

SALLY L. LETSINGER, Ph.D.

Associate Research Scientist (Hydrogeology)

Email: sletsing@indiana.edu

Phone: 812.855.1356

Curriculum Vitae

Department of Geography
Indiana University
Student Building 120
701 E. Kirkwood Avenue
Bloomington, IN 47405-7100

EDUCATION

Ph.D. Geological Sciences: Indiana University, Bloomington, IN, 2001.

Department of Geological Sciences (Hydrogeology)

Dissertation: Simulating the evolution of seasonal snowcover and snowmelt runoff using a distributed energy balance model: Application to an alpine watershed in the Tobacco Root Mountains, Montana

M.S. Geology: University of Idaho, Moscow, ID, 1994.

Department of Geology and Geological Engineering (Fluvial Geomorphology and Hydrology)

Thesis: Late-stage syneruption sedimentation in the South Fork Toutle River, Toutle, Washington

B.S. Geology: Indiana University-Purdue University at Indpls, Indianapolis, IN, 1990.

Department of Geology

POSITIONS AND APPOINTMENTS

2018 - present	Associate Research Scientist, Department of Geography, Indiana University, Bloomington, Indiana.
2017 - 2018	Associate Research Scientist, Center for Geospatial Data Analysis, Indiana Geological and Water Survey, Indiana University, Bloomington, Indiana.
2013 - 2017	Assistant Research Scientist, Center for Geospatial Data Analysis, Indiana Geological Survey, Indiana University, Bloomington, Indiana.
2007 - present	Member of Graduate Faculty, Indiana University, Bloomington, Indiana.
2005 - present	Adjunct Assistant Professor, Department of Earth and Atmospheric Sciences (formerly, Department of Geological Sciences), Indiana University, Bloomington, Indiana.
2006 - 2009	Director, Center for Geospatial Data Analysis, Indiana University, Bloomington, Indiana.
2003 - 2006	Assistant Director, Center for Geospatial Data Analysis, Indiana University, Bloomington, Indiana.

2000 - 2013	Research Hydrogeologist, Center for Geospatial Data Analysis, Indiana University, Bloomington, Indiana.
1998 - 2000	Engineering Geologist, Basin Studies Section, Indiana Dept. of Natural Resources, Division of Water, Indianapolis, Indiana.
1996 - 1998	Research Assistant, Department of Geological Sciences, Indiana University, Bloomington, Indiana.
1997 Summer	GIS Programming Consultant, GIS Laboratory, School of Public and Environmental Affairs, Indiana University, Bloomington, Indiana.
1995 - 1996	Associate Instructor, Department of Geological Sciences, Indiana University, Bloomington, Indiana.
1994 - 1995	Research Scientist (Tolo Lake Fossil Site Project), University of Idaho, Moscow, Idaho.
1992 - 1994	Instructional Assistant, Department of Geology and Geological Engineering, University of Idaho, Moscow, Idaho.
1991 - 1992	Engineering Geologist, Ground Water Section, Indiana Dept. of Natural Resources, Division of Water, Indianapolis, Indiana.

PROFESSIONAL LICENSURE

Licensed Professional Geologist, State of Indiana, #2074
Geographic Information Systems Professional (GISP), #49772

RESEARCH INTERESTS

- Watershed hydrology, especially in areas of complex terrain
- Understanding the hydrologic implications of a changing climate
- Water infrastructure, water sustainability
- Modeling the land-surface energy balance for determination of the spatial distribution and timing of snowmelt runoff
- Using numerical methods to solve geologic and hydrogeologic problems
- GIS and remote sensing as tools for geospatial data analysis applied to geologic problems at all scales
- Scientific visualization

GRANTS AND FUNDING (Cumulative total of \$4.6M)

2017-2018 An assessment of the persistence of chloride in the pathway from source water to tap and its implications for potential corrosion of metal pipes: A pilot study. Project Director/Co-PI (Branam)/Analyst. Indiana Finance Authority. Eighteen-month project; \$35,761.

2017-2018 Planning, coordination, and training associated with lead sampling activities at Schools: Indiana School Lead Sampling Program. Project Director/PI/Analyst. Indiana Finance Authority. Twenty-month project; \$2.08M.

2016-2018 Spatial analysis of registered significant water withdrawal facilities in Indiana. Project Director/PI/Analyst. Indiana Finance Authority. Two-year project; \$520,950.

2017 Expansion of in-progress study: Geological investigations to understand the distribution of arsenic in groundwater. Project Director/PI. Indiana Department of Environmental Management. Six-month project; \$100,000.

2016-2017 (1) Evaluating tillage practices on near-surface groundwater recharge, (2) Geological investigations to understand the distribution of arsenic in groundwater. Project Director/PI. Indiana Department of Environmental Management. Seventeen-month project; \$182,000.

2016 High performance numerical modeling in hydrogeology. Project Director/PI. NVIDIA Corporation. Received Tesla K40 GPU (graphics processing unit). Value: \$4,000.

2015 Spatial analysis of 20 selected water utilities in Indiana. Project Director/PI/Analyst. Indiana Finance Authority. Seven-month project; \$96,259.

2012-2015 Development of an aquifer sensitivity assessment for Indiana. Project Director/PI. Indiana Department of Environmental Management. Thirty-eight-month project; \$330,000.

2013 Glacial Stratigraphy Regional Geologic Framework Model Development: Erie Ice Lobe Basin in Indiana. Project Director/PI. USGS Great Lakes Geologic Mapping Coalition. One-year project; \$33,973.

