel, D.I.**, 1979, Physiography and surficial geology of the copper-nickel study region, northeastern Minnesota: U.S. Geological Survey Water-Resources Investigations 78-51, 22 p.
2. **Siegel, D.I.** and Winter, T.C., 1979, Water balance of Williams Lake, north-central Minnesota, U. S. Geological Survey Professional Paper 107.
3. **Siegel, D.I.** , 1979, Potential hydrologic effects of peat mining in the Red Lake Peatlands, North-Central Minnesota--a project plan, U.S. Geological Survey Open File Report 79-1591,
4. **Siegel, D.I.**, 1980, Method of logging holes drilled by the rotary method: Water Resources Division Bulletin, January-March, 1980, U.S. Geological Survey, Reston, Virginia, p. 47-49.
5. **Siegel, D.I.** and Ericson, D.W., 1980, Hydrology and water quality of the copper-nickel study region, northeastern Minnesota: U.S. Geological Survey Water-Resource Investigations, 80-739, 87 p.
6. **Siegel, D.I.** and Winter, T.C., 1980, Hydrologic setting of Williams Lake, north-central Minnesota: U.S. Geological Survey Open-File Report 80-403, 55 p.
7. **Siegel, D.I.**, 1981a, Hydrogeologic setting of the Glacial Lake Agassiz Peatland, northern Minnesota: U.S. Geological Survey Water-Resources Investigations 81-24, 32 p.
8. **Siegel, D.I.**, 1981b, Effect of snowmelt on the water quality of Filson Creek and Omaday Lake, northeastern Minnesota: Water Resources Research, Vol. 17, p. 238-242.
9. **Siegel, D.I.**, 1981, Hydrogeochemistry and kinetics of silicate weathering in a gabbroic watershed, Filson Creek, northeastern Minnesota: Ph.D. Thesis, University of Minnesota, 275 p.
10. Guswa, J.H., **Siegel, D.I.**, and Gillies, D.G., 1982, A Preliminary evaluation of the ground-water-flow system, Twin Cities metropolitan area: U.S. Geological Survey Water-Resources Investigations Report 82-44, 70 p.
11. **Siegel, D.I.**, 1983a, Groundwater and evolution of the Glacial Lake Agassiz: Journal of Ecology, vol. 71, p. 913-921.
12. **Siegel, D.I.**, 1983b, Review of: Isotope Studies of Hydrologic Processes (Eds. E.D. Perry and C.W. Montgomery), EOS, vol. 64, p. 430.
13. **Siegel, D.I.**, 1983c, The effect of snowmelt on the quality of Filson Creek and Omaday Lake, northeastern Minnesota, U.S. Geological Survey Water Resources Investigations 81-66, 82 p.

14. **Siegel, D.I.**, Anderson, L.E., and Rogalla, J.A., 1983, Preliminary evaluation of methods for determination of sulfate concentrations in precipitation and other dilute solutions, In: Siegel, 1983c.
15. Carter, Virginia P.; chairperson; Winter, Thomas C. ; Novitzki, Richard P. ; Hollands, Garrett G. ; Lejcher, Terry ; O'Brien, Arnold ; **Siegel, D. I.** ; Straw, Thomas ; Bartow, Nancy C. 1984, Proceedings of the National wetland valuesassessment workshop, 17-28, U.S. Department of Interior, Fish and Wildlife Service, Washington, DC, United States
16. Mullins, H.T., Land, L.S., Wise, S.W., Jr., **Siegel, D.I.**, Masters, P.M., Hinchey, E.J. and Price, K.R., 1985, Authigenic dolomite in Bahamian slope sediment, *Geology*, vol. 13, p. 292-295.
17. Mullins, H.T., Wise, S.W., Jr., Gardulski, A., Hinchey, E.J., Masters, P.M. and **Siegel, D.I.**, 1985, Shallow subsurface diagenesis of late Pleistocene Peri-platform ooze: northern Bahamas, *Sedimentology*, vol. 32, p. 473-494.
18. **Siegel, D.I.**, and Franzi, D.A., 1984, The inorganic geochemistry of groundwater and sediments in an aquifer contaminated by crude petroleum, Bemidji, Minnesota: Project plan and preliminary results, U.S. Geological Survey Water Resources Investigation 84-4188, p. 87-96.
19. **Siegel, D.I.** and Pfannkuch, H.O., 1984a, Silicate mineral dissolution at pH 4 near standard temperature and pressure, *Geochimica et Cosmochimica Acta*, vol. 48, p. 197-201.
20. **Siegel, D.I.** and Pfannkuch, H.O., 1984b, Silicate dissolution influence on Filson Creek chemistry, northeastern Minnesota: *Geological Society of America Bulletin*, vol. 95, p. 1446-1453.
21. **Siegel, D.I.**, and Livermore, D., 1984, Chloride transport in the Mississippi River System, *Water Resources Bulletin*, vol. 20, p. 503-509.
22. **Siegel, D.I.** and Mandle, R.J., 1984, Isotopic evidence for glacial meltwater recharge to the Cambrian-Ordovician aquifer, north-central United States, *Quaternary Research*, vol. 22, p. 328-335.
23. Chamberlain, S.C., Dossert, W.P. and **Siegel, D.I.**, 1986, A new paragenesis and new localities for the barium carbonate, witherite, *Canadian Mineralogist*, vol. 24, p. 79-90.
24. Chason, D.B. and **Siegel, D.I.** 1986, Hydraulic conductivity and related physical properties of peat, Lost River Peatland, northern Minnesota, *Soil Science*, vol. 42, p. 91-99.
25. **Siegel, D.I.**, 1986, Review: Water, by Felix Franks, Heyden & Sons, Phila., Pa., *Water Resources Bulletin*, vol. 22, p. 145.

