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and
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Education

PhD, Geochemistry, 1983-1987, Colorado School of Mines, Golden, Colorado

Specialization

The chemical dynamics of natural water systems with particular interest in contaminant degradation, the geochemical processes that control groundwater chemistry in regional aquifer systems and the development of in-situ sensing devices.

Recent Grant Activity

Klump, J.V., Grundl, T., Kaster, J., Mackenzie, R., Jablonski, M. “Integrating freshwater science and sustainability: Training opportunities in a rapidly changing Yucatan Peninsula ecologic corridor.” NSF IRES program. \$299,772 (October 2021-October 2024).

Grundl, T. (PI), Newton, R. (Co-PI) “Anthropogenically driven changes to the metagenome of a shallow groundwater and its effect on aquifer” Wisconsin Groundwater Research Council, \$88,905 (July 2016 - June 2018).

Grundl, T. (PI) “Assessing the Effect of Riverbank Inducement on Groundwater Quality” Wisconsin Groundwater Research Council, \$81,898 (July 2013 - June 2015).

Klaper, R. (PI), Grundl, T. J. (Co-PI), "Wastewater Chemical/Pharmaceutical Degradation Study", Milwaukee Metropolitan Milwaukee Sewage District, \$91,267, (May 2012 – March 2014).

Grundl, T. J., Elam, W.T. (Co-PI)"Feasibility study of in-situ XRF measurement for long term diffusion experiments", Swiss National Cooperative for the Disposal of Radioactive Waste, \$714,000, (July 2012 - December 2014).

Grundl, T. J. (PI), Kean, W. F. (Co-PI), Cherkauer, D. (Co-PI), "Investigation of water resource management alternatives in rapidly developing areas", Brico Fund, \$255,000, (July 2009 - June 2011).

Recent Publications and Reports

- Kodikara, G.R.L., McHenry, L.M., Grundl, T. (2022) Possible formation pathways for zeolites in closed-basin lakes on Noachian Mars: Insights from geochemical modeling. *Icarus* <https://doi.org/10.1016/j.icarns.2022.115271>.
- Jaquenoud, M., W.T. Elam, T. Grundl, T. Gimmid, A. Jakobe, S. Schefer, P. de Cannière, V. Cloet, O.X. Leupin (2021) X-ray fluorescence monitoring of iodide diffusion through Opalinus Clay: demonstration of a novel experimental approach. *Chemosphere* <https://doi.org/10.1016/j.chemosphere.2020.128674>
- Byers, Harris, L., Mchenry, L.J., Grundl, T., (2020) Accumulation of Pb in 9 common produce crops grown in metals-rich residential garden soils, soil from a former metal foundry, and commercial topsoil. *Sci. Total Environ.* 743 (2020) 140414.
- Grundl, T., McHenry, Lindsay J., Byers, Harris (2018) XRF Techniques to Quantify Heavy Metals in Vegetables at Low Detection Limits *Food Chemistry X*, DOI 10.1016/j.fochx.2018.100001, 44pp.
- Han, W. S., Watson, Z.T., Kampman, N., Grundl, T., Keating, E. (2017) Periodic changes in effluent chemistry at a cold water geyser: Crystal Geyser in Utah, *J. Hydrology* 550, 54-64.
- Byers, H., McHenry, L. J., Grundl, T. (2016) Determinants of Fifty-Five Major and Trace Elements in NIST soil SRM 2586, SRM 2587, SRM 2709a, SRM 2710 and SRM 2711a using ICP-MS and WD-XRF. *Geostandards and Geoanalytical Research*. doi: 10.1111/j.1751-908x.2016.00376.x.
- Grundl, T. J., Fields-Sommers, L., Graham, J. (2016) Groundwater-Surface Water Interactions Caused by Pumping from a Riverbank Inducement Well Field. Final Report submitted to UW System Groundwater Research Program Project #WR13R002.15pp.
- Byers, H., McHenry, L. J., Grundl, T. J. (2016) Forty-nine major and trace element concentrations measured in Soil Reference Materials NIST SRM 2586, 2587, 2709a, 2710a and 2711a using ICP-MS and Wavelength Dispersive-XRF. *Geostandards and Geoanalytical Research*. doi: 10.1111/j.1751-908X.2016.00376.x , 13 pp.
- Elam, T., Grundl, T., Leupin, O., Descostes, M., (2013) “Design of an In-situ XRF Instrument for Elemental Diffusion Measurements” *Advances in X-ray Analysis*. Vol. 56:157-166.
- Grundl, T. J., Magnusson, N., Brennwald, M., Kipfer, R. (2013) Mechanisms of subglacial groundwater recharge as derived from noble gas, ¹⁴C and stable isotopic data. *Earth Planetary Sci. Let.* 369-370:78-85.
- Winkel, L.H.E., Johnson, C.A., Lenz, M., Grundl, T., Leupin, O.X., Amini, M., Charlet, L. (2012). Environmental Selenium-From Microscopic Processes to Global Understanding. *Environmental Science and Technology (feature article)*, 46(2), 571-579.