2012 Evaluation of the Indiana Department of Environmental Management Ground Water-Quality Monitoring Network. Project Director/PI. Indiana Department of Environmental Management. Three-month project; \$35,500.

2012 Glacial Stratigraphy: Characterization of the Erie Lobe. Project Director/PI. USGS Great Lakes Geologic Mapping Coalition. One-year project; \$42,760.

2011 Predictive modeling of potential karst-development areas in south-central Indiana: Project Director/PI. U. S. Forest Service. One-year project; \$20,000.

2011 Georeferencing high resolution coastal aerial photography for dissemination on the Lake Michigan Rim Internet mapping web site. Project Director/PI. Indiana Department of Environmental Management. Three-month project; \$15,000.

2009-2011 Three-dimensional geologic model development of the Huntertown Formation, Allen County, Indiana. Project Director/PI. USGS Great Lakes Geologic Mapping Coalition. Three-year project; \$115,195.

2008 Development of a land cover classification data layer for the Indian Creek Watershed, Johnson, Morgan, Brown, and Monroe Counties, Indiana. Project Director. Johnson County Soil and Water Conservation District. Four-month project; \$8,233.

2007 Update of the Lake Michigan Rim Web Site and Development of GIS Data Layers and Metadata. Co-Project Director with N. Eaton (Indiana Geological Survey). Indiana Department of Natural Resources, Lake Michigan Coastal Program. Eighteen-month project; \$76,167.

2007 Update of the Lake Michigan Rim Internet mapping web site to include recent data in support of the Grand Calumet Feasibility Study. Co-Project Director with N. Eaton (Indiana Geological Survey). U.S. Army Corps of Engineers. Two-year project; \$69,978.

2006 Development and Dissemination of Source Water Assessments for Non-Community, Non-Transient Systems, Source Water Assessment Program (SWAP), State of Indiana, Phase 2. Project Director and Co-Principal Investigator with G.A. Olyphant (Indiana Univ. Dept. Geol. Sci.). Indiana Department of Environmental Management. One-year project; \$74,930.

2006 Indiana Reach Index: Update of National Hydrography Dataset. Project Director and Co-Principal Investigator. Indiana Department of Environmental Management/USEPA Section 104(b)(3): One-year project; \$48,345.

2005 Conversion of Historical Data to GIS Format for Grand Calumet Feasibility Study. Project Director. U.S. Army Corps of Engineers. Six-month project; \$36,414.

2005 An evaluation of the storage and movement of potential contaminants in soils at a CFO where manure is applied to highly permeable sands-Phase2. Co-Project Director. Indiana Department of Environmental Management/ USEPA Section 104(b)(3): Two-year project; \$98,035.

2004 Water-Quality Data Compilation and Analysis for the Coastal Nonpoint Source Management Plan. Project Director/PI. Indiana Department of Environmental Management/ USEPA Section 319: Fifteen-month project; \$98,046.

2003 An evaluation of the storage and movement of potential contaminants in soils at a CFO where manure is applied to highly permeable sands. Project Director. Indiana Department of Environmental Management/ USEPA Section 104(b)(3): One-year project; \$116,088.

2003 American Association of State Geologists: Mapping, correlation, and interpretation of geomorphic surfaces in and around Bloomington, Indiana. (Student mentoring grant.) Principal Investigator. Association of American State Geologists (AASG): Fall 2003 Semester; \$3,700.

2002 Development of bedrock and surficial geologic maps for the Griffy Woods Research and Teaching Preserve, Bloomington, Indiana. (Student mentoring grant.) Project Director/PI. Association of American State Geologists (AASG): Fall 2002 Semester; \$3,300.

2002 Evaluation of riparian buffer zones using GIS and remote sensing to target watershed restoration efforts. Project Director/PI. Indiana Department of Environmental Management/ USEPA Section 319: Two-year project; \$108,413.

2001 Development and Dissemination of Source Water Assessments for Non-Community, Non-Transient Systems, Source Water Assessment Program (SWAP), State of Indiana. Project Director and

Co-Principal Investigator with G.A. Olyphant (Indiana Univ. Dept. Geol. Sci.). Indiana Department of Environmental Management. Two-year project; \$227,858.

2001 Development of Watershed Tools with User-Friendly Linkages to the Lake Rim GIS. Co-Principal Investigator with G.A. Olyphant (Indiana Univ. Dept. Geol. Sci.) and D. Harper (Indiana Geological Survey). Indiana Department of Environmental Management. One-year project; \$43,798.

1998 Geological Society of America Research Grant, Dissertation Support \$2000.

1998 Remote Sensing Laboratory of the Midwestern Regional Center of the National Institute for Global Environmental Change, matching award, Dissertation Support \$2000.

1998 Indiana University Department of Geological Sciences Grant-in-Aid of Research, Dissertation Support \$600.

1997 Shell Research Fellowship, Dissertation Support \$600.

PUBLICATIONS

Formal and agency publications:

Letsinger, S.L., Map of the midwestern US showing fault slip risk: Indiana Geological and Water Survey Miscellaneous Map MM-xx, in preparation.

Ficklin, D.L., Letsinger, S.L., Barnhart, B.L., Spatio-temporal projections of aridity for the 21st century in the United States using two potential evapotranspiration methods: In Preparation.

