

Wisconsin Geological and Natural History Survey  
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**EDUCATION**

- 1997-1999      Ph.D., Geology**  
Iowa State University—Ames, Iowa  
  
Thesis title: Laboratory studies of till deformation with implications for Des Moines Lobe motion and sediment transport (1999)
- 1994-1997      Ph.D. Candidate, Geology**  
University of Minnesota—Minneapolis, Minnesota
- 1991-1994      M.Sc., Geology**  
Northern Illinois University—De Kalb, Illinois  
  
Thesis title: Seismic facies analyses, sediment distribution and sedimentological analysis of glacial marine sediments in outer Frobisher Bay and Brevoort Basin, Baffin Island, Canada (1994)
- 1981-1986      B.S., Geology**  
Calvin College—Grand Rapids, Michigan

**WORK EXPERIENCE**

- 2006-present      Associate Professor, Quaternary Geologist**  
Wisconsin Geological and Natural History Survey, University of Wisconsin—Extension
- 1999-2006      Assistant Professor, Quaternary Geologist**  
Wisconsin Geological and Natural History Survey, University of Wisconsin—Extension
- 1986-1991      Project Geologist**  
Earthtech Inc., Grand Rapids, Michigan

**PUBLICATIONS*****Papers in Refereed Journals—First Author***

1. Hooyer, T.S., Iverson, N.R., Lacroix, F., Thomason, J.F., 2008. Magnetic fabric of shear till: A strain indicator for evaluating the bed-deformation model of glacier flow. *Journal of Geophysical Research—Earth Surface*, v. 113, F02002, 15 p.
2. Hooyer, T.S., and Iverson, N.R., 2002. Flow mechanism of the Des Moines Lobe of the Laurentide ice sheet. *Journal of Glaciology*, v. 48, no. 163, p. 575-586.
3. Hooyer, T.S., and Iverson, N.R., 2000. Clast-fabric development in a shearing granular material: Implications for subglacial till and fault gouge. *Geological Society of America Bulletin*, v. 112, no. 5, p. 683-692.
4. Hooyer, T.S., and Iverson, N.R., 2000. Diffusive mixing between shearing granular layers: Constraints on bed deformation from till contacts. *Journal of Glaciology*, v. 46, no. 155, p. 641-651.