26. **Siegel, D.I.**, Baedecker, M.J. and Bennett, P., 1986, The effect of biodegradation of oil on the inorganic chemistry of ground water, In: Proceedings of the 6th International Water-Rock Symposium, Reykjavik, Iceland, p. 524-527.
27. Young, H.L., **Siegel, D.I.**, Mandle, R.J. and Kontis, A.L., 1986, Northern Midwest Regional Aquifer System Study, In: Regional Aquifer System Analysis Program of the U.S. Geological Survey Summary of Projects, 1978-84, Ed. Ren Jen Sun, U.S. Geological Survey Circular 1002, p. 72-87.
28. Bennett, P. and **Siegel, D.I.**, 1987, Enhanced dissolution of quartz by dissolved organic carbon, *Nature*, vol. 326, p. 684-686.
29. **Siegel, D.I.** 1987a, Review of: Ecological Considerations in Wetlands Treatment of Municipal Wastes, Ed. P.J. Godfrey et al., Van Nostrand Reinhold Company, *Water Resources Bulletin*, Vol. 22, p. 1056-1057.
30. **Siegel, D.I.**, 1987b, Review of the recharge-discharge function of wetlands, In: *Ecology and Management of Wetlands*, Crown Helm Ltd., UK, p. 59-66.
31. **Siegel, D.I.**, 1987c, Geochemical facies and mineral dissolution, Bemidji, Minnesota Research Site, U.S. Geological Survey Water Open File Rept. 87-109, c13-c15.
32. **Siegel, D.I.**, and Glaser, P.H., 1987, Groundwater flow in a spring-fen, raised-bog complex, Lost River Peatland, Northern Minnesota, *Journal of Ecology*, vol. 75, p. 743-754.
33. Bennett, P., Melcer, M.E., **Siegel, D.I.**, and Hassett, J.P., 1988, The dissolution of quartz in dilute aqueous solutions of organic acids at 25 C, *Geochimica Cosmochimica Acta*, vol. 52, p. 1521-1530.
34. Gould, G. and **Siegel, D.I.**, 1988, Theoretical simulation of groundwater flow in hydrocarbon-producing bedrock formations, southwestern New York-northwestern Pennsylvania, *Water Resources Bulletin*, vol. 24, p. 671-676.
35. **Siegel, D.I.** and Jenkins, D.T., 1987, Isotopic analysis of groundwater flow systems in a wet alluvial fan, southern Nepal, In: *Isotope Techniques in Water Resources Development*, International Atomic Energy Agency, p. 475-482.
36. **Siegel, D.I.**, Chamberlain, S.C. and Dossert, W.P., 1987, The isotopic and chemical evolution of mineralization in septarian concretions: Evidence for episodic paleohydrogeologic methanogenesis, *Geological Society of America*, vol. 99, p. 385-394.
37. **Siegel, D.I.**, Bennett, P.C., Baedecker, M.J., Berndt, M.P. and Franzi, D.A., 1988, The inorganic geochemistry of groundwater and aquifer matrix, Bemidji Toxic Waste Research Site, northern Minnesota: First Year Results U.S. Geol. Survey Open-File Rept. 86-481, p. c17-c212.

38. **Siegel, D.I.**, 1988, The recharge-discharge function of wetlands near Juneau, Alaska: Part I. Hydrologic investigations, *Journal of Ground Water*, vol. 26, p. 427-435.
39. **Siegel, D.I.**, 1988, The recharge-discharge function of wetlands near Juneau, Alaska: Part II. Geochemical investigations, *Journal of Ground Water*, vol. 26, p. 580-596.
40. **Siegel, D.I.**, 1988, Evaluating Cumulative Effects of Disturbance on the Hydrologic Function of Bogs, Fens, and Mires, *Environmental Management*, vol. 12, p. 621-626.
41. Baedecker, M.J., **Siegel, D.I.**, Bennett, P.C., Cozzarelli, I.M., 1989, The Fate and Effects of Crude Oil in a Shallow Aquifer: Distribution of Chemical Species and Geochemical Facies, U.S. Geol. Survey Water Resources Investigations 88-4220, Chapter A, p. 1-20.
42. Bennett, P.C. and **Siegel, D.I.**, 1989, Silica-organic complexes and enhanced quartz dissolution in water by organic acids, In *Proceedings, 6th International Symposium on Water-Rock Interactions*, Bath, England, p.89-91.
43. Loveley, D.R., Baedecker, N.J., Phillips, E.J.P., Cozzarelli, I.M., Lonergan, D.J., and **Siegel, D.I.**, 1989, Oxidation of aromatic contaminants coupled to microbial iron reduction, *Nature*, vol. 339, p. 297-300.
44. **Siegel, D.I.**, 1989, The hydrogeochemistry of the Cambrian-Ordovician aquifer system, north-central United States, U.S. Geol. Survey Prof. Paper, 1405-D, 76 p.
45. **Siegel, D.I.** and Begor-Franz, K., 1989, The Geochemistry of the Sandstone Aquifer, eastern Wisconsin, In: *Regional Aquifer Systems of the United States*, American Water Resources Association, Monograph Series 13, p. 73-83.
46. Young, H.L., Mandle, R.J., Kontis, A. L. and **Siegel, D.I.**, 1989, The Cambrian-Ordovician Regional Aquifer systems in the northern Midwest--a summary, In *Regional Aquifer Systems of the United States*, American Water Resources Association, Monograph Series No. 13, p. 5-37.
47. **Siegel, D.I.**, 1990, Sulfur isotopic evidence for regional recharge of saline water during continental glaciation, north-central United States, *Geology*, vol. 18, p. 1054-1056.
48. **Siegel, D.I.**, Stoner, D., Brynes, T. and Bennett, P., 1990, A geochemical process approach towards evaluating ground-water contamination, *Ground Water Management*, Number 2, National Water Resources Association, p. 1291-1301.
49. **Siegel, D.I.**, Groundwater Chemistry, a chapter in: Young, H., 1990, *The hydrogeology of the Cambrian-Ordovician aquifer system of the north-central United States*: U.S. Geological Survey Professional Paper 1405-A
50. **Siegel, D.I.**, Frappe, S.K., Martini, A., Drimmie, R., and Thomas, R., 1990, Trace metal contamination of the Great Lakes by natural ground-water discharge: a first approximation,

In Proceedings Symposium on International and Boundary Water Resources Issues, American Water Resources Association, p. 605-615.