Rupp, J.A., Letsinger, S.L., and Carlson, G., 2018, Fault angle control on potential seismic slip in the Illinois Basin region: Seismological Research Letters, doi: 10.1785/0220180153.

Medina, C.R., Letsinger, S.L., and Olyphant, G.A., 2017, Hydrogeologic modeling of an area subjected to detailed geologic mapping in three dimensions: Do the details really matter? In, Kehew, A.E., and Curry, B. B., eds., Quaternary Glaciation of the Great Lakes Region: Process, Landforms, Sediments, and Chronology: Geological Society of America Special Paper 530, doi: 10.1130/2017.2530(11).

David, S.R., Edmonds, D.A., and Letsinger, S.L., 2016, Controls on the occurrence and prevalence of floodplain channels in meandering rivers: Earth Surface Landforms and Processes, vol. 42, no. 3, pp. 460–472, doi:10.1002/esp.4002.

Berg, R.C., Brown, S.E., Thomason, J.F., Hasenmueller, N.R., Letsinger, S.L., Kincare, K.A., Esch, J.M., Kehew, A.E., Thorleifson, L.H., Kozlowski, A.L., Bird, B.C., Pavey, R.R., Bajc, A.F., Burt, A.K., Fleeger, G.M., and Carson, E.C., 2016, A multiagency and multijurisdictional approach to mapping the glacial deposits of the Great Lakes region in three dimensions: in Wessel, G.R., and Greenberg, J.K., eds., Geoscience for the Public Good and Global Development: Toward a Sustainable Future: Geological Society of America Special Paper 520, doi:10.1130/2016.2520(37).

- Naylor, S., Letsinger, S.L., Ficklin, D.L., Ellett, K.M., and Olyphant, G.A, 2016, A hydrogeological approach to quantifying groundwater recharge in various glacial settings of the mid-continental U.S.A.: *Hydrological Processes*, v. 30, p. 1594-1608. doi: 10.1002/hyp.10718.
- Ficklin, D.L., Letsinger, S.L., Stewart, I.T., and Maurer, E.P., 2016, Assessing differences in snowmelt-dependent hydrologic projections using CMIP3 and CMIP5 climate forcing data for the western United States: *Hydrology Research*, v. 47, no. 2, p. 483-500. doi:10.2166/nh.2015.101.
- Letsinger, S.L., 2015, Map of Indiana showing near-surface aquifer sensitivity: Indiana Geological Survey Miscellaneous Map MM-93.
- Letsinger, S.L., 2015, Map of Indiana showing near-surface aquifer recharge: Indiana Geological Survey Miscellaneous Map MM-92.
- Letsinger, S.L., 2015, Map showing sinkhole development risk in south-central Indiana and north-central Kentucky: Indiana Geological Survey Miscellaneous Map MM-91.
- Ficklin, D.L., Letsinger, S.L., Gholizadeh, H., and Maxwell, J., 2015, Incorporation of the Penman-Monteith potential evapotranspiration method into a Palmer Drought Severity Index tool: *Computers and Geosciences*, v. 85, p. 136-141. doi:10.1016/j.cageo.2015.09.013.
- Ficklin, D.L., Maxwell, J.T., Letsinger, S.L., and Gholizadeh, H., 2015, A climatic deconstruction of recent drought trends in the United States: *Environmental Research Letters*, v. 10, no. 4, 044009. doi:10.1088/1748-9326/10/4/044009.
- Ficklin, D.L., Barnhart, B.L., Knouft, J.H., Stewart, I.T., Maurer, E.P., Letsinger, S.L., and Whittaker, G.W., 2014, Climate change and stream temperature projections in the Columbia River Basin: biological implications of spatial variation in hydrologic drivers. *Hydrology and Earth System Sciences*, v. 18, p. 4897-4912. doi:10.5194/hess-18-4897-2014.
- Olyphant, G.A. and Letsinger, S.L., 2012, An evaluation of the storage and movement and potential contaminants in soils at a confined feeding operation in southwestern Indiana: Indiana Geological Survey Report of Progress 38, 28 p.
- Letsinger, S.L., 2012, Three-dimensional geologic framework model of the glacial interlobate region of northern Allen County, Indiana: Indiana Geological Survey Open File Study 12-02, 79 p.
- Simon, T. P., de Leon, B., Ehman, J., Jones, W., Henshel, D., Morris, C.C., Letsinger, S.L., and Olyphant, G.A., 2012. Assessment of Natural Resource Conditions for Indiana Dunes National Lakeshore. GLRI #90 Task Agreement # J6300100818. Indiana University, The School of Public and Environmental Affairs, Bloomington, IN.
- Gray, H.H., and Letsinger, S.L., 2011, A History of Glacial Boundaries in Indiana: Indiana Geological Survey Special Report 71, 10 p.
- Olyphant, G.A., and Letsinger, S.L., 2010, Environmental Feasibility of Using Recycled Tire Pieces as Media in Septic System Absorption Fields: Indiana Geological Survey Open File Study 09-08, 22 p.