### **Papers in Refereed Journals—Contributing Author**

1. Iverson, N.R., Hooyer, T.S., Thomason, J.F., Graesch, M. and Shumway, J.R., in press. The experimental basis for interpreting particle and magnetic fabrics of sheared till. *In: Reconstructing ice-sheet dynamics from subglacial sediments and landforms. Eds., Ó Cofaigh, C. and Stokes, C.R., Earth Surface Processes and Landforms.*
2. Iverson, N.R., Hooyer, T.S., Fischer, U.H., Cohen, D., Moore, P.L., Jackson, M., Lappégard, G., and Kohler, J., 2007. Soft-bed experiments beneath Engabreen, Norway: Regelation infiltration, basal slip, and bed deformation. *Journal of Glaciology*. v. 182, p. 323–340.
3. Clark, J.A., Befus, K., Hooyer, T.S., Stewart, P., Shipman, T., Gregory, C., and Zylstra, D., 2008. Numerical simulation of the paleohydrology of glacial Lake Oshkosh, eastern Wisconsin. *Quaternary Research*, v. 68, pp. 117–129.
4. Cohen, D., Hooyer, T.S., Iverson, N.R., Thomason, J., and Jackson, M., 2006. Role of transient water pressure in quarrying: A subglacial experiment using acoustic emissions. *Journal of Geophysical Research—Earth Surface*, v. 111, F03006, 15 p.
5. Cohen, D., Iverson, N.R., Hooyer, T.S., Fischer, U.H., Jackson, M., and Moore, P.L., 2005. Debris-bed friction of hard-bedded glaciers. *Journal of Geophysical Research—Earth Surface*, v. 110, F02007, 13 p.
6. Scherer, R.P., Sjunneskog, C.M., Iverson, N.R., and Hooyer, T.S., 2005. Frustules to fragments, diatoms to dust: How degradation of microfossil shape and microstructures can teach us how ice sheets work. *Journal of Nanoscience and Nanotechnology*. v. 5, p. 1–4.
7. Iverson, N.R. and Hooyer, T.S., 2004. Estimating sliding velocity of a Pleistocene ice sheet from plowing structures in the geologic record. *Journal of Geophysical Research—Earth Surface*. v. 109, F04006, p. 1–11.
8. Scherer, R.P., Sjunneskog, C.M., Iverson, N.R., and Hooyer, T.S., 2004. Assessing subglacial processes from diatom fragmentation patterns. *Geology*. v. 32, no. 7, p. 557-560.
9. Iverson, N.R., Cohen, D., Hooyer, T.S., Fischer, U.H., Jackson, M., Moore, P.L., Lappégard, G., and Kohler, J., 2003. Effects of basal debris on glacier flow. *Science*. v. 301, 5629, p. 81–84.
10. Fischer, U. H., Iverson, N.R., Hooyer, T.S., Cohen, D., Jackson, M., and Kohler, J. 2003. The role of subglacial sediment in glacier dynamics. In: Milestones in physical glaciology—from the pioneers to a modern science, Mitteilungen 180, Versuchsanstalt für Wasserbau, Hydrologie und Glaziologie der ETH Zürich, Gloriastrasse 37-39, ETH-Zentrum, CH-8092 Zürich, p. 13–20. (International Glaciological Symposium held in honour of Prof. Dr. Hans Röthlisberger on the occasion of his eightieth birthday, February 14, 2003, Zürich, Switzerland)
11. Iverson, N.R., and Hooyer, T.S., 2002. *Reply*. Clast-fabric development in a shearing granular material: Implications for subglacial till and fault gouge. *Geological Society of America Bulletin*. v. 114, no. 3, p. 382–384.
12. Iverson, N.R., Hooyer, T.S., and Baker, R.W., 1998. Ring-shear studies of till deformation: Coulomb-plastic behavior and distributed strain in glacier beds. *Journal of Glaciology*, v. 44, p. 634–641.
13. Iverson, N.R., Baker, R.W., and Hooyer, T.S., 1997. A ring-shear device for the study of till deformation: Tests on a clay-rich and a clay-poor till. *Quaternary Science Review*, v.16, p.1057–1066.
14. Baker, R.W., and Hooyer, T.S., 1996. Multiple till layers beneath Storgläciaren, Tarfala Research Station Annual Report, 1994–1995. *Forskningsrapport*, v. 103, p. 25–29.
15. Iverson, N.R., Hooyer, T.S., and Hooke, R.LeB., 1995. A laboratory study of sediment deformation: stress heterogeneity and grain-size evolution. *Annals of Glaciology*, v. 22, p. 167–175.

### **Wisconsin Geological and Natural History Survey Field Trip Guide Books**

1. Hooyer, T.S., Late Glacial History of East-Central Wisconsin, 2007. Guide Book for the 53<sup>rd</sup> Midwest Friends of the Pleistocene Field Conference, May 18-20, 2007, Oshkosh, Wisconsin. *Wisconsin Geological and Natural History Survey Open-File Report 2007-01*.
2. Hooyer, T.S., and Neiswender, C., 2004. General Geology and Natural Resources of Winnebago County, Wisconsin: Field trip guide book. *Wisconsin Geological and Natural History Survey Open File Report 2004-03*.

### **Wisconsin Geological and Natural History Survey Maps, Reports, and Databases (reviewed externally as noted)**

1. Hooyer, T.S., and Mode, W.N., in press. Pleistocene geology of Winnebago County, Wisconsin. *Wisconsin Geological and Natural History Survey Bulletin 105* (reviewed externally).
2. Hooyer, T.S., and Mode, W.N., 2007. Preliminary Quaternary geologic map of the northern Fox River lowland. *Wisconsin Geological and Natural History Survey Open File Report 2007-05*, scale 1:100,000, 1 plate.
3. Hooyer, T.S., Mode, W.N., Clayton, L., and Attig, J.W., 2005. Preliminary Quaternary geologic map of the southern Fox River lowland. *Wisconsin Geological and Natural History Survey Open File Report 2005-03*, scale 1:100,000, 1 plate.
4. Hooyer, T.S., and Mode, W.N., 2005. Preliminary Pleistocene geologic map of Winnebago County, Wisconsin. *Wisconsin Geological and Natural History Survey Open File Report 2005-01*, scale 1:100,000, 1 plate.
5. Hooyer, T.S., Mode, W.N., Clayton, L., and Attig, J.W., 2004. Preliminary Quaternary geologic map of the central Fox River lowland. *Wisconsin Geological and Natural History Survey Open File Report 2004-04*, scale 1:100,000, 1 plate.
6. Hooyer, T.S., 2004. TillPro: A digital grain-size database of samples collected in Wisconsin. *Wisconsin Geological and Natural History Survey Open File Report 2004-07*, 1 CD-ROM.
7. Hooyer, T.S., Patterson, D.L., Hankley, D.W., Czechanski, M.L., Zeiler, K.K., Hunt, S.L., and Attig, J.W., 2001. Landscapes of Wisconsin. Map, *Wisconsin Geological and Natural History Survey State Map 40*, scale 1:500,000. (reviewed externally).