Grundl, T. J. (2011). *Aquatic Redox Chemistry* Tratnyek, P., Grundl, T., Haderlein, S. (Ed.), ACS Symposium Series Vol. 1071, 618 pp. American Chemical Society.

Grundl, T., Haderlein, S., Nurmi, J., Tratnyek, P. (2011). Introduction to aquatic redox chemistry. In Tratnyek, P., Grundl, T., Haderlein, S. (Ed.), "*Aquatic Redox Chemistry*" ACS Symposium Series Vol. 1071, Oxford University Press, pp. 1-14.

Grundl, T., Magnusson N., Krall, J. (2011). Assessing the effects of Pleistocene glaciation on the sandstone aquifer in eastern Wisconsin. Final Report submitted to UW System Groundwater Research Program Project #WR09R004. 26 pp.

Recent Scholarly and Professional Media Contributions

TV, WTMJ Channel 4, Milwaukee. (June 2016). An interview explaining the importance of correct sampling procedures when sampling for lead contamination in a city's drinking water supply.

Radio, WUWM Public Radio, Milwaukee. (May 2016). 30 minute interview along with Rebecca Klaper on water contamination issues in the state of Wisconsin.

Radio, WORT -Madison. (February 2016). interview about radium issues in Wisconsin groundwaters

TV, Milwaukee Channel 12. (February 2016). interview on the chemistry behind the Flint MI water fiasco.

Internet, doc/UWM series entitled "Water Docs". (2011). This is one of a series of video clips highlighting various UWM researchers (on vimeo.com)

Recent Presentations

Hatami, j., Johnson, R., Tigar, A., Conroy, N.A., Reimus, P.W., Grundl, T., Benko, A.M. Paradis, C., "Determining the soil organic carbon partition coefficient (K_{oc}) for the novel groundwater tracer 2-naphthalene sulfonate (2-NS)", Geological Society of America *Abstracts with Programs*. Vol 53, No. 6 doi: 10.1130/abs/2021AM-369822 (October 2021)

Hatami, J., Schmidt, A., Sulikowski, G., Meurer, C., Benko, A., Reimus, P., Grundl, T., Conroy, N., Johnson, R., Paradis, C., Investigation of a novel tracer, sodium 2-naphthalene sulfonate, for sorption to organic carbon in native sediments. GSA North Central Region Meeting (April 2021)

Kodikara, G.R.L., McHenry, L.J., and Grundl, T.J. A possible formation pathway for zeolites in closed-basin lakes on Noachian Mars: insights from geochemical modeling, 52nd Lunar and Planetary Sciences Conference (March 2021)

Grundl, T. J., Byers, H.L., "Increased risk for Pb exposure in children through consumption of produce grown in urban soils. Geological Society America National Meeting (October 2021).