- Letsinger, S.L., and Olyphant, G.A., 2010, Data Compilation and Analysis for the Coastal Nonpoint Source Management Plan: Indiana Geological Survey Open File Study 09-07, 73 p.
- Olyphant, G.A., and Letsinger, S.L., 2010, Field Evaluation of On-Site Sewage Disposal Systems and Broad-Scale Suitability Mapping, Morgan County, Indiana: Indiana Geological Survey Open File Study 09-04, 21 p.
- Harper, D., Dintaman, C., Mastalerz, M., and Letsinger, S.L., 2009, Reconnaissance of coal slurry deposits in Indiana: Occasional Paper 69, Indiana Geological Survey, Bloomington, 20 p.
- Olyphant, G.A. and Letsinger, S.L., 2009, An evaluation of the storage and movement of potential contaminants in soils at a confined feeding operation where manure is applied to highly permeable sands: Indiana Geological Survey Open File Study 09-01, 27 p.
- Letsinger, S.L., and Olyphant, G.A., 2007, Distributed energy balance modeling of snow cover evolution and melt in rugged terrain: Tobacco Root Mountains, Montana, USA: Journal of Hydrology, v.336, no. 1-2, pp. 48-60. doi:10.1016/j.jhydrol.2006.12.012

Abstracts:

- Letsinger, S.L., Branam, T., Green, R., Amoroso, R., Harris, M.B., Gokey, M., 2018, An assessment of the persistence of chloride from source water to tap and its implications for potential corrosion of metal pipes: A pilot study [Abs.]: Geological Society of America Abstracts with Programs. v. 50, no. 6, ISSN 0016-7592, doi: 10.1130/abs/2018AM-318163.
- Naylor S., Getz, D.M., Autio, R.J., Letsinger, S.L., Ellett, K.M., Olyphant G.A., 2017, Determining vertical soil-water flux in glaciated terrains using a convective heat flux model and measured transient soil thermal properties [Abs.]: 2017 Fall Meeting, AGU, New Orleans, LA, 15-19 Dec. in session H41G, Abstract H41G-1537: Modeling the Critical Zone: Integrating Processes and Data Across Disciplines and Scales.
- David, S.R., Edmonds, D.A., Letsinger, S.L., 2017, Controls on the occurrence and prevalence of floodplain channels in meandering rivers [Abs.]: Geological Society of America Abstracts with Programs., v. 49, no. 6, doi: 10.1130/abs/2017AM-307592.
- Naylor, S., Letsinger, S.L., Ficklin, D. L., Ellett, K. M., Olyphant, G. A., and Dufficy, A. L., 2015, Integrating groundwater observations with models of soil-water dynamics to examine recharge patterns through glacial sediments in a humid continental climate [Abs.]: presented at 2015 Fall Meeting, AGU, San Francisco, Calif., 15-19 Dec. in session H23C: Estimation of Total Effective Recharge of Groundwater: Significant of Recent Applicable Approaches between Different Climate Regions.
- Letsinger, S.L., 2014, Spatially distributed regional recharge-rate estimation to guide an aquifer-sensitivity assessment for mid-continental glacial environments, USA [Abs.]: Geological Society of America Abstracts with Programs. vol. 46, no. 6, p.110.
- Ficklin, D.L., Letsinger, S.L., and Maxwell, J., 2014, From the past to the future: Changes in the spatiotemporal trends of droughts in the United States [Abs.]: Association of American Geographers meeting in Tampa, Florida, April 2014.

- David, S.R., Edmonds, D.A., Letsinger, S.L., Hajek, E. A., 2013, Geomorphic mapping of floodplain accessory channels with implications for floodplain morphodynamics [Abs.]: Abstract EP43C-0867 presented at 2013 Fall Meeting, American Geophysical Union, San Francisco, Calif., 7-13 Dec.
- Ficklin, D. L., Letsinger, S.L., Stewart, I. T., Maurer, E. P., 2013, How do hydrologic projections for the western United States change with the new CMIP5 models? [Abs.]: Abstract GC44C-04 presented at 2013 Fall Meeting, American Geophysical Union, San Francisco, Calif., 7-13 Dec.
- Morgan, J.A., Johnson, L.T., White, J.R., Priore, W., Letsinger, S.L., Olyphant, G.A., and Royer, T.V., 2013, Hydrological investigations of streambed sediment removal in the Fawn River, Steuben County, Indiana [Abs.]: Indiana Water Resources Association Spring Symposium, Muncie, Indiana, June 19-21, 2013.
- Prentice, M.L., Ducey, P.W., Ismail, A., Letsinger, S.L., Sargent, S., and Fenerty, B.S., 2013, Erie Lobe Till studies in Indiana reveal a dynamic ice margin arrays [Abs.]: North-Central Geological Society of America Abstracts with Programs, vol. 45, no. 4.
- Naylor, S., Gustin, A.R., Letsinger, S.L., Ellett, K.M., and Olyphant, G.A., 2013, Quantifying hydrologic budget components in Indiana using a network of meteorological and vadose-zone instrument arrays [Abs.]: North-Central Geological Society of America Abstracts with Programs, vol. 45, no. 4.
- Letsinger, S.L., and Olyphant, G. A., 2012, Prediction of potential areas of sinkhole development in southwestern Indiana using multiple regression analysis [Abs.]: Geological Society of America Abstracts with Programs, vol. 44, no. 7.
- Shaffer, N.R. and Letsinger, S.L., 2012, Pumped water as a potential byproduct of mining [Abs.]: 48th Annual Forum on the Geology of Industrial Minerals, Scottsdale, AZ, April 30 - May 4, 2012.
- Clingerman, J., Petty, J. T., Boettner, F., Letsinger, S. L., and Strager, J., 2012, GIS Habitat Modeling: Details of the Boosted Regression Tree Modeling Process for the Midwest Regional Fish Habitat Assessment [Abs.]: American Fisheries Society 142nd Annual Meeting. Abstract # W-14-4.
- Gallagher, M., Petty, J. T., Clingerman, J., Boettner, F., Letsinger, S. L., and Strager, M. P., 2012, Scaling up – the Midwest Regional Assessment [Abs.]: American Fisheries Society 142nd Annual Meeting. Abstract # W-14-15.
- Petty, J. T., Boettner, F., Clingerman, J., Lamont, S., Letsinger, S. L., Martin, R., Strager, J., and Strager, M. P., 2012, Quantifying Stressors and Natural Fish Habitat Quality: Linking Data to Fish Habitat Conservation [Abs.]: American Fisheries Society 142nd Annual Meeting. Abstract # W-14-2.
- Strager, M. P., Lamont, S., Petty, J. T., Clingerman, J., Letsinger, S. L., and Strager, J., 2012, A Decision Support Tool to Support the Integration of Spatial Data Analysis and Statistical Modeling for Fish and Habitat Condition Assessments [Abs.]: American Fisheries Society 142nd Annual Meeting. Abstract # W-14-5.
- Letsinger, S.L., Prentice, M. L., Olyphant, G. A., and Riddle, A. D., 2011, Three-Dimensional Groundwater Flow Modeling using a Geologic Framework Model of Near-Surface Glacial Sequences:

- Northeastern Indiana [Abs.]: Geological Society of America Abstracts with Programs, vol. 43, no. 5.
- Letsinger, S.L., Naylor, S., and Olyphant, G.A., 2009, A GIS-based approach to modeling three-dimensional geology of near-surface glacial morphosequences: Huntertown Formation, northeastern Indiana [Abs.]: Geological Society of America Abstracts with Programs, vol. 41, no. 7, p. 166.
- Letsinger, S.L., and Olyphant, G.A., 2008, GIS-based potential recharge- and discharge-area mapping from three-dimensional hydrogeologic modeling in glacial terrains of the midwestern United States [Abs.]: Geological Society of America Abstracts with Programs, vol. 40, no. 6, p. 472.
- Pavey, R.R., Olyphant, G.A., and Letsinger, S.L., 2008, GIS-based three-dimensional geologic and hydrogeologic modeling of the Milan, Ohio 1:24,000 Quadrangle [Abs.]: North Central Section of the Geological Society of America Abstracts with Programs, vol. 40, no. 5, p. 72.
- Prentice, M.L., Arcone, S.A., Curren, M.G., Delaney, A.J., Horsman, J., Letsinger, S.L., Medley, E.A., and Gaynor, J.R., 2008, Stratigraphy and geomorphology of late Pleistocene moraine at the mouth of Taylor Valley, Antarctica: Implications for the melting history of the West Antarctic ice sheet during the last deglaciation [Abs.]: Eos Trans. AGU, vol. 89, no. 53, Fall Meet. Suppl., Abstract C31C-0504.
- Olyphant, G.A., Medina, C.R., Letsinger, S.L., 2006, Dressing the emperor (groundwater-flow model) of glacial geology: A tale of three tailors [Abs.]: Geological Society of America Abstracts with Programs, vol. 38, no. 7, p. 108.
- Letsinger, S.L., Olyphant, G.A., Medina, C.R., 2006, The role of GIS in the development of three-dimensional hydrogeologic models [Abs.]: Geological Society of America Abstracts with Programs, vol. 38, no. 7, p. 164.
- Medina, C.R., Olyphant, G.A., Letsinger, S.L., 2006, The Role of three-dimensional information visualization software in the development of three-dimensional hydrogeologic models [Abs.]: Geological Society of America Abstracts with Programs, vol. 38, no. 7, p. 164.
- Reeder, M.D., Olyphant, G.A., Letsinger, S.L., 2006, Nitrogen loading of shallow groundwater aquifers in varying soil and topographic settings of southwestern Indiana [Abs.]: Geological Society of America Abstracts with Programs, vol. 38, no. 7, p. 39.
- Letsinger, S.L., and Olyphant, G.A., 2005, GIS-based hydrologic modeling for prioritizing riparian buffer restoration areas, Young's Creek Watershed, Johnson County, Indiana [Abs.]: American Water Resources Association Annual Meeting, Seattle, November 7-10 2005.
- Letsinger, S.L., and Olyphant, G.A., 2004, GIS-based hydrologic modeling for riparian buffer management, Young's Creek Watershed, Johnson County, Indiana [Abs.]: American Water Resources Association Summer Specialty Conference Proceedings, Olympic Valley, California, June 28-30, 2004.
- Letsinger, S.L., and Olyphant, G.A., 2003, Development of a method to assess riparian vegetated buffer zones using GIS and remote sensing in Young's Creek watershed, Johnson County, Indiana

[Abs.]: Geological Society of America Abstracts with Programs, vol. 35, no. 6, September 2003, p. 78.

James, C.L., Letsinger, S.L., Basu, A., Wentworth, S.J., and McKay, D.S., 2003, Nanophase iron globules in lunar soil [Abs.]: 2003 Lunar and Planetary Sciences Conference, 34, Abstract 1992.

James, C.L., Letsinger, S.L., Basu, A., Wentworth, S.J., and McKay, D.S., 2002, Size distribution of FeO globules in lunar agglutinitic glass [Abs.]: 2002 Lunar and Planetary Sciences Conference 33, Abstract 1827.

