

Department of Geography (302) 831-4084
 University of Delaware (302) 831-6654 (FAX)
 Newark, Delaware tracyd@udel.edu

Tracy L. DeLiberty

Professional History

Education

- Ph.D., 1994 Department of Geography, *University of Oklahoma*, Norman, Oklahoma. Major in Geography. Advisor Dr. David R. Legates
- M.A., 1989 Department of Geography and Regional Development, *University of Arizona*, Tucson, Arizona. Major in Geography. Advisor Dr. Richard W. Reeves
- B.A., 1987 Department of Geography and Earth Science, *Shippensburg University*, Shippensburg, Pennsylvania. Major in Environmental Studies.

Professional Experience

- 2011 - present *Chair*, Department of Geography, University of Delaware
- 2010 - 2011 *Interim Chair*, Department of Geography, University of Delaware
- 2003 - present *Associate Professor*, Department of Geography, University of Delaware
- 1996 - present *Joint Appointment*, School of Marine Science & Policy, University of Delaware
- 1995 - 2003 *Assistant Professor*. Department of Geography, University of Delaware, Newark, Delaware
- 1994 - 1995 *Post Doctoral Fellow/Research Associate*, National Research Council Research Associate Programs, Cooperative Institute for Meteorological Satellite Studies, Space Science and Engineering Center, Madison, Wisconsin

Research

*Referred Publications, *denotes my students*

- Geiger, Cathleen, Peter Wadhams, Jesse Samluk, Jacqueline Richter-Menge, Hans-Reinhard Mueller, Tracy DeLiberty, Victoria Corradina. On the Uncertainty of Isostasy. *Annals of Glaciology*. Submitted 2014
- *Bernstein, E. Rachel, Cathleen A. Geiger, Tracy L. DeLiberty, and Mary D. Lemcke-Stampone. Antarctic sea ice thickness and volume estimates from ice charts between 1995 and 1998. *Annual of Glaciology*. Accepted for publication
- Stampone*, Mary D., Cathleen A. Geiger, Tracy L. DeLiberty, and E. Rachel Bernstein, 2013, Data-derived spatial-resolution errors of Antarctic sea-ice thickness, *Polar Geography*, 36, 3 202-220. doi:10.1080/1088937X.2012.691120

- Kremer, Peleg, Tracy DeLiberty, and Yda Schreuder, 2012, Defining Local Food Systems. In *Local Food Systems in Old Industrial Regions: Concepts, Spatial Context, and Local Practices*. Editors Reid, N, J. Gatrell, and P. Ross. Ashgate Publishers, 147-168.
- DeLiberty, Tracy L., Cathleen A. Geiger, Stephen F. Ackley, Anthony P. Worby, and Michael L. Van Woert. 2011. Estimating the annual cycle of sea-ice thickness and volume in the Ross Sea. *Deep Sea Research II*. doi10.1016/j.dsr2.2010.12.005.
- Kremer, Peleg, and Tracy L. DeLiberty. 2011. Local food practices and growing potential: Mapping the case of Philadelphia, *Applied Geography*, 1-10. doi:10.1016/j.apgeog.2011.01.007
- Geiger, C. A., J. Richter-Menge, T. Deliberty, B. Elder, J. Hutchings, A. Lawson, J. Rodrigues, N. Toberg, and P. Wadhams, 2010, A Case Study Testing the Impact of Scale on Arctic Sea Ice Thickness Distribution, *Proceedings of 20th IAHR International Symposium on Ice*, Lahti, Finland, June 14-18, 2010, 15 pages.
- Legates, David R., Rezaul Mahmood, Delphis F. Levia, Steven M. Quiring, Chris Houser, and Frederick E. Nelson. 2010. Soil moisture: A central and unifying theme in physical geography. *Progress in Physical Geography*, 35, 1, 65-86. doi:10.1177/0309133310386514
- Worby, Anthony P., Cathleen A. Geiger, Matthew J. Paget, Michael L. Van Woert, Stephen F. Ackley, and Tracy L. DeLiberty. 2008. *Journal of Geophysical Research*. 113. 13pp. doi:10.1029/2007JC004254
- Wang, Lillian T., Thomas E. McKenna, and Tracy L. DeLiberty. 2007. Locating ground water discharge area in Rehoboth and Indian River Bays and Indian River, Delaware using Landsat 7 imagery. *Report of Investigation No.74*. Delaware Geological Survey.
- DeLiberty, Tracy L., and David R. Legates. 2003. The interannual and seasonal variability of modeled soil moisture in Oklahoma. *International Journal of Climatology*, 23(9), 1057-1086.
- DeLiberty, Tracy L. 2000. A regional scale investigation of climatological tropical convection and precipitation in the Amazon Basin. *Professional Geographer*. 52(2), 258-273.
- Legates, David R., and Tracy L. DeLiberty. 1996. Precipitation in the Southern Great Plains: Observations and model simulations of present-day and doubled atmospheric CO₂ concentrations. *Global Climate Change Response Program, Final Report*. U.S. Department of the Interior, Bureau of Reclamation Technical Service Center. Denver, Colorado. 97pp.
- DeLiberty, Tracy L. 1995. Spatial and temporal variability of soil moisture in Oklahoma. *Publications in Climatology*. 47(2), 77pp.
- Legates, David R., Tracy L. DeLiberty, and Jayne M. Salisbury. 1994. The implications of doubled trace gas concentrations on summer precipitation variability in the Southern Great Plains. *Symposium on the Effect of Human-Induced Changes on Hydrologic Systems*. American Water Resources Association. pp.755-762.
- Legates, David R. and Tracy L. DeLiberty. 1993. Precipitation measurement biases in the United States. *Water Resources Bulletin*. 29(5), 855-861.