- Grundl, T. J., Matzuk, R., Hydrologic and geochemical dynamics of the karstic aquifer supplying Laguna Bacalar, Yucatan, Mexico. Geological Society America National Meeting (October 2021).
- Geysir geothermal field, Iceland: Revisiting silica-rich deposits near Home Plate, Gusev crater Mars. J. Ludyan¹, L. J. McHenry, and T. Grundl. ¹University of Wisconsin – Milwaukee Department of Geosciences, 3209 N. Maryland Ave., Milwaukee, WI 53211. 51st Lunar and Planetary Sciences Conference 2020
- Kodikara, G.R.L., L. J. McHenry, and T. Grundl, Dissolution kinetics of evaporites at Panamint Basin, CA and their implications for evaporites on Mars: Initial results., 51st Lunar and Planetary Sciences Conference 2020
- Salo, M., Grundl, T. J., Gaynor, N., Newton, R. J., American Water Resources Assoc. Wisconsin Section, "Anthropogenically Driven Changes to Shallow Groundwater in southeastern Wisconsin and its Effects on the Aquifer Metagenome." (March 2018).
- Pfeiffer, J., Grundl, T. J., American Water Resources Assoc. Wisconsin Section, "Infiltration of sodium chloride into deep dolomite wells located near the Upper Fox River and its implications." (March 2018).
- Grundl, T. J., Newton, R. J., Gaynor, N., Salo, M., Pfeiffer, J., Wisconsin Groundwater Coordinating Council Annual Meeting, "Anthropogenic change seen in the shallow aquifer of Waukesha County." (November 2017).
- Gaynor, N., Salo, M., Grundl, T. J., Newton, R. J., American Microbiology Society, "The impact of riverine infiltration on groundwater aquifer microbial communities." (October 2017).
- Cloet, V., De Cannière, P., Elam, W.T., Gimmi, T., Grundl, T. J., Jakob, A., Leupin, O.X., Schefer, S., Yang, T., Int'l Conference on Clays in Natural and Engineered Barriers for Radioactive Waste Confinement, "In-situ XRF measurements to track Iodide Diffusion in Opalinus Clay," Davos, Switzerland. (September 2017).
- Grundl, T. J., Washington Island Town Wastewater Committee, "A few notes on the way groundwater behaves and the implications for Washington Island," Washington, Island, WI. Invited (September 2017).
- Joynt, E., Grundl, T. J., Han, W. S., Gulbranson, E., AGU National Meeting, "Factors controlling diffusive CO₂ transport and production in the Cedarburg Bog, Saukville, WI," American Geophysical Union National Meeting, San Francisco. (December 2016).
- Grundl, T. J., American Indian Studies class, "A few notes on the water supply in SE Wisconsin," UWM campus. Invited (September 2016).
- Grundl, T. J. (Presenter & Author), HMN fall meeting, "A few notes on the water supply in SE Wisconsin," Bayview, WI. Invited (September 2016).

- Grundl, T. J., Big Cedar Lake Property Owner Association Annual Meeting, "Results of monitoring the ground water supply in the Cedar Lakes area," West Bend, WI. Invited (June 2016).
- Armstrong, M., Johnson, M. , Siwula, P. , Winter, C. , Grundl, T., International Association for Great Lakes Research, Toronto Canada, "Creating a Hydrologic Budget: Preliminary Measurements of Laguna Bacalar, Mexico" (June 2016).
- Grundl, T. J., Fields-Sommers, L. , Graham, J. , Conference, Wisconsin Section American Water Resources Association Annual Meeting, Wisconsin Dells, "Groundwater-surface water interactions caused by pumping from a riverbank inducement well field" (March 2016).
- Grundl, T. J., Waukesha WI, "A few environmental issues pertaining to the sustainable use of water in Wisconsin" **Invited.** (November 2015).
- Grundl, T. J., American Indian Studies 203 guest lecture, UWM campus, "Environmental issues pertaining to the sustainable use of water in Wisconsin" (September 2015).
- Grundl, T. J. , Klaper, R., Blair, B., Hedman, C., Nikolaus, A., Conference, Geological Society of America Northeastern Region, Madison, WI, "The fate of Pharmaceuticals and Personal Care Products in a Waste Water Treatment Plant: Implications for Discharge to Urban Waters" (May 2015).
- Fields-Sommers, L. , Grundl, T. J., Wisconsin Section American Water Resources Association Annual Meeting, Oconomowoc, WI, "Assessing the Effects of Riverbank Inducement on Groundwater Quality of a Shallow Aquifer in Southeastern Wisconsin" published in proceedings. (March 2015).
- Grundl, T. J. , Blair, B. , Klaper, R., Nikolaus, A. , Hedman, C. , Wisconsin Section American Water Resources Association Annual Meeting, Oconomowoc, WI, "The Fate of Emerging Contaminants in a Municipal Waste Water Treatment Plant" (March 2015).
- Watson, Z. T. , Han, W. S., Grundl, T. J., Kampman, N., Han, K.-D., Conference, American Geophysical Union, San Francisco, California, "Temporal chemical variations during the eruption cycle at Crystal geyser in Green River, Utah: Inverse modeling of fluid sourcing and implications to the geyser mechanism" (December 2014).
- Grundl, T. J., Milwaukee Public Museum, "Environmental issues pertaining to the sustainable use of groundwater in Wisconsin" **Invited.** (October 2014).
- Grundl, T. J. , Alverno College, "The Use of Chemical Signatures to Deduce the Health, Provenance and History of Groundwater in Eastern Wisconsin" **Invited.** (October 2014).
- Grundl, T. J. , Dlugolecki, A. , Wisconsin Section American Water Resources Association Conference, "Applying geochemistry to investigate the occurrence of riverbank inducement into a shallow aquifer in Southeastern Wisconsin" (March 2013).