Letsinger, S.L., and Olyphant, G.A., 2001, Assessing the heterogeneity of snow-water equivalent during the snowmelt season: Spatial variability and its controlling factors in an alpine setting [Abs.]: EOS Trans. American Geophysical Union, v. 82, no. 47, Fall Meeting Supplement., Abstract IP51A-0737.

Douglas, B.J., Olyphant, G.A., Elliott, W., Letsinger, S.L., and Suttner, L.J., 1997, Importance of bedrock geology to the geoecology of a northern Rocky Mountain watershed [Abs.]: Abstracts with Programs Geological Society of America Annual Meeting, v. 29, no. 6.

Letsinger, S.L., Rember, W.C., Sprenke, K.F., Sappington, R.L., Breckenridge, R.M., Othberg, K.L., and Stanford, L.R., 1995, Geologic studies of the Tolo Lake fossil site, Idaho County, Idaho [Abs.]: Transactions Rocky Mountain Section Geological Society of America Meeting.

Letsinger, S.L., and Palmer, B.A., 1993, Preliminary flood history of the South Fork Toutle River, Toutle, Washington [Abs.]: Transactions American Geophysical Union, v. 74, p. 294.

Course and workshop manuals:

Letsinger, S.L., 2010, Watershed Hydrology: Impervious Surface Analysis in ArcGIS 9.3x, Indiana University Center for Geospatial Data Analysis Publication, 95 p.

Letsinger, S.L., 2006, Using the Spatial Analyst Extension to ArcGIS 9.x, Indiana University Center for Geospatial Data Analysis Publication, 51 p.

Letsinger, S.L., [original: 2002; revisions: 2003, 2005, 2006, 2007, 2008], Elements of Geospatial Data Analysis: Geological Applications, Indiana University Center for Geospatial Data Analysis Publication, 120 p.

Douglas, B.J., Letsinger, S.L., and Olyphant, G.A., 1996, Manual for Field Study of Geology of the Northern Rocky Mountains: Environmental Supplement, Indiana University Department of Geological Sciences Publication, 61 p.

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS

- Geological Society of America
- American Geophysical Union
- American Society for Photogrammetry and Remote Sensing
- American Water Resources Association
- Indiana Geographic Information Council
- Indiana Water Resources Association
- Indiana Water Monitoring Council

SERVICE

Reviewer for Journal of Hydrology, Hydrogeology Journal, Environmental Management, PLOS One, Cogent Geoscience, Journal of Environmental Quality, Journal of Agricultural Water Management, National Science Foundation, United States Department of Agriculture, Centers for Disease Control and Prevention.

2018 - present: Serve on Natural Resources Conservation Service State Technical Committee

2018 - present: Serve on Bloomington Faculty Council Research Affairs Committee

2018: President, Indiana Water Resources Association

- Organizer of 2018 Spring Symposium and Field Demo Day (Bloomington, IN)
- Organizer of 2018 Fall Symposium (Indianapolis, IN)

April 1-2, 2016: Participated as a Judge in the Indiana University Department of Geological Sciences student-run Crossroads Conference.

2012 - present: Serve on Indiana Water Monitoring Council Groundwater Focus Committee

2004: Organizer of Midwest Groundwater Conference

AWARDS AND RECOGNITION

2018 Received the William G. Wilbur, John S. Zogorski Leadership Award for exemplary service as President of the Indiana Water Resources Association. Indiana Water Resources Association.

2017 Received staff merit bonus based on exceptional performance. Indiana University, Office of the Vice President for Research.

2013 Received Outstanding Achievement Award in the Public Sector for “for her constant giving to all that is hydrogeology and betterment of those she works with and for.” Indiana Water Resources Association.

TEACHING AND STUDENTS (Release time)

Courses

2011	GEOL G582 Computational Methods	Taught five-week GIS module: Computational Methods in Geosciences
2002, 2003, 2005, 2006, 2007, 2008	GEOL G424/G584 Geological Applications of GIS	Created and taught an accelerated eight-week intensive course to undergraduate and graduate students. Co-instructor: Greg A. Olyphant, IU Dept. Geol. Sci.
2003	GEOL G329 Introductory Field Experience in Environmental Science	Field experience in Montana; taught hydrology module of course

Workshops

2010 June	Watershed Hydrology: Impervious Surface Analysis in ArcGIS 9.3	Sponsor: Indiana University Information Technology Services (UITS)
2010 Feb	Watershed Hydrology: Impervious Surface Analysis in ArcGIS 9.3	Sponsor: Indiana Geographic Information Council, Indiana GIS Conference Workshop
2008	Water, Water, Everywhere: Finding and Using Hydrology Data	Sponsor: Indiana Geographic Information Council
2006	GIS: Using the Spatial Analyst extension for ArcGIS	Sponsor: Indiana University UITS
2005	Examples of GIS-based Hydrologic Modeling	Midwest Arc Users Group
2003	Griffy Research and Teaching Preserve Data Analysis Using GIS	Sponsor: Indiana University Information Technology Services (UITS)

Ph.D. Dissertation Research Committee

Scott David – 2018 – Floodplain Morphodynamics: The origin and function of floodplain channels

Paul Farrugia – in progress – Crocodylian Craniodental Ecomorphology and Ecological Niche Modeling: A New Approach for Reconstructing Hominin Paleoecology in the East African Rift System.