51. Bennett, P.C., **Siegel, D.I.**, Hill, B.M., and Glaser, P.H., 1991, The fate of silicate minerals in a peat bog, *Geology*, vol. 19, p. 328-331.
52. Byrnes, T., **Siegel, D.I.**, and Stoner, D.W., 1991, Evaluation of groundwater quality data: useful tools for the groundwater professional, *Ground Water Management*, vol. 7, p. 825-837.
53. Hill, B.M. and **Siegel, D.I.**, 1991, Ground-water flow and the metal content of peat, *Journal of Hydrology*, vol. 123, p. 211-224.
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170. Levy, Z. F., **Siegel D.I.**, Glaser PH, Samson S.D., Dasgupta. S.S.. 2016. Peat porewaters have contrasting geochemical fingerprints for groundwater recharge and discharge due to matrix diffusion in a large, northern bog-fen complex. *Journal of Hydrology*, vol. 541, p. 941–951.
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172. Levy, Z.F., Rosenberry, D.O., Moucha, R., Mushet, D.M., Goldhaber, M.B., LaBaugh, J.W., Fiorentino, A.J. and **Siegel, D.I.**, 2018. Drought-induced recharge promotes long-term storage of porewater salinity beneath a prairie wetland. *Journal of Hydrology*, 557, pp.391-406.
173. Levy, Z.F., Mills, C.T., Lu, Z., Goldhaber, M.B., Rosenberry, D.O., Mushet, D.M., Lautz, L.K., Zhou, X. and **Siegel, D.I.**, 2018. Using halogens (Cl, Br, I) to understand the hydrogeochemical evolution of drought-derived saline porewater beneath a prairie wetland. *Chemical Geology*, 476, pp.191-207.

#### **Abstracts of Papers Presented**

1. Alexander, E.C., **Siegel, D.I.** and Milske, J., 1983 (Abst.), Isotopic studies of the Mount Simon aquifer, southern Minnesota Meeting, American Geophysical Union, Baltimore, June 3, 1983, EOS, vol. 64, p. 225, contributed poster.
2. Andersen, C.B., **Siegel, D.I.**, and Posten, S., 1994, Chloride concentration sin landfill leachate: inaccuracies caused by organic "cloaking," Proceedings: NE Geological Society of America Meeting, vol 26, p.2.
3. Andersen, C. B, **Siegel, D.I.** ,Shen, Y., Posten, S., 1995, Analysis of groundwater quality data using multivariate statistical techniques: an example from the Frersh Kills Landfill, Staqten Island, New York , Abstracts with Programs NE Geological Society of America Meeting, vol. 27, p.26.
4. Azzolina, N. and **Siegel, D.I.**, 2005 The Validity of Hydrogeomorphic Classification of Wetlands in the Catskills, abst. NE GSA Meeting in Saratoga.
5. Bartos, J. Jr., **Siegel, D.I.**, and Noll, R.S., 2000, Evidence for Dedolomitization Caused by Pleistocene Glacial Meltwater in a Fractured Dolomite, in Geological Society America Annual Meeting, Reno, 2000,vol 32, p. A-357,.

6. Bartos, J. and **Siegel, D.I.**, 2001, Migration of North American Sedimentary brines and the subsequent dilution by Pleistocene-age water: a synthesis of conservative solutes and stable isotopes of water, Geol. Soc. America Abstracts with Programs, Annual Meeting, Boston, MA, November, 2001 p. A-185
7. Baum, C.S., Williams, B.P, Allaire, M. ,Parra, L.A., Ferree, N., Story, C., Lautz, L.K., and **Siegel, D.I.**, 2006, A vanishing act: understanding the path of the Popo Agie River through Sinks Canyon Cave, National Meeting of the Geological Society America, Philadelphia, PA.
8. Baedecker, M.J., Cozzarelli, I.M., Bennett, P., and **Siegel, D.I.**, 1990, Cycling of organic and inorganic carbon in a shallow aquifer, Proceedings, V.M. Goldschmidt Conference, Baltimore, MD., p.29.
9. Baedecker, M.J., **Siegel, D.I.**, Bennett, P.C., and Cozzarelli, I.M., 1988, The fate and effects of crude oil in a shallow aquifer I. the distribution of chemical species and chemical facies, Proceedings Technical Meeting of U.S. Geological Survey Toxic Substances Hydrology Program, Phoenix, Arizona, p. 5, invited 20 minutes.
10. Baedecker, M.J., Cozzarelli, I.M., **Siegel, D.I.** and Bennett, P., 1988, Processes related to the distribution of carbon isotopes in ground water affected by crude oil, Geological Society America Annual Meeting, Denver, 1988, vol. 20, p. 365, invited, 30 minutes.
11. Bauer,R.L, **Siegel, D. I.**, Lautz, L. Dahms,D.E., Sandvol, E., Luepke, J., and Payne, L., 2003, Multidisciplinary Instruction through Data Analysis at the University of Missouri Branson Field Camp, In Proceedings Geological Society America National Meeting, Seattle, WA,vol. 34, p.119.
12. Bickford, M., **Siegel, D I**, Hill, B M. and Shosa, J. 2007, Strontium Isotopic Evidence for Episodic Discharge of Slab Fluids to Mud Volcanos in the Marianas Forearc, Title, Eos Trans. AGU,88(23), Jt. Assem. Suppl., Abstract V51B-07,
13. Buckner, G.T., Landers, La Rae N., and **Siegel, D.I.**, 2003, An example of detailed geologic field mapping to understand complex geology and hydrogeology for predicting contaminant migration, Box Canyon landfill, Marine Corps Base Camp, Pendleton, California, In Proceedings Geological Society America National Meeting, Seattle, WA. vol. 34, p.73.
14. Boldt, D.R. and **Siegel, D.I.**, 1985 (Abst.), Numerical simulation of groundwater flow through peat, American Geophysical Union, Spring Meeting, Baltimore, Maryland, May 29, 1985, EOS, vol. 66, p. 264, contributed poster.
15. Bauer, R.L., **Siegel, D.I.**, Sandvol, E. and L.K Lautz, 2009, Integrating hydrology and geophysics into a traditional geology field course: the used of advanced project options, Geological Society American Annual Meeting, Portland OR, Paper No. 252-5 Paper 113-3.

