FACULTY CV: Department of Earth and Environmental Sciences
University of Michigan

NAME: Lynn M. Walter

EDUCATION:

Ph.D.	University of Miami	Marine Geology	1983
M.S.	Louisiana State University	Geology	1978
B.A.	Washington University	Geology	1975

PROFESSIONAL POSITIONS:

2010-	Professor Emerita, Department of Earth and Environmental Sciences, University of Michigan, Ann Arbor MI
1995-2010	Professor, Department of Geological Sciences, University of Michigan, Ann Arbor, MI
1989-1995	Associate Professor, Department of Geological Sciences, University of Michigan, Ann Arbor, MI
1984-1989	Assistant Professor, Department of Earth and Planetary Sciences, Washington University, St. Louis, MO
1983-1984	Research Assistant Professor, Department of Marine Geology and Geophysics, R.S.M.A.S., University of Miami, Miami, FL.

HONORS AND AWARDS (selected):

2006	Rackham Distinguished Mentor Award
2005	Fellow-Geochemical Society
2000	Ingerson Lecturer: Geochemical Society
1999	Distinguished Service Award, Geological Society of America
1987	Presidential Young Investigator Award, National Science Foundation.
1983	F.G. Walton Smith Prize, R.S.M.A.S., University of Miami.
1975	Phi Beta Kappa, Washington University.

PROFESSIONAL SOCIETY SERVICE(selected):

2001-2007	Editor in Chief- Chemical Geology
1997-2000	Geochemical Society, Board of Directors
1995-1999	Editor: Geological Society of America Bulletin
1995-1996	Sedimentary Basins Report, National Research Council
1994-1997	Associate Editor, Geology
1993-1996	Associate Editor, Journal of Sedimentary Research
1991-1996	Associate Editor, Geology
1990-1995	Associate Editor, Geological Society of America Bulletin
1989-1992	Associate Editor, Journal of Sedimentary Petrology

PROPOSAL REVIEW PANELS (selected):

2003-2008 Panel Member- NSF EAR Geology and Paleontology
2001-2008 Panel Member: Civilian Defense Fund, US-Former Soviet Union
1994-1997 Panel Member: NSF-EAR (Geology and Paleontology)
1993-1994 Panel Member: International Science Foundation, Soros Fund

RESEARCH GRANTS: Last 10 years

1. National Science Foundation-Environmental Geochemistry and Geobiology: "A Comparative Study of Carbonate Weathering Mechanisms and Fluxes in Carbonate rich, Midlatitude Watersheds Across Landscape and Land Use Types". 4 years total award, $235,000 (2007-2010).
2. Petroleum Research Fund- American Chemical Society: An Integrated Hydrogeochemical and Modeling Study of a Hydrocarbon-Rich Intermontane Basin (Uinta Basin, Utah): 2 years, total award $80,000 (2006-2009).
3. National Science Foundation- International Cooperative Programs: "Carbonate Weathering Fluxes from Slovenian Landscapes" $98,000 (2003-2005).
4. National Science Foundation, EAR Geology and Paleontology. " Controls on Carbonate Mass Transfer in Natural Systems". $198,000. (2002-2005).
5. American Chemical Society, "Effects of Glaciation on Fluid Migration". $80,000. (2003-2005)
6. National Science Foundation- Instrumentation and Facilities Program: "Acquisition of Replacement Equipment for the Experimental and Analytical Laboratory (EAGL)". Total= $ 292, 024
7. American Chemical Society, "Hydrogeochemistry of Mid-Continent Sedimentary Basins"$60,000. (2000-2002).
8. Gas Research Institute, "Hydrogeochemistry of Devonian Shales and natural gas in the Illinois Basin". $275,000. (1999-2001).