Databases Developed

National Ice Center weekly ice charts 1995-1997. Digitized, attributed, and analyzed. First dataset of continental-scale encompassing entire Southern Ocean to derive sea-ice thickness. Completed and delivered Spring 2006.

Other Publications

Mallem, Shilpa, Faghri Ardeshir, Reza Taromi, and Tracy DeLiberty, 2009, Utilization of GPS travel time and delay data for optimal routing control in transportation systems , *12th*

- IFAC Symposium on Control in Transportation Systems*, 562-568 doi:10.3182/20090902-3-US-2007.00085
- DeLiberty, Tracy L., and Cathleen A. Geiger. 2005. Temporal and regional variations of sea ice thickness in the Ross Sea during 1995 and 1998. *8th Conference on Polar Meteorology and Oceanography*. 10-14 January 2005. Paper 9.5 (cdrom)
- DeLiberty, Tracy L., David R. Legates, Linda L. Parrish, Daniel J. Leathers, and Geoff E. Quelch. The DEOS Interactive Visualization and Analysis System (DIVAS) prototype. *21st International Conference on Interactive Information Processing Systems (IIPS) for Meteorology, Oceanography, and Hydrology*. 10-14 January 2005. Paper 2.23 (cdrom)
- Wang, Lillian, and Tracy L. DeLiberty. 2005. Landsat atmospheric correction. The good, the bad and the ugly. *25th Annual ESRI International User Conference Proceedings*. Paper 1950 (cdrom)
- DeLiberty, Tracy L., Cathleen A. Geiger, and Mary D. Lemcke. Examining Sea Ice in the Southern Ocean using ArcGIS. Examining Sea Ice in the Southern Ocean using ArcGIS. *24th Annual ESRI International User Conference Proceedings*. 9-13 August 2004. Paper No. 1965 (cdrom)
- Schellenberg, Beth A., Tracy L. DeLiberty, Cathleen A. Geiger, Jordan Silberman, and Anthony P. Worby. 2002. Investigation of seasonal sea-ice thickness variability in the Ross Sea. *Proceedings of the 13th Symposium on Global Change and Climate Variations*. AMS. Orlando, FL. January 13-17. pp.130-132
- DeLiberty, Tracy L., and John A. Callahan. 2001. Diurnal variability of satellite-derived precipitable water in the Amazon Basin. *Proceedings of the 11th Conference on Satellite Meteorology and Oceanography*. AMS. Madison, WI. October 15-18. pp. 196-199
- DeLiberty, Tracy L., John A. Callahan, Anthony R. Guillory, and Gary J. Jedlovec. 2000. A regional-scale assessment of satellite derived precipitable water in the Amazon Basin. *Proceedings of the 10th Conference on Satellite Meteorology and Oceanography*. AMS. Long Beach, CA. January 9-14. pp.414-417.
- DeLiberty, Tracy L., and John A. Callahan. 1999. Mesoscale moisture variations associated with cold surges in southern Brazil. *Proceedings of the 23rd Conference on Hurricanes and Tropical Meteorology*. AMS. Dallas, TX. January 10-15. pp.212-215
- DeLiberty, Tracy L. 1998. A GIS-based analysis of tropical convection and precipitation in the Amazon Basin. *GIS/LIS 1998 Annual Conference Proceedings*. Forth Worth, TX, November 10-12. pp.468-479.
- Legates, David R., and Tracy L. DeLiberty. 1996. Precipitation frequency and intensity on the Southern Great Plains: Present-day conditions and doubled trace gas scenarios. *Proceedings of the Second International Scientific Conference on the Global Energy and Water Cycle*. Washington, DC. July 17-21. pp.456-457.
- DeLiberty, Tracy L. and David R. Legates. 1995. A regional-scale investigation of soil moisture variability. *Proceedings of the Conference on Hydrology*. AMS. Dallas, TX. January 15-20. pp.115-120.
- DeLiberty, Tracy L. 1994. The Spatial and Temporal Variability of Soil Moisture in Oklahoma. *PhD Dissertation*. University of Oklahoma, Norman, OK. 175pp.
- Legates, David R. and Tracy L. DeLiberty. 1993. Measurement biases in the United States rain gauge network. *Proceedings of the Symposium on Geographic Information Systems and Water Resources*. American Water Resources Association, Mobile AL. pp. 547-557.