16. Bemis, April ; Shaw, George H. ; Glaser, Paul ; **Siegel, Donald I.**,1994, Control of peat landforms and hydrology by bedrock topography and subsurface stratigraphy, Geological Society of America, 1994 annual meeting Abstracts with Programs - Geological Society of America, 26, p. 470
17. Bennett, P. and **Siegel, D.I.**, 1986 (Abst.), Dissolution of quartz by organic acids in ground water, American Geophysical Union, Spring Meeting, Baltimore, Maryland, May 20, 1986, EOS, vol. 67, p. 275, contributed, 15 minutes.
18. Bennett, P.C., **Siegel, D.I.**, Jones, P.L. and Veeger, A.I., 1987 (Abst.), A pressure probe for determining lake-groundwater interaction, American Geophysical Union, Spring Meeting, May 20, 1987, EOS, vol. 68, p. 319, contributed, poster.
19. Bennett. P., **Siegel, D.I.** and Hill, B., 1988, Silica mobility in a wetland: evidence for silica-organic complexation, Geological Society America Annual Meeting, Denver, 1988, vol. 20, p. 150, contributed, 15 minutes.
20. Bennett, P., and **Siegel, D.I.**, 1990, Quartz surface-chemistry in organic-rich natural waters, in Proceedings, V.M. Goldschmidt Conference, Baltimore, MD.,p. 30.
21. Bennett, P., Baedecker, M.J.,and **Siegel, D.**, 1990, Organic and biological controls on the inorganic geochemistry of a petroleum contaminated aquifer, Spring Meeting, AGU, EOS, v. 71. p. 517, invited, 20 minutes.
22. Burgess, C.S., Lautz, Laura K., Chien, Nathaniel Patrick, Hoke, Gregory D., Leonte, Mihai, Kessler, J.D., Christian, Kayla, **Siegel, Donald I.** and Lu, Zunli, 2016, Temporal pattern of naturally occurring methane levels in domestic water wells overlying the Marcellus Shale in New York. Geological Society of American Annual Meeting, Denver, Colorado.
23. Chason, D.B. and **Siegel, D.I.**, 1984 (Abst.), Hydraulic conductivity of peat, Lost River Peatlands, Northern Minnesota, American Geophysical Union, Cincinnati, May 16, 1984, EOS, vol. 65, p. 212, contributed, 15 minutes.
24. Chasar, L. Chanton, J., Glaser, P..H., **Siegel, D. I.** and Rivers, J., 2001, Carbon dynamics of large northern peatlands: radiocarbon and stable isotope analyses , Abstracts INTECOL/SWS Annual Meeting, Quebec City, Canada, p.222.
25. Chasar, L. Chanton, J., Glaser, P..H., **Siegel, D. I.** and Rivers, J., 2001, Carbon dynamics of large northern peatlands: radiocarbon and stable isotope analyses , Abstracts INTECOL/SWS Annual Meeting, Quebec City, Canada, p.222.
26. Chamberlain, S.C. and **Siegel, D.I.**, 1986 (Abst.), Stable isotope compositions of witherite and strontianite: Implications for the genesis of sedimentary carbonates, In: Proceedings Joint Annual Meeting Geological Association of Canada, Mineralogical Association of

- Canada, Canadian Geophysical Union, May 20, 1986, vol. 11, p. 54, contributed, 20 minutes.
27. Coler, D. and **Siegel, D.I.**, 1999, Suspended matter in analysis of trace metals in ground water: are turbidity standards meaningful, Geological Society of America, Abstracts with Programs, Northeastern Section Meeting, Providence, R.I., vol. 31, A-10.
  28. Corbett, J., Chanton, J., Glaser, P.H., Burdige, D., **Siegel, D.I.**, Cooper, W., 2008, Using  $^{14}\text{C}$  to investigate Methane Production and DOC Reactivity in Northern Peatlands, Eos Trans. AGU, 89(53), Fall Meet. Suppl., Abstract B33B-0413
  29. Corbett, J., J. Chanton, D. Burdige, P. H. Glaser, **D. I. Siegel**, S. S. Dasgupta, M. m. Tfaily, W. T. Cooper, 2009, Using C/N ratios to investigate DOM reactivity in northern peatlands, 2009, Eos, Vol. 90, Number 52, 29 December 2009, Fall Meet. Suppl., Abstract B41A-0296.
  30. Coyne, M.C., **Siegel, D.I.**, and Coler, D.G., 1999, Transport of nutrients from on-site treatment devices to fens: preliminary plume characterization and evaluation, Geological Society of America, Abstracts with Programs, Northeastern Section Meeting, Providence, R.I., vol. 31, A-10.
  31. Christian, K., Lautz, L. K., Hoke G. D., Lu, Z., **Siegel, D.I.** and Kessler, J., 2014, Spatial parameters controlling salinity and dissolved methane concentrations in private well prior to hydraulic fracturing, paper 285-5, Geological Society of American Annual Meeting, Vancouver, Canada. 285-2, Geological Society of American Annual Meeting, Vancouver, Canada.
  32. Dasgupta, S.S., **Siegel, D.I.**, Glaser, P.H., and Chanton, J., 2008, (Abstract) Identifying Possible Preferential Flow Paths and Biochemical Reactions Between Surface Water and Deep Ground Water through Stable Isotopic Analysis In a Large Circumboreal Peatland, Geological Society of America Meeting, Houston, TX, 7 October 2008.
  33. Dossert, W.P., Chamberlain, S.C. and **Siegel, D.I.**, 1984 (Abst.), A new occurrence of witherite near Syracuse, New York, In: Proceedings, 11th Rochester Academy of Sciences Mineralogical Symposium, April 13, 1984, Rocks and Minerals, vol. 59, p. 224, contributed, 20 minutes.
  34. Dreisen, D.M. and **Siegel, D.I.**, 2008, Mathematical Modeling of Climate: Massachusetts et al. v. EPA and The Precautionary Principle, National Risk Assessment Conference, Boston, December 7<sup>th</sup>, 2008.
  35. Epp, E., **Siegel, D.I.**, Baldauf, A., 2005, The Origin of Sodium and Calcium-Chloride Enriched Groundwater beneath Onondaga Lake, Syracuse, New York, abst. NE GSA Meeting in Saratoga.