STUDENTS SUPERVISED: (Masters and PhD)

Elizabeth A. Burton (Ph.D. 1988, Washington University)
Edward L. Dromgoole (Ph.D. 1989, Washington University)
Eva P. Moldovanyi (Ph.D. 1990, Washington University)
William P. Patterson (M.S. 1992, University of Michigan)
Robert Klein (M.S. 1992, University of Michigan)
Arthur Leibold (Ph.D. 1992, University of Michigan)
Victoria Hover (Ph.D. 1996, University of Michigan)
Anna Martini (Ph.D. 1996, University of Michigan)
Ruth Blake (Ph.D. 1997, University of Michigan)
Kia Baptist (M.S., 1998) (University of Michigan)
Timothy Ku (Ph.D., 2001) (University of Michigan)
Jennifer McIntosh (Ph.D. 2004) (University of Michigan)
Erika Williams-Carter (PhD. 2005) (University of Michigan)
Nina Carranco (MS, 2005) (University of Michigan)
Naila Moreira (Ph.D. 2006) (University of Michigan)
Kathryn Szramek (Ph.D. 2006) (University of Michigan)
Lixin Jin (Ph.D. 2007) (University of Michigan)

SELECTED PUBLICATIONS:

1979 Walter, L.M. and J.S. Hanor. Effects of orthophosphate on the dissolution kinetics of biogenic magnesian calcites. Geochimica et Cosmochimica Acta 43: 1377-1385.

1979 Walter, L.M. and J.S. Hanor. Orthophosphate: Effect on the relative stability of aragonite and magnesian calcite during early diagenesis. Journal of Sedimentary Petrology 49: 937-944.

1984 Walter, L.M. and J.W. Morse. Magnesian calcite stabilities: A reevaluation. Geochimica et Cosmochimica Acta 48: 1059-1069.

1984 Walter, L.M. and J.W. Morse. Total versus reactive surface areas of skeletal carbonates during carbonate dissolution: Effect of grain size. Journal of Sedimentary Petrology 54:1081-1090.

1985 Walter, L.M. Relative reactivity of skeletal carbonates during dissolution: implications for diagenesis. SEPM Special Publication No. 36, Carbonate Cements (N. Schneidermann and P.M. Harris, editors): 3-16.

1985 Walter, L.M. and J.W. Morse. The dissolution kinetics of shallow marine carbonates in seawater: A laboratory study. Geochimica et Cosmochimica Acta 49:1503-1513.

1986 Walter, L.M. and Burton, E.A. The effect of orthophosphate on carbonate dissolution kinetics. Chemical Geology 56: 313-323.

1987 Burton, E.A., and Walter, L.M. Relative precipitation rates of aragonite and Mg-calcite from seawater: Temperature or carbonate ion control? Geology 15: 111-114.

1990 Dromgoole, E.L. and Walter, L.M. Iron and manganese incorporation into calcite: Effects of precipitation rate, temperature, and solution chemistry. Chemical Geology 81: 311-336.

1990 Walter, L.M. and Burton, E.A. Dissolution of recent platform carbonate sediments in marine pore fluids. American Journal of Science 290: 601-643.

1990 Walter, L.M., Stueber, A.M. and Huston, T.J. Br-Cl-Na systematics in Illinois Basin fluids: Constraints on fluid origin and evolution. Geology 18: 315-318.

1990 Burton, E.A. and Walter, L.M. The role of pH in phosphate inhibition of calcite andaragonite precipitation in seawater. Geochimica et Cosmochimica Acta 54:797-808.

1990 Connolly, C.A., Walter, L.M., Baadsgaard, H., and Longstaffe, F.J. Origin and evolution of formation waters, Alberta Basin, Western Canada Sedimentary Basin: I. Water chemistry. Applied Geochemistry 5: 375-396.

1990 Connolly, C.A., Walter, L.M., Baadsgaard, H., and Longstaffe, F.J. Origin and evolution of formation waters, Alberta Basin, Western Canada Sedimentary Basin: II. Isotope systematics. Applied Geochemistry 5: 396-414.

1990 Moldovanyi, E., Walter, L.M., Brannon, J.C. and Podosek, F.A. New constraints on carbonate diagenesis from integrated Sr and S isotopic and rare earth element data: Jurassic Smackover Fm. (U.S. Gulf Coast). Applied Geochemistry 5: 449-470.

1990 Dromgoole, E.L. and Walter, L.M. Effects of Mn^{2+} on the precipitation kinetics of calcite. Geochimica et Cosmochimica Acta 54: 2991-3000.