Conference Paper and Poster Presentations

- Geiger, C. A., T. L. DeLiberty, E. R. Bernstein, and S. Helfrich, Open-source python modules to estimate level ice thickness from ice chart. Earth and Space Science Informatics, Fall Meeting American Geophysical Union, San Francisco, California. December 3-7, 2012 (poster).

- DeLiberty, Tracy L., and Peleg Kremer, Using geographic methods to estimate the urban food potential in Philadelphia, *Spatial Analysis: Applications and Techniques*, Association of American Geographer's Annual Meeting, New York City, New York. February 24-28, 2012 (paper).
- Bernstein*, E. R., C. A. Geiger, T. L. DeLiberty, Investigating two averaging methods for sea ice thickness and volume in the Southern Ocean from 1995-1998, Cryosphere/Remote Sensing Session, *American Geophysical Union Fall Meeting*, December 5-9, 2011 (poster).
- DeLiberty, T. L., Bernstein, E. R., and C. A. Geiger, Sea ice thickness and volume derived from ice charts in the Southern Ocean during 1995-1998, *American Geophysical Union Fall Meeting*, San Francisco, California, December 5-9, 2011 (poster).
- Stampone*, M. D., C. A. Geiger, T. L. DeLiberty, and E. R. Bernstein, Data-derived spatial-resolution errors of Antarctic sea-ice thickness, Cryosphere Session, *American Geophysical Union Fall Meeting*, San Francisco, California, December 5-9, 2011 (poster).
- DeLiberty, Tracy, Building a modeling framework to investigate sea ice volume in the Southern Ocean, Global Ice and Snow – Modeling and Modeling, *Association of American Geographer's Annual Meeting*, Seattle, Washington, April 12-16, 2011 (paper)
- DeLiberty, Tracy, Stephen Ackley, Cathleen A. Geiger, Michael Van Woert, Anthony Worby, Sea ice thickness and volume derived from ice charts in the Southern Ocean, *International Symposium on Sea Ice in the Physical and Biogeochemical System*. International Glaciological Society. Tromso, Norway, May 29-June 4, 2010 (poster).
- Bernstein, E. Rachel, Cathleen A. Geiger, and Tracy DeLiberty, Southern Ocean sea ice volume transport using NIC chart-derived thickness distributions, R. S. Tarr Illustrated Paper Session & Student Competition, *Association of American Geographer's Annual Meeting*, Washington, DC, April 14-18, 2010 (illustrated poster).
- Bernstein, E. R., C. A. Geiger, and T. L. DeLiberty, Sea ice volume transport in the Southern Ocean, Modeling Cryosphere, *American Geophysical Union Fall Meeting*, San Francisco, California, December 14-18, 2009 (poster).
- DeLiberty, Tracy, Stephen Ackley, Cathleen A. Geiger, Michael Van Woert, Anthony Worby, Sea ice thickness and mass balance in the Southern Ocean, *Gordon Research Conference on Polar Marine Science – Beyond IPY: Crossing Boundaries*. Lucca, Italy, March 15-20, 2009 (poster); and *Antarctic Sea Ice Workshop – IPY Cruises*, March 23-25, 2009.
- DeLiberty, Tracy, Sea-ice thickness and mass balance in the Southern Ocean, Arctic and Antarctic sea ice, atmospheric connectivity, and Arctic coastal erosion, *Association of American Geographers Annual Meeting*, Boston, Massachusetts, April 15-19, 2008 (paper).
- DeLiberty, T. L., S. F. Ackley, C. A. Geiger, M. L. Van Woert, and A. P. Worby, Sea-ice thickness derived from ice charts in the Southern Ocean, Distribution Cryosphere, *American Geophysical Union Fall Meeting*, San Francisco, California, December 10-14, 2007 (poster).
- DeLiberty, Tracy, Sea ice thickness and mass balance in the Southern Ocean, Antarctic climate and cryospheric studies, *Association of American Geographers Annual Meeting*, San Francisco, California, April 17-21, 2007 (organizer, paper).
- DeLiberty, Tracy, S. Ackley, C. Geiger, M. Van Woert, and A. Worby, Geoprocessing sea ice datasets to derive climate fields, Joint Session of 19th Conference on Climate Variability and Climate and 23rd IIPS, 87th *American Meteorological Society Annual Meeting*, San Antonio, Texas, January 15-19, 2007 (paper).
- DeLiberty, Tracy L., A four year dataset of sea-ice thickness and mass balance for the Southern Ocean, *Studies in the Cryosphere and the R.S. Tarr Student Illustrated Paper*