Alex Badillo – in progress – pre-Spanish settlement, archaeology of Quiechapa, Mexico

Elizabeth Olliver – in progress – Ecogeomorphic feedbacks in Wax Lake Delta, LA

M.S. Thesis Committee

Elizabeth Olliver – 2015 – Ecogeomorphic feedbacks in Wax Lake Delta, LA

Ryan Wells – 2015 – Hydrophysical evaluation of an abandoned mine land site subjected to geomorphic reclamation: The importance of properly balancing groundwater recharge and surface runoff

Alex Riddle – 2015 – Hydrologic modeling as a basis for generating derivative maps from three-dimensional geologic framework models of surficial glacial land systems

Scott David – 2014 – Mapping floodplain morphological variability: Implications for controls on floodplain channel development

Mark Sherrill – 2014 – crop rotation, water use (MS, SPEA)

Samuel Blazey – 2014 – Modeling equilibrium and bedrock controlled geomorphology using terrain analysis

Andrew Gustin – 2013 – The distribution, morphology, and temporal signature of rock glaciers in the Tobacco Root Mountains, Montana

Cristian Medina, 2007, Hydrogeologic characterization and groundwater flow modeling of a glacial aquifer system: Berrien County, Michigan

Kevin Thaisen, 2007, Geomorphic evidence for glaciation and catastrophic flooding in Candor Chasma, Mars

Boswell, James, 2005, Modeling Ground Water - Surface Water Interactions and the Hydroperiods of Groundwater Dominated Wetlands Application to a wetland restoration site in northwest Indiana.

Lampe, David, 2005, Geostatistical Characterization of Three Glacially Derived Aquifer Systems of Northern Indiana.

Rebecca Travis, 2003, Three-dimensional Saturated-Unsaturated Groundwater Model of the Lake Station Wetland Restoration Site, Lake County, Indiana.

Bachelor of Science, Environmental Science – Senior Research Project Advisor or Co-Advisor

Julia Lynch, 2012, Geomorphic controls on knickpoint location: Morgan-Monroe State Forest, Indiana.

Anwar Alsanea, 2011, Preliminary numerical experiments involving water-table recharge in a glacial aquifer system.

David Grunat, 2007, Landfill to septic field: A study of the use of tire chips in septic system absorption fields.

Angela Heitger, 2006, Investigation of soil-moisture controls on vapor intrusion at an industrial site, Indianapolis, Indiana.

Sarah Germann, 2005, Source area determination and water-quality statistics: Salt Creek Watershed, Porter County, Indiana.

Anna Makowski, 2004, An evaluation of nitrate transport in sandy soils at a confined feeding operation.

Rachel Elliot, 2003, Bedrock and surficial deposits of Griffy Teaching and Research Preserve.

Andrew Smith, 2003, Mapping Geomorphic Surfaces in the Griffy Research and Teaching Preserve, Indiana University, Bloomington, Indiana.

Mikki Osterloo, 2002, The growing season water balance for a watershed located in southwestern Montana.

Graduate intern supervision (CGDA) 2000-present

Scott Frystak	Alex Riddle	Shawn Wheelock	Megan Gokey
Patrick Babbin	Poonam Giri	Christina (James) Ebey	Sara Swett
Ben Sperl	Samuel Blazey	Ritu Bose	Kendra Morris
Thomas (Max) Foltz	Matthew Reeder	Stacey Moore	Logan Mort-Jones
Mark Sherrill	James Boswell	Jodi Slough	Robin Green
Joe Morgan	Ginger Korinek	Henry Collins	Elias Hanna
			Haley Waldkoetter

PROFESSIONAL DEVELOPMENT/TRAINING

2016

Introduction to programming using MATLAB (9-week online course by Vanderbilt University on Coursera), Instructors: Michael Fitzpatrick, Akos Ledecz. Certificate earned on June 26, 2016.

Permutation Tests and Bootstrapping, May 10, 17, and 24, 2016, (online) (4.5 hours, plus homework), Instructor: Dennis Helsel, Practical Stats.

Modeling water flow and contaminant transport in soils and groundwater using the HYDRUS software packages, March 2016, (onsite: Golden, Colorado) (24 hours), Instructor: Dr. Jirka Simunek.

Petroleum Vapor Intrusion: Fundamentals of Screening, Investigation, and Management, February 23, 2016 (webinar, 2.5 hours, EPA Technology Innovation and Field Services Division, Interstate Technology and Regulatory Council)

How to automatically update your Vector GIS Data using Trimble eCognition, February 16, 2016 (webinar, 1 hr, Trimble)

Seven Perilous Errors in Environmental Statistics, January 26, 2016 (webinar, 1 hr, Practical Stats, Dennis Helsel)

2015

ESRI Online Training: Deriving Rasters for Terrain Analysis Using ArcGIS (3 hours)

ESRI Online Training: Building Models for GIS Analysis Using ArcGIS (3 hours)

2014

Applied environmental statistics (to support multiple regression in ArcGIS), May 2014 (onsite, Indianapolis, Indiana) (37 hours), Instructor: Dennis Helsel, Practical Stats.

Time series methods (statistics to work with time aware datasets), October 2014 (onsite, Lakewood, Colorado) (15 hours), Instructor: Dennis Helsel, Practical Stats.

2013

ASPRS Webinar Workshop: Object based image analysis (4 hours)

2012

ESRI ArcGIS III: Performing Analysis, September 12-13, 2012 (16 hours). ESRI Instructor-led online Training. Instructor: James Wojcik.