1991 Stueber, A.M. and Walter, L.M. Origin and chemical evolution of formation waters from Silurian-Devonian strata in the Illinois Basin: Limitations imposed by integrated isotopic (Sr, O, H) and elemental data. Geochimica et Cosmochimica Acta 55: 309-325.

1991 Burton, E.A. and Walter, L.M. The effects of PCO_2, dissolved sulfate and temperature on magnesium incorporation in marine calcites. Geochimica et Cosmochimica Acta 55: 777-785.

1992 Moldovanyi, E.P., and Walter, L.M. Regional trends in water chemistry, Smackover Fm., Southwest Arkansas: geochemical and physical constraints. American Association of Petroleum Geology 76: 864-894.

1993 Stueber, A.M., Walter, L.M., Huston, T.J., and Pushkar, P. Geochemistry of formation waters from Mississippian-Pennsylvanian reservoirs (Illinois Basin, USA):Hydrologic controls on evolution and migration. Geochimica et Cosmochimica Acta 57: 763-784.

1993 Moldovanyi, E.P., Walter, L.M., and Land, L.S. Sr, B, O, and H isotope geochemistry of brines from basal strata of the Gulf Coast sedimentary basin. Geochimica et Cosmochimica Acta. 57: 2083-2100.

1993 Walter, L.M., Bischof, S.A., Patterson, W.P., and Lyons, T.W. Dissolution and recrystallization in modern shelf carbonates: evidence from pore water and solid phase chemistry. Phil. Trans. Royal Society Lond. A. 344: 27-36.

1994 Patterson, W.P., and Walter, L.M. Syndepositional diagenesis of modern platform carbonates: evidence from isotope and elemental data. Geology 22: 127-130.

1994 Stueber, A.M., and Walter, L.M. Evidence for glacial recharge and paleohydrologic flow systems in the Illinois Basin: origins of salinity and mixing relations in Ordovician Carbonate (Galena) Formation Waters. GSA Bulletin 106: 1430-1439.

1994 Patterson, W.P., and Walter, L.M. Depletion of carbon isotopic composition of seawater CO_2 on modern carbonate platforms: significance for the isotopic record of carbonates. Geology 22: 885-888.

1996 Blake, R.E., and Walter, L.M. Effects of organic acids on orthoclase dissolution at 80°C and pH 6. Chemical Geology, 132, 91-102.

1996 Hover, V.C., Peacor, D.R., and Walter, L.M. STEM/AEM evidence for preservation of burial diagenetic fabrics in Devonian shales. Journal of Sedimentary Research, p. 519-530.

1996 Walter, L.M, Budai, J.M, Abriola, L.M,, Stearns, C., Martini, A., and Ku, T.C.W.. Hydrogeochemistry of the Antrim Shale, Northern Michigan Basin. Gas Research Institute Final Report, GRI-95/0251, 252 pp.

1997 Martini, A.M., Budai, J.M., Walter, L.M., and Schoell, M., Microbial generation of economic accumulations of methane within a shallow organic rich shale. Nature, 155-158.

1997 Walter, L.M., Budai, J.M., Martini, A., and Ku, T., Hydrogeochemistry of the Antrim Shale in the Michigan Basin. Final Report, Gas Research Institute, 5093-220-2704, 98 pp.

1998 Martini, A.M., L.M. Walter, J.M. Budai, T.C.W. Ku, C. Kaiser, and M. Schoell , Genetic and temporal relations between formation waters and biogenic methane: Upper Devonian Antrim Shale, Michigan Basin, U.S.A. Geochim. Cosmochim.Acta, 62, 1699-1720.

1999 Ku T.C.W., L.M. Walter, M.L. Coleman, R.E. Blake, and A.M. Martini (1999) Coupling between sulfur recycling and syndepositional carbonate dissolution: Evidence from oxygen and sulfur isotope composition of pore water sulfate, South Florida Platform, U.S.A. Geochim Cosmochim. Acta 63, .2529-2546.