- Competition, *Association of American Geographers Annual Meeting*, Chicago, Illinois, March 7-11, 2006 (illustrated paper).
- DeLiberty, Tracy L., Cathleen A. Geiger, Michael Van Woert, Anthony Worby, and Stephen Ackley. An evaluation of sea ice thickness as estimated from ice charts for the Southern Ocean. *International Workshop on Antarctic Sea Ice Thickness*. Hobart, Australia. July 5-7, 2006.
- DeLiberty, Tracy L. and David R. Legates. Using a GIS to compare point versus areal estimated precipitation and their implication to modeling. *Delaware GIS 2006 Conference, Patterns of Change*. University of Delaware, Newark. June 1, 2006
- Parrish, Linda W. Tracy L. DeLiberty, and David R. Legates, The Global Interactive GIS of Geography Lessons for Educators (GIGGLE). *Delaware GIS 2006 Conference, Patterns of Change*, University of Delaware, Newark. June 1, 2006
- DeLiberty, Tracy L. A four year dataset of sea-ice thickness and mass balance for the Southern Ocean. *AAG 2006 Annual Meeting*, Chicago, Illinois. March 7-11, 2006
- Wang*, Lillian, and Tracy DeLiberty. Landsat atmospheric correction. The good, the bad and the ugly. *2005 ESRI International User Conference*. San Diego, California. Ugly 25-29, 2005
- DeLiberty, Tracy L. and Cathleen A. Geiger. Temporal and regional variations of sea ice thickness in the Ross Sea during 1995 and 1998. *8th Conference on Polar Meteorology and Oceanography*, AMS. San Diego, California. 10-14 January 2005. Paper 9.5
- DeLiberty, Tracy L., David R. Legates, Linda L. Parrish, Daniel J. Leathers, and Geoff E. Quelch. The DEOS Interactive Visualization and Analysis System (DIVAS) prototype. *21st International Conference on Interactive Information Processing Systems (IIPS) for Meteorology, Oceanography, and Hydrology*, AMS. San Diego, California. 10-14 January 2005. Paper 2.26, poster
- DeLiberty, Tracy L., Cathleen A. Geiger, and Mary D. Lemcke. Examining sea ice in the Southern Ocean using ArcGIS. *ESRI International User Conference*. San Diego, California. 9-13 August 2004. Paper No.1965
- DeLiberty, Tracy L., Linda L. Parrish, David R. Legates, Daniel J. Leathers, and Geoff E. Quelch. The DEOS Interactive visualization and analysis system (DIVAS) prototype. *Delaware GIS 2005: Creating Information, Sharing Knowledge*. April 21, 2005, poster
- DeLiberty, Tracy L., Cathleen A. Geiger, Michael Van Woert, Anthony Worby, and Stephen Ackley (presenter). A Four Year Dataset of Sea-Ice Thickness and Mass Balance for the Southern Ocean. *3rd International Conference on the Oceanography of the Ross Sea Antarctica*, Scuola Grande di San Giovanni Evangelista, Venice, Italy. 10-14 October 2005
- DeLiberty, Tracy L., Cathleen A. Geiger (presenter), Michael Van Woert, Anthony Worby, and Stephen Ackley. A Four Year Dataset of Sea-Ice Thickness and Mass Balance for the Southern Ocean. *International Symposium on Sea Ice. International Glaciological Society, Dunedin*, New Zealand, 5-9 December 2005
- Legates, David R. (presenter), Daniel J. Leathers, Tracy L. DeLiberty, and Geoffrey E. Quelch. The Delaware Environmental Observing System (DEOS). *A Vision for Tomorrow, Delaware GIS 2003 Conference*. April 29, 2003
- Wang, Lillian (presenter) and Tracy L. DeLiberty. Delaware Inland Bays shoreline extraction using Landsat 7 satellite imagery. *A Vision for Tomorrow, Delaware GIS 2003 Conference*. April 29, 2003
- DeLiberty, Tracy L. Sea-ice thickness, extent, and mass balance in the Ross Sea. Illustrated Poster. *99th Annual Meeting of the Association of American Geographers*. New Orleans, Louisiana. March 5-8, 2003, illustrated poster