36. Evenson, R., Reeve, A.S., Glaser, P.H. and **Siegel, D.I.**, 2000, Simulating groundwater reversals in a boreal peatland, *EOS*, vol. 81, p. F523
37. Flusche, M. Seltzer, G., **Siegel, D.I.**, Rodenberry, D., and Samson, S.D., 2005, Geochemical Analysis of Waters in the Lake Junin Watershed, *Jour. Hydrology*. vol. 312, p. 1-13.
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39. Franz, K.E. and **Siegel, D.I.**, 1984 (Abst.), Geochemical trends in the Sandstone Aquifer, eastern Wisconsin, American Geophysical Union, Cincinnati, May 16, 1984, *EOS*, vol. 65, p. 213, contributed, 15 minutes.
40. Frape, S.K., **Siegel, D.I.**, Dolar, P., and McNutt, R.H., 1989, The relationship of major structural tectonic features and formation water chemistry of the Michigan-Appalachian Basins, Invited, Fall American Geophysics Union Meeting, San Francisco, invited, 20 minutes, *EOS*, vol. 70, invited, 20 minutes, p. 1097.
41. Frey, K.E., **Siegel, D.I.** and Smith, L.C, 2005, Effects of Permafrost Degradation on the River Transport of Solutes to the Kara Sea, *Eos Trans. AGU*, 86(52), Fall Meet. Suppl., Abstract.
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43. Glaser, P.H., **Siegel, D.I.**, and Janssens, J., 1986 (Abst.), The detection of ground water discharge in extensive peatlands by remote sensing, In: Proceedings Fourth International Congress of Ecology, August 12, 1986, Syracuse, N.Y., p. 159-160, contributed poster.
44. Glaser, P.H. and **Siegel, D.I.**, 1990, Ground-water discharge and the distribution of peatland patterns in the Glacial Lake Agassiz Region, Northern Minnesota (USA), Fall Meeting American Geophysical Union, San Francisco, *EOS*, vol. 71, p. 1299.
45. Glaser, P.H., Romanowicz E., and **Siegel, D.I.**, 1992, Methane storage in the peatlands of the Glacial Lake Agasszi Region during a period of extreme drought, In Proceedings of British Ecological Society Mires Research Group--Special Topic Symposium on Global Climatic Change, Carbon Balance and Peatlands, School of Agriculture, University of Nottingham, March 23-25, 1992, p. 12.

46. Glaser, P.H., Morin, P.J., Tsekos, N., and **D.I. Siegel**, 1997 (abst.), Vertical oscillations in the land surface of northern peatlands determined by GPS: a physical expression of climate change and methane cycling, Fall Meeting American Geophysical Union, San Francisco, EOS, vol. 78.
47. Glaser, P.H., Morin, P.J., Kamp, J.J., Tsekos, N., and **Siegel, D.I.**, 1998a, (Abst.), Measuring Biogenic Gas Bubbles in Peat Cores by Magnetic Resonance Imaging, Spring Meeting American Geophysical Union, Boston, EOS, vol. 79, S48.
48. Glaser, P.H., Morin, **Siegel, D.I.**, Ruud, O., Rosenberry, D.O., Chanton, J.P., Stalder-Chasar, L., Reeve, A., and Janecky, D., 1999, (Abst.), Bog breathing: the curious interplay of climate, groundwater, and greenhouse gases in boreal peatlands, EOS, vol. 80, p. F47..
49. Glaser, P.H., and **Siegel, D.I.**, 1999, Linkages between groundwater and ecosystems processes in boreal peatlands, In Proceedings, vol. 31, Geol. Society of America Annual Meeting, Denver, p. A-495.
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51. Glaser, P.H., Rosenberry, D., **Siegel, D.I.** , 2003, "Surface deformations as indicators of deep ebullition fluxes in a large northern peatland, Global Biogeochemical Cycling, Proceedings American Geophysical Union Meeting, San Francisco.
52. Glaser, P.H. and **Siegel, D.I.** and A.S. Reeve, 2006, Historical roots of hydrological concepts in peatland science with a modern perspective from northern peat basins, National Meeting Geological Society of America, Philadelphia, PA.
53. Glaser, P H.,Morin, P J., Tsekos, N., **Siegel, D I**.,Rosenberry, D O., Chanton, J P. Reeve, A S.,2006, The Transport of Free-Phase Methane in Hydraulically Confined and Unconfined Peat Strata Analyzed by Magnetic Resonance Imaging (MRI), Fall Meeting American Geophysical Union, San Francisco.
54. Glaser, Paul H, **Siegel, D.I.** and Reeve, A. S. 2007, How Tothian Concepts Influenced the Modern Understanding of Peatland Hydrology, GSA Denver Annual Meeting (28–31 October 2007), Paper No. 67-5.
55. Glaser, P H, **Siegel, D I**, Chanton, J P, Reeve, A S, Slater, L, Rosenberry, D O,Morin, P J, Carpenter, M, Rhoades, J., Nolan, J.,Parsekian, A,O'Brien, M, Sarkar, S, Corbett, J E, D'Andrilli, J. 2007, A 30 year study of carbon, groundwater, and climate coupling in a large boreal peat basin, Proceedings American Geophysical Union, San Francisco