1999 Blake, R.E. and Walter, L.M. , Kinetics of feldspar and quartz dissolution: Effects of organic acids and NaCl. Geochim. Cosmochim. Acta, 63, 2043-2059.

1999 Hover, V.C., Walter, L.M., Peacor, D.R., and Martini, A.M. Mg-smectite authigenesis in a marine evaporative environment, Salina Ometepec, Baja Calif. Clays and Clay Minerals, 47, 252-268.

2001 Hover, V.C., Walter, L.M., and Peacor, D.R. (2001) Early marine diagenesis of biogenic aragonite and Mg-calcite: New constraints from high resolution STEM and AEM analyses of modern platform carbonates. Chemical Geology, 175, 221-248.

2002 McIntosh, J.C., Walter, L.M. and Martini, A. M. (2002) Pleistocene recharge to mid-continent basins: Effects on salinity structure and microbial gas generation. Geochim. Cosmochim. Acta 66, 1681-1700.

2002 Hover, V.C., Walter, L.M., and Peacor, D.R. K-uptake by modern estuarine sediments during early marine diagenesis, Mississippi Delta Plain, LouisianaUSA. Journal Sedim Research, v. 72, 775-792.

2002 Losh, S., Walter, L.M, Whelen, J., Cathles, L, and Martini, A Fluid migration hydrogeochemical evolution, and hydrocarbon occurrence; Eugene Island Block, Gulf of Mexico Basin. American Assoc. Petrol. Geologists Bulletin, 86, 1463-1488.

2002 Martini, A.M., Walter, L.M., and V. C. Hover. Significance of early diageneticwater- rock interactions in a modern marine siliclastic-evaporite environment: Salina Ometepec. Geol. Soc. Amer. Bull. 66, 222-222

2003 Martini, A.M., Walter, L.M., Budai, J.M., Ku, T.C.W., McIntosh, J.C., and Schoell, M. Microbial production and modification of gases in sedimentary basins: A geochemical case study from a Devonian Shale gas play, Michigan Basin. AAPG Bulletin, vol. 87, 1355-1375.

2003 Ku, T.C.W. and Walter, L.M. Syndepositional formation of Fe-rich clays in tropical shelf sediments: Evidence from pore water and solid phase geochemistry, San Blas Archipelago, Panama. Chemical Geology, v. 14, 1-17.

2003 Williams, E.L., Walter, L.M., Ku, T.C.W., Kling, G.W., Zak, D.R. Effects of CO_2 and nutrient availability on mineral weathering in controlled tree growth experiments. Global Biogeochemical Cycles 17. Art. No. 1041

2004 McIntosh, J.C., Walter, L.M., and Martini, A.M. Geochemical modification of Late- Devonian shale formation waters via microbial methanogenesis. GSA Bulletin 116, 220-237.

2004 Szramek. K., Walter, L.M., and McCall, P. Arsenic mobility in groundwater/surfacewater systems in carbonate-rich Pleistocene glacial drift aquifers (Michigan). Applied Geochemistry, v. 19, 1137-1155.

2004 Lyons, T.W., Walter, L.M, Gellary, A.M, Martini, A.M., and Blake, R.E., Sites of anomalous organic remineralization in the carbonate sediments of South Florida, USA. The sulfur cycle and carbonate-associated sulfate. Geological Society of America Special Paper 379. "The Biogeochemistry of Sulfur". p. 161-176

2004 Moreira, N., Walter, L.M., McKenzie, J., Vasconcelos, C., and McCall, P. Role of sulfide oxidation in dolomitization: sediment and pore water geochemistry of a modern hypersaline lagoon system. Geology v. 32, p. 701-704.

2004 Szramek, K and Walter, L.M., Impact of carbonate precipitation on riverine inorganic carbon mass transport from a mid-continent, forested watershed. Aquatic Geochemistry , v. 10, p 99-137.

2006 McIntosh, J.C., and Walter, L.M. Paleowaters in Silurian-Devonian carbonate aquifers: geochemical evolution of groundwater in the Great Lakes region since the Late Pleistocene. Geochimica et Cosmochimica Acta, vol 70, p. 2454-2479.