- DeLiberty, Tracy L., Cathleen A. Geiger, and Beth A. Schellenberg. Uncertainties and error propagation: A climatological analysis. *2nd International Conference on Geographic Information Science*. Boulder, Colorado. September 25-28, 2002
- Wang, Lillian T. (presenter) and Tracy L. DeLiberty. Mapping the locations of groundwater discharge using Landsat Thematic Mapper. *Delaware GIS 2002 Conference: Connecting Communities*. Rehoboth, DE. April 18, 2002
- Schellenberg, Beth A., Tracy L. DeLiberty, Cathleen A. Geiger, Jordan Silberman, and Anthony P. Worby. Investigation of seasonal sea-ice thickness variability in the Ross Sea. *13th Symposium on Global Change and Climate Variations*. AMS. Orlando, FL. January 13-17, 2002, poster
- McKenna, Thomas E. (presenter), A.S. Andres, Lillian T. Wang, and Tracy L. DeLiberty. Mapping locations of ground-water discharge in Rehoboth and Indian Rivers Bays, Delaware using thermal imagery. *Geological Society of America, 2001 Annual Meeting*. Boston, MA. November 1-10, 2001, poster
- Steck, Kerri, P. (presenter), Thomas E. McKenna, A.S. Andres, and Tracy L. DeLiberty. Use of a GIS model to estimate ground-water discharge to Rehoboth and Indian River Bays, Delaware. *Geological Society of America, 2001 Annual Meeting*. Boston, MA. November 1-10, 2001, poster
- DeLiberty, Tracy L., and John A. Callahan. Diurnal variability of satellite derived precipitable water in the Amazon Basin. *11th Conference on Satellite Meteorology and Oceanography*. AMS. Madison, WI. October 15-18, 2001, poster
- DeLiberty, Tracy L. Temporal and spatial scales of soil moisture variations in Oklahoma. *97th Annual Meeting of the Association of American Geographers*. New York City, NY. February 27 – March 3, 2001
- Mahaffie, Michael, Richard Sacher, and Tracy DeLiberty. The state of GIS data in Delaware. *Delaware GIS 2000 Conference*. Dover, DE. November 17, 2000
- DeLiberty, Tracy L. and David R. Legates. Persistence and trend of modeled soil moisture in Oklahoma. *12th Conference on Applied Climatology*. AMS. Asheville, NC. May 8-11, 2000
- DeLiberty, Tracy L., John A. Callahan, Gary Jedlovec, and Anthony Guillory. Temporal and mesoscale variations of satellite derived precipitable water in the Amazon Basin. *96th Annual Meeting of the Association of American Geographers*. Pittsburg, PA. April 4-8, 2000
- DeLiberty, Tracy L., John A. Callahan, Anthony R. Guillory, and Gary J. Jedlovec. A regional-scale assessment of satellite-derived precipitable water across the Amazon Basin. *10th Satellite Meteorology and Oceanography Conference*. AMS. Long Beach, CA. January 9-14, 2000, poster
- DeLiberty, Tracy L. An evaluation of the spatial and temporal variability in precipitation over the Amazon Basin. *95th Annual Meeting of the Association of American Geographers*. Boston, MA. March 25-29, 1999
- DeLiberty, Tracy L., and John A. Callahan. Mesoscale moisture variations associated with cold surges in southern Brazil. *23rd Conference on Hurricane and Tropical Meteorology*. AMS. Dallas, TX. January 11-15, 1999
- DeLiberty, Tracy L. A GIS-based analysis of tropical convection and precipitation in the Amazon Basin. *GIS/LIS 1998 Annual Conference*. Forth Worth, TX. November 10-12, 1998
- DeLiberty, Tracy L. An evaluation of the spatial and temporal variability of convection and precipitation in the Amazon Basin. *94th Annual Meeting of the Association of American Geographers*. Boston, MA. March 25-29, 1998