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57. Glaser, P., Rosenberry, **D I., Siegel**, D.I.,Reeve, A.S., Chanton, J., Slater. L., Burdige, D., Cooper. W.T., Comas, X., Rhodes, J. L., 2011, (Abst).The Red Lake Peatland Observators (RLPO): A Multi-sensor instrument array for monitoring carbon-water dynamics in the large northern peatland, 2011 GSA Annual Meeting in Minneapolis (9–12 October 2011) Paper No. 232-9.
58. Glaser, P.; **Siegel, D.I.**; Rosenberry, D.O.; Chanton, J.; Reeve, A.S.; Slater, L.D.; Cooper, W.T.; Burdige, D.J; Comas, X.; Corbett, J.E.; Tfilany, M.; and Paul J. Morin, 2011 (Abst.), Groundwater-carbon interactions within the Red Lake Peatland of northern Minnesota, American Geophysical Union Annual Meeting, San Francisco, CA , Dec. 5, 2011, B12C-06.
59. Glaser, P.H., Reeve, A.S., **Siegel, D.I.**, Chanton, J., Rosenberry, D.O., Corbett, J.E., Dasgupta, S., and Z. Levy, 2013, B43G-01. A 40-Year Time Series for Climate-Driven Flow Systems and their Relation to the Methane Production Capacity of the Glacial Lake Agassiz Peatlands (GLAP) In Northern Minnesota, Annual Meeting of American Geophysical Union, San Francisco, CA.
60. Glaser, P.H., Chanton, J., **Siegel, D.I.**, Reeve, A., Corbett, J.E. and D. O. Rosenberry. Methane pools within the Glacial Lake Agassiz Peatlands (GLAP) and their response to climate change, Paper B24C-05
61. Goldenburg, Karen, **Siegel, D.I.**, Andersen, Brannon, C., 1995, Using mixing models to characterize groundwater contamination, 1995 Abstracts with Programs NE Geological Society of America Meeting, vol. 27, p.48.
62. Gould, G. and **Siegel, D.I.**, 1987 (Abst.), Theoretical computer simulations of groundwater flow in southwestern New York and northwestern Pennsylvania during Wisconsin glaciation, American Geophysical Union, Spring Meeting, Baltimore, Maryland, May 20, 1987, EOS, vol. 68, p. 320. contributed Poster.
63. Hill, B. and **Siegel, D.I.**, 1988, Relationship between groundwater flow and the metals content of peat, Lost River Peatland, northern Minnesota, EOS, v. 69, p. 353-354, contributed, AGU, Baltimore, 15 minutes.
64. Hill, B., **Siegel, D.I.** and others, 2001, POE--using the internet for personalized learning in a large enrollment introductory Earth Science class, Geol. Soc. America Abstracts with Programs, Annual Meeting, Boston, MA, November, 2001 p. A-244.
65. Hummel, S.T., Lautz, L.K., Hoke, G.D. Lu, Z., Leone, J., Zhou, X., and **D. I. Siegel**, 2013,

Iodine as a sensitive tracer for detecting influence of organic-rich shale in shallow ground water, Geological Society of American National Meeting, Denver, Colorado.

66. Jenkins, D.T., **Siegel, D.I.**, and Eschner, A.E., 1986 (Abst.), Isotopic variations in groundwater in a wet alluvial fan, southern Nepal, Asia, American Geophysical Union, Spring Meeting, Baltimore, Maryland, May 20, 1986, EOS, vol. 67, p. 277, contributed poster.
67. Jin, Li, **Siegel, D.I.**, Lautz, L.K., and Kranes, N.T, 2006, The relationship between source waters and geochemical processes on the chemistry of Red Canyon Creek, a 2<sup>nd</sup> Order Stream, National Meeting Geological Society of America, Philadelphia, PA.
68. Jin, Li, Sarkar, S., and **Siegel, D.I.**, 2006, "Real world" experience in hydrogeology: the multidisciplinary Syracuse Mock Trial Experience. National Meeting Geological Society of America, Philadelphia, PA.
69. Jin, L., J L Meeks, K A Hubbard, L M Kurian, **D I Siegel**, L K Lautz, M H Otz. 2007, Using Multiple Watershed-scale Dye Tracing Tests to Study Water and Solute Transport in Naturally Obstructed Stream Channels. Proceedings of the American Geophysical Union Annual Meeting, December 10-14, 2007: San Francisco, California: Advances in Ecohydrology: Landscape-Scale Patterns and Processes
70. Jin, Li and **Siegel. D.I.**, 2008, Temporal Geochemical Variations in a Mountain Stream: Expectations to Anomalies, Eos Trans. AGU, 89(53), Fall Meet. Suppl., H11B-0745
71. Kaufmann, R.S., **Siegel, D.I.**, Prinos. S, and Dickey. N., 1994, Evolution of formation waters in the Illinois and Appalachian Basins as indicated by chlorine stable isotope compositions, Abstracts 8th International Conference on Geochronology, Cosmochronology, and Isotope Geology, Berkeley, CA, p. 165.
72. Kight. M.D., and **D.I. Siegel**, 2011, A protocol to characterize flowback waer contamination to shallow waters from shale gas development, NE. Geol. Society of America Meeting, Pittsburgh. Paper 16-7.
73. Kitchens, S., **Siegel, D.I.**, Seltzer, G.O., and Rivers, J., 1998, (Abst.) A Hydrogeochemical Analysis of Floyd's Prairie, Okeefenokee Swamp, Georgia, EOS, vol. 79, S93.
74. Kranes, NT , LK Lautz, L Jin and **DI Siegel** . 2006. Temperature variations in the hyporheic zone of Red Canyon Creek, Wind River Range, Wyoming (Abstract). Proceedings of the Northeastern Geological Society of America Annual Meeting, March 20-22, 2006, Camp Hill-Harrisburg, Pennsylvania: Applied Hydrogeology and Environmental Geology for the 21st Century.
75. Lautz, L.K., RM Fanelli, NT Kranes, **DI Siegel**. 2007. Sediment distribution around debris dams: Impacts on streambed hydrology, biogeochemistry and temperature dynamics in small streams (INVITED). Proceedings of the Geological Society of America Annual