2007 Williams, E., Walter, L.M., Ku, T.C., Baptist, K.K., Budai, J.M., and Kling, G.W., Silicate Weathering In Temperate Forest Soils: Insights From A Field Experiment. Biogeochemistry vol 82, 111-126.

2007 Walter, L.M,, Ku, T.C., Muehlenbachs, K, Patterson, W.P., , and L Bonnell. Controls on the 13C of Dissolved Inorganic Carbon in Marine Pore Waters: An Instructive Example from Biogenic Carbonate Sediments (South Florida Platform). Deep Sea Research II vol 54, 1163-1200.

2007 Best, M., Ku, T.C., Kidwell, S., and Walter, L.M. Carbonate Preservation in Shallow Marine Environments: Unexpected Role of Tropical Siliciclastics. Journal of Geology, vol 115, p. 437-456.

2007 Williams. E, Szramek, K., Jin, L., Ku, T.C.W., and Walter, L.M. The carbonate system geochemistry of shallow groundwaters/surface water systems in temperate glaciated watersheds (Michigan, USA): Significance of open system dolomite weathering. Geological Society of America Bulletin, vol 119, p. 515-528

2007 Szramek K., McIntosh J.C., Williams E.L., Kanduc T., Ogrinc N. and Walter L.M.Relative weathering intensities of calcite vs. dolomite in carbonate-bearing temperate zone watersheds: Carbonate geochemistry and fluxes from catchments within the St. Lawrence and Danube River Basin. G3, vol. 8, Q04002. Doi:10.1029/2006GC001137.

2007 Kanduc, T., Szramek, K., Ogrinc, N., and Walter, L.M. Origin and cycling of riverine inorganic carbon in the Sava River watershed (Slovenia) inferred from major solutes and stable carbon isotopes. Biogeochemistry vol. 86; p. 137-154.

2008 Martini, A.M., Walter, L.M., and McIntosh, J.C. Identification of microbial and thermogenic gas components from Upper Devonian black shale cores, Illinois and Michigan basins. AAPG Bulletin. vol. 92; p. 309-326.

2008 Jin, L., Hamilton, S.K. and Walter, L.M. Mineral weathering rates in glacial drift soils (SW Michigan, USA): New constraints from seasonal sampling of waters and gases at soil monoliths. Chemical Geology, vol. 249, p. 129-154.

2008 Jin, L., Williams, E., Szramek, K., Walter, L. M. and Hamilton, S. K. Silicate and carbonate mineral weathering in soil profiles developed on Pleistocene glacial drift (Michigan, USA): Mass balances based on soil water geochemistry. Geochimica et Cosmochimica Acta, vol. 72, p. 1027-1042.

2008 Ogrinc, N., Markovics, R., Kanduc, T., Walter, L. M., Hamilton, S.K. Source and transport of carbon and nitrogen in the River Sava, a major tributary of the River Danube. Applied Geochemistry, vol. 23, p. 3685-3698.

2009 Jin, L., Ogrinc, N., Hamilton, S.K., Szramek, K., Kanduc, T., and Walter, L.M. Inorganic carbon isotope systematics in soil profiles undergoing silicate and carbonate weathering (Southern Michigan, USA). Chemical Geology, vol. 264, p. 139-153.

2009 Zhang, Y., Gable, C.W., Zyvoloski, G., and Walter, L.M., Hydrogeochemistry and gas compositions of the Uinta Basin: A regional scale overview. American Association Petroleum Geologists Bulletin, v. 93, p. 1087-1118.

2011 Szramek, K., Walter, L.M., Kanduc, T., and Ogrinc, N. Dolomite versus calcite weathering in a hydrogeochemically diverse watershed developed on bedded carbonates, Sava and Soca Rivers, Slovenia. Aquatic Geochemistry, v. 7, p. 357-396.

2012 Jin, L., Mukasa, S., and Walter, L.M., Impacts of glacial/interglacial cycles on continental rock weathering inferred using Sr/Ca and 87Sr/86Sr values in Michigan watersheds. Chemical Geology, v. 300-301, p. 97-109.