- DeLiberty, Tracy L., and John A. Callahan. An investigation of satellite-derived land surface temperatures in Amazon Basin using split window technique. *93rd Annual Meeting of the Association of American Geographers*. Fort Worth, TX. April 1-5, 1997
- DeLiberty, Tracy L., and David R. Legates. The interannual and seasonal variability of modeled soil moisture: A case study in Oklahoma. *2nd International Scientific Conference on the Global Energy and Water Cycle*. Washington, DC. July 17-21, 1996, poster
- Legates, David R., and Tracy L. DeLiberty. Precipitation frequency and intensity on the Southern Great Plains: Present-day conditions and doubled trace gas scenarios. *2nd International Scientific Conference on the Global Energy and Water Cycle*. Washington, DC. July 17-21, 1996, poster
- DeLiberty, Tracy L. Regional-scale investigation of moisture budget and effects of deforestation. *92nd Annual Meeting of the Association of American Geographers*. Charlotte, NC. April 9-13, 1996
- DeLiberty, Tracy L., Elaine M. Prins, and W. Paul Menzel. 1995. An evaluation of the moisture budget in the Amazon from remotely sensed variables. *91st Annual Meeting of the Association of American Geographers*. Chicago, IL. March 14-18, 1995
- DeLiberty, Tracy L. and David R. Legates. A regional-scale investigation of soil moisture variability. *Conference on Hydrology*. AMS. Dallas, TX. January 15-20, 1995
- Legates, David R., Tracy L. DeLiberty, and Jayne M. Salisbury. Implications of doubled trace gas concentrations on summer precipitation variability in the Southern Great Plains. *American Water Resources Association, 1994 Annual Summer Symposium on Effects of Human-Induced Changes on Hydrologic Systems*. Jackson, WY. June 26-29, 1994
- DeLiberty, Tracy L. Climatic impacts of soil moisture variability in Oklahoma. *90th Annual Meeting of the Association of American Geographers*. San Francisco, CA. March 29-April 2, 1994

Grants

- Investigator. *NIC Develop Operational Algorithm to Estimate Ice Thickness for Laurentide Great Lakes for Operations Support at National Ice Center, Maryland*, NOAA, February 2012- February 2013. NOAA contract (PI Cathleen Geiger), \$89,000
- Assistant. *NOAA Develop Algorithm to Estimate Ice Thickness from Ice Charts National Ice Center* NOAA contract, (PI Cathleen Geiger), June 2011-May2012, \$79,992
- Principle Investigator. NIC weekly ice chart quality control in the Southern Ocean from 1995 to 2000. *National Ice Center (DOC/NOAA/NESDIS)*. September 2004 – August 2007. \$99,518
- Principal Investigator. Continuation of the Digital Data Capture of the NIC Weekly Ice Charts for 1995 to 2000 in the Southern Ocean. *National Ice Center*. September 2003 – August 2003. \$30,000
- Principal Investigator. Digital Data Capture of the NIC Weekly Ice Charts for 1995 to 2000 in the Southern Ocean. *National Ice Center*. September 2002 – March 2004 (Co-Investigator - Cathleen Geiger) \$33,826
- Principal Investigator. Radar Estimated Precipitation as Input to Nutrient Loading Models. *Center for the Inland Bays*. October 2002 – September 2003. (Co-Investigator – David Legates) \$12,500
- Co-Investigator. Investigation of interannual sea-ice thickness variability in the southern ocean. *NSF, Antarctic Oceans and Climate Systems Program*. September 2001 – August 2004 (PI 2003-2005, PI 2001-2003 Cathleen Geiger, Co-Investigators Anthony Worby, Michael Van Woert, Steve Ackley) \$380,001
- Co-Investigator. Redesign and coordination of curricula for problem-based learning: Geographic information systems instruction at University of Delaware. *The Pew*