- Meeting, October 28-31, 2007: Denver, Colorado: The Role of Sediments in Hydrology and Hydrogeology: Streams, Springs, Karst Systems, and Hyporheic Zones (Posters).
76. Lautz, L. K. and **Siegel, D.I.**, 2006, Does rapid exchange of surface and ground water play a key role in reducing nitrate loading in streams?: Drawing conclusions from inter-site comparisons of nitrate uptake rates, 2006 Northeastern Meeting Geological Society of America.
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  78. Lautz, L. and **Siegel, D.I.**, 2004, Modeling Hyporheic Flux Along a Second-Order Semi-arid Stream: Red Canyon Creek, Program and Abstracts, H23G-04, AGU, San Francisco.
  79. Lautz, LK, **DI Siegel**. 2005. Does Transient Storage in Streams Enhance Nutrient Uptake Rates?: Selecting the Best Metric for Analysis (Abstract). Proceedings of the Northeastern Geological Society of America Annual Meeting, March 14-16, 2005, Saratoga Springs, New York: Hydrology: Interdisciplinary Approaches to Hydrological Problems.
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  81. Lautz, LK, **DI Siegel**, RL Bauer. 2003. Hyporheic Interaction Along a Semi-Arid Second Order Stream, Wind River Range (WY) (Abstract). Proceedings of the Geological Society of America Annual Meeting, November 2-5, 2003, Seattle, Washington: Exploring the Linkages Between the Geochemistry, Biology, and Hydrology of the Hyporheic Zones (Posters).
  82. Lautz, L. K., Hoke G. D., Lu, Z., Siegel, D.I., Christian, K., and Kessler, J. , 2014, Fingerprinting sources of salinity to aquifers overlying shale using publically-available background water quality data and multivariate statistical approaches., paper 285-4, Geological Society of American Annual Meeting, Vancouver, Canada.
  83. Lautz, L. K., Hoke G. D., Lu, Z., **Siegel, D.I.**, Christian, K., and Kessler, J. , 2014, Fingerprinting sources of salinity in shallow groundwater prior to hydraulic fracturing: Statistical model development and application; 248th American Chemical Society National Meeting, San Francisco, CA, Paper 13740
  84. Lautz, L. K., Christian, Kayla, Hoke, Gregory D., **Siegel, Donald I.**, Lu, Zunli and Kessler, J.D., 2016, Development of empirical models of natural methane occurrence in shallow

groundwater overlying the Marcellus Shale by using machine learning methods, Geological Society of American National Meeting, Denver, Colorado.

85. Lesniak, K. **Siegel, D.I.** and Verillo, D., 2000, The isotopic geochemistry of the Saratoga Springs: Implications for the origin of solutes and source of carbon dioxide gas, Proceedings of the National Meeting of the Geological Society of America, vol 32, Reno, Nevada, A-62.
86. Levy, Z., **Siegel, D.I.**, , 2011, Effects of scale on mineral solute transport in circumboreal peat landforms. NE. Geol. Society of America Meeting, Pittsburgh. Paper 41-1.
87. Levy, Zeno F., Kight, Melody D., Mu, Xiangyu<sup>2</sup>, **Siegel, Donald I.**, Glaser, Paul H., and Rosenberry, D., 2011 (Abst.) Effects of Scale on Mineral Solute Transport in Circumboreal Peat Landforms, Northeastern and North Central Joint Meeting of Geological Society of America, 20-22 March 2011, paper No. 41-1.
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- 149.** **Siegel, D.I.**, Lesniak, K., and Frape, S., 2005, Model Simulation and of the Saratoga Springs: Results and Uncertainties, abst. NE GSA Meeting in Saratoga
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- 151. Siegel, D.I.**, Glaser, P.H., Chanton, J.P. Chasar, L.S., and Rosenberry., D.O., 2004, Methane Production and the hydrogeology of Peatlands, Geological Society of America Annual Meeting, Denver, Abstracts with Programs ,vol. 36, p.188, invited
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- 161. Siegel, D.I.**, 1983 (Abst.), Sulfur Isotope Chemistry, Cambrian-Ordovician Aquifer, north-central United States, Fall meeting, American Geophysical Union, San Francisco, Dec. 7, 1983, EOS, vol. 64, p. 704, contributed, 15 minutes.

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- 166. Siegel, D.I.** and Boldt, D.R., 1985 (Abst.), Hydrogeologic controls on water chemistry and vegetation in northern Minnesota peatlands, In: Proceedings of National Meeting of the American Society of Limnology and Oceanography/Ecological Society of America, Minneapolis, Minnesota, June 19, 1985, p. 101, invited, 20 minutes.
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- 168. Siegel, D.I.**, 1986 (Abst.), The effects of Pleistocene glaciation on the chemistry of ground water in the proximity of the Forest City and Illinois Basins, north-central United States, Geological Society of America National Meeting; San Antonio, Texas, Abstracts with Programs, vol. 18, p. 749-750, Nov. 10, 1986, Invited, 20 minutes.
- 169. Siegel, D.I.**, Bennett, P. and Berndt, M., 1986 (Abst.), Analysis of inorganic solutes to evaluate groundwater contamination by crude oil, American Geophysical Union, Spring Meeting, Baltimore, Maryland, May 22, 1986, EOS, vol. 67, p. 286, contributed, 15 minutes.
- 170. Siegel, D.I.**, Chamberlain, S.C. and Dossert, W.P., 1986 (Abst.), Calcite, strontianite and witherite formation in individual septarian concretions: evidence for episodic methanogenesis from the Devonian to the Pleistocene, Abstracts with Programs, Northeastern Section, Geological Society America, Kiamesha Lake, New York, March 12, 1986, vol. 18, p. 65, contributed, 20 minutes.

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- 172. Siegel, D.I.,** 1987 (Abst.), Solute movement in peat - Advection or diffusion? American Geophysical Union, Spring Meeting, Baltimore, Maryland, May 21, 1987, EOS, vol. 68, p. 321, contributed, 15 minutes.
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- 174. Siegel, D.I.,** 1988, The hydrogeology of freshwater wetlands, Juneau, Alaska, EOS, v. 69, p. 353, contributed, AGU, Baltimore, 15 minutes.
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- 176. Siegel, D.I.,** 1989, Hydrogeology and geochemistry of the Lost River Peatlands, Northern Minnesota, Midwest Groundwater Conference, Oct. 18-20, Kalamazoo, Michigan, invited, 20 minutes, proceedings, in press.
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- 178. Siegel, D.I.,** 1989, Ground-water flow in mires: a "hydrobiologic system," International Geologic Congress, Washington D.C., 1989, invited, 20 minutes.
- 179. Siegel, D.I.,** 1989, Hydrogeology and geochemistry of the Lost River Peatlands, northern Minnesota, In: Proceedings 34th Midwest Groundwater Conference, Kalamazoo, Michigan, Invited, 20 minutes, p. 14.
- 180. Siegel, Donald I..** 1989, Geochemical trends in the Paleozoic section of western New York; implications to regional groundwater flow and tectonics. Yole, R. W.; Drury, M. J. ; editor; editor; Scientific drilling; southern Ontario
- 181.** Algonquin Arch Transect; proceedings of the 1989 workshop Canadian Continental Drilling Program Report, 89,p 17
- 182. Siegel, D.I.** 1990, Effects of continental glaciation on the geochemistry of regional aquifer systems, NE. Section Meeting of the Geological Society of America, Syracuse, New York, invited, 30 minutes, p.71, vol. 22.