Multipoint and Conditional Facies Modeling, Schlumberger, Petrel software, February 7-9, 2012 (24 hours) (onsite, Bloomington, Indiana), Instructor: Alan Lee Brown.

2011

Handling Nondetect Data Correctly, Midwest Geosciences Group – May 16, 2011 (2+ hours), Instructor: Dennis Helsel, Practical Stats.

Learn R In-Depth: A Free Software Environment for Statistical Computing and Graphics. (June – September, 2011, 23 classes), Instructor: by Dr. Paul Geissler (USGS).

Getting started with eCognition. Dec. 1, 2011, Instructor: Jarlath O'Neil-Dunne, GIS Analyst, Spatial Analysis Laboratory (SAL) University of Vermont.

Segmentation algorithms in eCognition. Dec. 1, 2011, Instructor: Jarlath O'Neil-Dunne, GIS Analyst, Spatial Analysis Laboratory (SAL) University of Vermont.

GEOL G612 Inverse Methods (audited), Jan-May 2011, Instructor: Prof. Kaj Johnson, Indiana University, Department of Geological Sciences, Bloomington, IN.

2010

ASPRS Webinar Workshop: Hyperspectral Remote Sensing: Phenomenology and Data Processing Workshop. March 11, 2010. (4 hours) Instructor: William Farrand, Space Science Institute.

Taking the mystery out of complex glacial sequences at environmental and geotechnical sites in the midcontinent: Part 1, Deciphering stratigraphy and depositional environments. March 30, 2010. (2 hours), Instructor: Midwest Geosciences Group, Tim Kemmis, Ph.D.

Taking the mystery out of complex glacial sequences at environmental and geotechnical sites in the midcontinent: Part 2, Understanding the Effects of Post-Depositional Weathering: Development of Surficial Soils, Weathering Zones, and Secondary Jointing. April 6, 2010. (2 hours), Instructor: Midwest Geosciences Group, Tim Kemmis, Ph.D.

Taking the mystery out of complex glacial sequences at environmental and geotechnical sites in the midcontinent: Part 3: Taking the Mystery Out of Glacial Successions for Environmental and Geotechnical Projects: (Unanticipated Subsurface Site Conditions). April 13, 2010. (1.5 hours), Instructor: Midwest Geosciences Group, Dan Kelleher.

Understanding Spatial Statistics in ArcGIS 9 (Webinar: 1hour). July 8, 2010

Regression Analysis Basics in ArcGIS 9.3 (Webinar: 1 hour). July 8, 2010

Geoprocessing raster data using ArcGIS Spatial Analyst. August 13, 2010, ESRI Instructor-led online Training (8 hours). Instructor: Mark Stewart

Understanding ArcSDE Table Relationships (Webinar: 1 hour). August 19, 2010.

2009

Indiana University UITS: Scientific Computing with MATLAB at Indiana University. October 14, 2009.

Recent Developments in the Methods and Applications of Terrestrial Laser Scanning (Ground-based LiDAR) in Geologic Research and Education, (onsite) (8 hours), Geological Society of America Meeting, Interface workshop.

Three-Dimensional Geologic Mapping, (onsite) (8 hours), Geological Society of America Meeting, Interface workshop.

2006

16-17 Jan 2006

ERDAS (onsite) Using Imagery to Update your GIS

18-19 Jan 2006

ERDAS (onsite) Image analysis for ArcGIS, Atlanta, Georgia.

17-18 May 2006

ERDAS (onsite) Spatial Modeling and Expert Systems, Atlanta, Georgia.

Primer for working on Big Red (supercomputer): Hands-on Workshop: October 27, 2006 (IUPUI). Instructor: Arvind Gopu of IU High Performance Computing group.

I-Light Symposium regarding high performance computing and scientific visualization (IUPUI), Indianapolis, Indiana, September 21, 2005.

HEC-RAS, a hydraulic modeling software package developed by the U.S. Army Corps of Engineers. (onsite) Rose-Hulman Institute of Technology in Terre Haute, Indiana. (3 days)

2005

Creating models with model builder in ArcGIS 9, October 5, 2005, (8 hours), Instructor: Melissa Brenneman (8 hours)

2004

ESRI (onsite) ArcHydro GIS for Water Resources (2 days)
Leica/ERDAS (onsite) Multispectral Classification (2 days)
Indiana University UITS: ArcGIS Tracking Analyst Extension
Indiana University UITS: ArcGIS Spatial Analyst Training

2003

Indiana University UITS-DMS: Intro to Arc MapPublisher and MapReader
Indiana University [IUPUI] UITS: ERDAS Imagine: Turning imagery into information.” (8 hours)
Indiana University UITS: SPSS (statistical software): The Basics
Indiana University UITS: ERDAS Imagine: Geometric Correction
Indiana University UITS: Image Analysis using ArcGIS (Leica Image Analysis Extension for ArcGIS)
Indiana University [IUPUI] UITS: 3-D Visualization with LIDAR Data in GIS

2002

NASA/AASG (onsite) Remote Sensing Workshop, EROS Data Center, South Dakota.
Indiana University UITS: ERDAS Imagine: Visualizing remote-sensing data
Indiana University UITS: ERDAS Imagine: Landcover classification
Indiana University UITS: GIS Seminar for Research and Teaching
Indiana University UITS: ERDAS Imagine: Spatial modeling

2001

Indiana University UITS: ArcIMS – GIS for the internet