### **Selected Abstracts—First Author**

1. Hooyer, T. S., Hart, D.J., Moeller-Eaton, C.A., Batten, W.G., 2008 (March). Vertical distribution of  $\delta^{18}\text{O}$  in a clay-rich aquitard: Implications for groundwater recharge. American Water Resources Association Conference, Wisconsin Chapter.
2. Hooyer, T. S., Hart, D.J., Cherry, J.A., Parker, B.L., and Moeller, C.A., 2006. Groundwater recharge through a thick sequence of fine-grained sediment in the Fox River valley, east-central Wisconsin. American Water Resources Association Conference, Wisconsin Chapter.
3. Hooyer, T.S., Cohen, D., Iverson, N.R., Thomason, J., and Jackson, M., 2005. Role of transient water pressure in quarrying beneath a thick valley glacier: An experiment using acoustic emissions. *International Conference on Glacial Sedimentary Processes and Product* (University of Wales, Aberystwyth), p. 63.
4. Hooyer, T.S., Cohen, D., Iverson, N.R., Thomason, J., and Jackson, M., 2005. A quarrying experiment beneath a thick valley glacier: Role of transient water pressure. *Geological Society of America Abstracts with Programs* (North-Central Meeting, Minneapolis, MN), v. 37, no. 5.

5. Hooyer, T.S., Schoephoester, P., Mode, W.N., Clayton, L., and Attig, J.W., 2004. Glacial outburst floods from proglacial lakes in Wisconsin. *Geological Society of America Abstracts with Programs* (Annual meeting, Denver, CO), v. 36, no. 5, p. 281.
6. Hooyer, T.S., 2004. Landscapes of Wisconsin: A geological Perspective. 19<sup>th</sup> North American Prairie Conference Abstracts and Final Program (Annual meeting, Madison, WI), invited talk.
7. Hooyer, T.S., Clayton, L., Attig, J.W., and Mode, W.N., 2003. History of the glacial Lake Oshkosh basin, Wisconsin. *Geological Society of America Abstracts with Programs* (North Central Section, Kansas, MO), v. 35, no. 2 p. 60.
8. Hooyer, T.S., Mode, W.N., Forman, S., Attig, J.W., and Clayton, L., 2003. Assessing the Deglacial chronology of the Green Bay Lobe: Evidence from glacial Lake Oshkosh. *Geological Society of America Abstracts with Programs* (Annual meeting, Seattle, WA), v. 34, no. 7, p. 109.
9. Hooyer, T.S., Iverson, N.R., Fischer, U.H., Cohen, D., Jackson, M., Moore, P.L., Lappegard, G., and Kohler, J., 2002. Motion of a Temperate Glacier over hard and soft beds: Subglacial experiments at Engabreen, Norway, American Geophysical Union meeting, *E.O.S. Transactions of the American Geophysical Union*, v. 83, no. 47, p. F309.
- 13.
10. Hooyer, T.S., and Iverson, N.R., 2001. Did the Des Moines Lobe of the Laurentide Ice Sheet move by deforming its bed? Palaeo-Ice Stream International Symposium, INQUA Commission on Glaciation, Aarhus, Denmark, 2001, p. 31.
11. Hooyer, T.S., and Iverson, N.R., 2000. Flow mechanism of the Des Moines Lobe of the Laurentide Ice Sheet. *E.O.S. Transactions of the American Geophysical Union*, v. 81, no. 48, p. F436.
12. Hooyer, T.S., and Iverson, N.R., 1998. Laboratory studies of mixing between two till layers: a new method for assessing bed deformation beneath the southern margin of the Laurentide ice sheet. *GSA Abstracts with Programs* (Annual meeting, Toronto, CN), v. 30, p. A166.
13. Hooyer, T.S., and Iverson, N.R., 1997. Laboratory studies of fabric development in shearing till. *E.O.S. Transactions of the American Geophysical Union*, v. 78, p. 248.
14. Hooyer, T.S., and Iverson, N.R., 1997. Laboratory studies of fabric development in shearing till. *Geological Society of America Abstracts with Programs* (North Central Section), v. 29, p. 50.