- Blair, B., Nicholas, A., Hedman, C., Tandon, S., Klaper, R., Grundl, T. American Water Works Association National Meeting “The Occurrence and Fate of PPCPs in a Conventional Activated Sludge System: Assessing Negative Removal Efficiencies” (February 2013)
- Grundl, T., Magnusson, N., Kipfer, R., Brennwald, M. Annual meeting Wisconsin Groundwater Coordinating Council, “What happens to the underlying aquifer when you put 1000 meters of ice on top?” **Invited** (February 2013)
- Watson, Z., Han, W., Grundl, T.J. Conference, National Geological Soc. America, "Geochemical evolution and eruption dynamics in Crystal Geyser, Green River ,Utah", published in proceedings. (November 2012).
- Elam, T. , Grundl, T. J. , Leupin, O. , Descostes, M. , Conference, Denver Xray Conference, "Design of an In-situ XRF Instrument for Elemental Diffusion Measurements", published in proceedings. (August 2012).
- Grundl, T. J. , Magnusson, N. , Brennwald, M. , Kipfer, R. , Conference, Goldschmidt Conference, Montreal, CA. "Mechanisms of subglacial groundwater recharge as derived from noble gas, 14C, and stable isotopic data", published in proceedings. (July 2012).
- Grundl, T. J. , Conference, Wisc. Groundwater Association, "Numeric flow models and chemical speciation models: an actual example of synergism", Invited. (April 2012).
- Grundl, T. J. , Magnusson, N. , Brennwald, M. , Kipfer, R. , Conference, American Water Resources Association - Wisc. section, "Mechanisms of paleorecharge in the deep sandstone aquifer using noble gas, 14C and stable isotope tracers", published in proceedings. (March 2012).
- Grundl, T. J. , Colloquium/Symposium, UW-Oshkosh seminar series, "What happens to the underlying aquifer when you put ¼ mile of ice on top?", **Invited**. (March 2012).
- Grundl, T. J. , Magnusson, N. , Kipfer, R. , Brennwald, M. , Conference, National Geological Soc. America, "Dynamics of paleo-recharge in a deep confined aquifer system", published in proceedings. (October 2011).
- Bradbury, K. , Grundl, T. J. , Workshop, Wisconsin Ideas Forum, "Groundwater Challenges and Issues", **Invited**. (October 2011).
- Cherkauer, D. , Feinstein, D. , Grundl, T. J. , Boersma, P. , Wisc. DNR requested presentation, "Examining the Viability of Riverbank Inducement (RBI) as another source of water in SE Wisconsin", **Invited**. (April 2011).

Department/Program Administration

Dean. (May 2016-2021)

Associate Dean for Academics, School of Freshwater Sciences

Chairman. (January 2010 – September 2016).

School of Freshwater Sciences Executive Committee Chair (in effect the department
Chairman)

Chairman. (January 2005 - August 2009).
Department Chair - Geosciences