- 183. Siegel, D.I.,** McNamara, J.P., Romanowicz, E.A., Glaser, P.H., Nelson, D., Neuzil, S.G., Struck, C.N., Jr., and Fredrick, B.C., 1990, Ground-water discharge beneath raised bogs, Lake Agassiz Peatlands, Minnesota: Part II. Geochemical evidence, Fall Meeting American Geophysical Union, San Francisco, EOS, vol. 71, p. 1299.
- 184. Siegel, D.I.,** Glaser, P.H., and Romanowicz, E.A., 1991, Methane concentrations and groundwater flow in peat, glacial Lake Agassiz Peatlands, Northern Minnesota: Proceedings 10th Int. Symposium Env. Biogeochemistry, San Francisco, p 150.
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- 186. Siegel, D.I.,** 1992, Groundwater flow in wetlands, "Paradigm Lost," Program and Abstracts, The New York Natural History Conference II, April 29 - May 1, 1992, Invited, p. 65.
- 187. Siegel, D.I.,** Hydrogeochemistry of the Niagara Falls Area, 1992 (Host) In Proceedings of the International Association of Hydrogeologists Meetings, Hamilton, Canada, May 1992.
- 188. Siegel, D.I.,** Albright, L., Ferdinand, J., Hart, A., Leivberman, B., Lovinger, A.J., Staley, A.C., and Weisberg, E., 1993, "A Piece of the Earth: a novel approach for teaching elementary Earth Science, NE Meeting of the Geological Society of America, Burlington, Vermont, Proceedings, vol., 25, p. 79.
- 189. Siegel, D.I.,** Andersen, C.B. and Posten, S., 1994, The Hydrogeochemistry of the world's largest landfill: Fresh Kills, Staten Island, New York, Proceedings: NE Geological Society of America Meeting, vol 26, p.73.
- 190. Siegel, D.I.,** 1998, (Abst.) Model Complexity in the Courtroom: A Comment From the Trenches, EOS, vol. 79, S113.
- 191. Siegel, D.I.,** P H. Glaser, Chanton J., Stalder L. and Rosenberry D., (Abst.), 1998, Enrichment in Deuterium in Water: Evidence for Methanogenesis by Carbonate Reduction in the Glacial Lake Agassiz Peatlands, Northern Minnesota, EOS, vol. 79, S144
- 192. Siegel, D.I.,** 1999, Altered states: contaminant hydrogeology from the perspectives of regulatory and academic scientific communities, Geological Society of America, Abstracts with Programs, Northeastern Section Meeting, Providence, R.I., vol. 31, A-68.
- 193. Siegel, D.I.,** So, J., Glaser, P.H. and Janecke, 1999, The acid-base geochemistry of large peatlands: the dynamic balance between circumboreal groundwater and pore waters rich in organic matter, EOS, vol. 80, p. F375.

- 194. Siegel, D.I.,** Glaser, P.H., and Reeve, A.S. 2000, The Hydrogeochemical and Ecological Linkages In Mires: A Modern Retrospective, Proceedings Wetland Society Annual Meeting, Quebec City, p.xxx
- 195. Siegel, D.I.,** Chanton, J. and Glaser, P.H., 2000, Isotopic evidence for deep surface-water recharge and methanogenesis in raised bogs: implications on global cycling of methane, in Proceedings Annual Meeting of Geological Society of American, Reno, vol 32, p. A-122
- 196. Siegel, D.I.,** Glaser, P.H. and A.S. Reeve, 2000, Hydrogeologic controls over the evolution of mires, Reeve, A., Siegel, D.I. and Glaser, P.H., 2000 Abstracts INTECOL/SWS Annual Meeting, Quebec City, Canada, p.327.
- 197. Siegel, D.I.,** Chanton, J.P, Glaser, P.H., Rosenberry, D.O., 2000, Deuterium enrichment of peat pore water: Isotopic evidence for Deep Methanogenesis, EOS, vol. 81, p. F217.
- 198. Siegel, D.I.,** Otz, M., Ot, I., McKenzie, J.M., Hassett, J., Bartos, J., Tedorov, S., Flusche, M., Lesniak, K.A., Tassilo, J., and Cuomo. D., 2001, Why are the wetland and surface waters sometimes colored in the Croton Watershed (New York) ?, EOS, vl. 82, p. S182.
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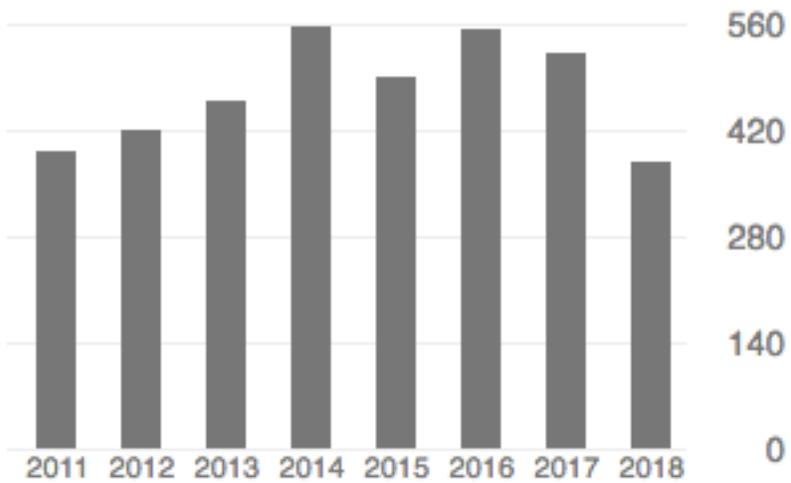
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