## **GRANTS**

### ***State Funded***

1. Investigating groundwater recharge to the Cambrian–Ordovician aquifer through fine-grained glacial deposits in the Fox River valley, Wisconsin, Wisconsin Department of Natural Resources—Joint Solicitation for Groundwater Research, 7/1/2007 – 6/30/2008, \$52,400.
2. Groundwater recharge through a thick sequence of fine-grained sediment in the Fox River Valley, east-central Wisconsin, Wisconsin Department of Natural Resources—Joint Solicitation for Groundwater Research, 7/1/2006 – 6/30/2007, \$34,000.

### ***Federal Funded***

#### ***National Science Foundation***

1. National Science Foundation, Collaborative research toward an erosion rule for glacial quarrying: Modeling and measurements, 1/1/2003– 12/31/2006, Award amount \$26,500.
2. National Science Foundation, Collaborative research on till deformation: linking microstructural characteristics to strain, 8/1/2002– 7/30/2005, Award amount \$13,700.

### ***U.S. Geological Survey and others***

1. U.S. Geological Survey, STATEMAP component of the National Cooperative Geologic Mapping Program, Quaternary Geology of the Fox River Lowland, Year 6, 5/1/2006–4/30/2007, unadjusted award amount \$96,500.
2. U.S. Geological Survey, STATEMAP component of the National Cooperative Geologic Mapping Program, Quaternary Geology of the Fox River Lowland, Year 5, 5/1/2005–4/30/2006, award amount \$93,500.
3. U.S. Geological Survey, STATEMAP component of the National Cooperative Geologic Mapping Program, Quaternary Geology of the Fox River Lowland, Year 4, 5/1/2004–4/30/2005, Award amount \$97,000.
4. U.S. Geological Survey, STATEMAP component of the National Cooperative Geologic Mapping Program, Quaternary Geology of the Fox River Lowland, Year 3, 5/1/2003–4/30/2004, Award amount \$97,000.
5. U.S. Geological Survey, STATEMAP component of the National Cooperative Geologic Mapping Program, Quaternary Geology of the Fox River Lowland, Year 2, 7/1/2002–6/30/2003, Award amount \$105,700.
6. U.S. Geological Survey, STATEMAP component of the National Cooperative Geologic Mapping Program, Quaternary Geology of the Fox River Lowland, Year 1, 7/1/2001–6/30/2002, Award amount \$91,500.
7. Association of American State Geologists Mentored Field Research Experience Award, 6/1/2000 – 8/31/2000, Award amount \$3000.
8. Association of American State Geologists Mentored Field Research Experience Award, 6/1/2001– 8/31/2001, Award amount \$3300.

### **FIELD TRIPS AND PUBLIC SPEAKING ENGAGEMENTS**

I have led or co-led approximately 25 field trips for students, government organizations, professionals, and citizens over the past 5 years. I have also presented 5-10 invited talks per year to a variety of audiences ranging from university students to senior groups.

### **SERVICE**

1. Chair, Department of Environmental Science, University of Wisconsin–Extension (2007–present)
2. University of Wisconsin–Extension Outreach Conference, Logistic Committee Member (2006–2007)
3. University Committee Member, University of Wisconsin–Extension, (2006-2007)
4. Faculty Senate Representative, Department of Environmental Sciences, University of Wisconsin–Extension (2004-2006)
5. Secretary, Department of Environmental Sciences, University of Wisconsin–Extension (2003–2004)
6. Wisconsin Geological and Natural History Survey Search and Screen Committees, four positions (2002–2007)

### **PROFESSIONAL SOCIETY MEMBERSHIPS**

Geological Society of America  
American Geophysical Union  
Epsilon Sigma Phi