- Charitable Trusts and the University of Delaware.* July 2000 – June 2001 (Principal Investigator – John MacKenzie) \$12,000
- Principal Investigator. A pilot project to enhance metadata creation and collection in the state of Delaware. USGS, *FGDC Cooperative Agreements Program “Don’t Duck Metadata”*. June 1999 – July 2001 (Collaborators – Delaware Geographic Data Committee and State Mapping Advisory Committee) \$7,400
- Principal Investigator. *Project Development Award.* College of Arts & Science. April 1997. \$1,000.
- Principal Investigator. *Research Award.* College of Arts & Science. October 1996. \$2,000
- Principal Investigator. Hydrologic effects of deforestation in the Amazon. *University of Delaware Research Foundation.* January 1996 – January 1997. \$30,000

Field Experience

- Participant* in Multi-scale Education Research through active-Learning using an Ice-physics Node (MERLIN) with Naval Academy Ice Experiment (NAICEX) field campaign. Barrow, Alaska. March 4-16 2013

Teaching

Courses

- Geog106 *Physical Geography: Land surface processes*, 75 students (S14)
- Geog372 *Geographic Information Systems*, 20-25 students (F10,S10,F05)
<http://www.udel.edu/Geography/DeLiberty/Geog372>
- Geog412 *Physical Climatology*, 12-50 students (12S,S11,S10,S09, S06,S05,S04,S03,S01,S99,S98,S97,S96)
<http://www.udel.edu/Geography/DeLiberty/Geog412>
- Geog417/617 Seminar in Climate Change, 6 students (S12)
- Geog456/656 Hydroclimatology, co-taught Dr. David Legates, 10 students (S09)
- Geog471/671 *Advanced Geographic Information Systems*, 20-30 students (S11,F09, S06,S05,S04,S03,S02,S01,S00,S99,S98,S97,S96)
<http://www.udel.edu/Geography/DeLiberty/Geog471-671>
- Geog467 Digital Image Processing (F09)
- Geog673 Select Technical Topics – Building a Transportation Application, 1 credit, 6 graduate students (12F)
- Geog474 *Introduction to Environmental Remote Sensing*, 10-15 students (F06,F05,F03,F02,F99,F97,F96)
<http://www.udel.edu/Geography/DeLiberty/Geog474>
- Geog600 Prelude (13F-12F)
- Geog667 *Geographic Information Systems*, 25 students (F06)
<http://www.udel.edu/Geography/DeLiberty/Geog667>
- Geog670 Geographic Information Systems and Science, 15-25 students (F10, S10,F06)
- Geog672 *Seminar in GIS*, 5-10 students (F02,F00,F97,F96,F95,S95)
<http://www.udel.edu/Geography/DeLiberty/Geog672>
- Geog674 *Satellite Climatology*, 5-10 students (F03,F01,F98)
<http://www.udel.edu/Geography/DeLiberty/Geog674>
- Mast681 Remote Sensing of Environment, co-taught Dr. Victor Klemas (13F, 12F,F11,F10)

Undergraduate Advisement

Approximately 6-8 Geography majors and 15-20 Environmental Science majors.

Undergraduate Theses: Committee Member

- Barbieri, Michelle, Moving up life's ladder: Analysis of University of Delaware student off-campus rental housing choices 1999-2000. *Senior Thesis*. Department of Geography. Spring 2000
- Donnelly, Frank, The geographic impact of gambling industries on urban communities: A comparison of Las Vegas and Atlantic City. *Senior Thesis*. Department of Geography. Spring 2000
- Nguyen, Tammy, Determining the effects of development on stream erosion using dendrochronology. *Senior Thesis*. Environmental Science Interdisciplinary program. Spring 1998

Graduate Theses: Major Adviser

- Callahan, John Andrew. Estimation of precipitable water over the Amazon Basin using GOES imagery. *Masters Thesis*. Department of Geography, Spring 2014
- Ippolito, Ryan. A study of soil moisture across the Delmarva Peninsular from 2005-2008. *Masters Thesis*. Department of Geography. Spring 2010
- Lemcke, Mary D., Validation of the Antarctic ice thickness distribution produced by the Community Climate System Model, Version 3.0: Using satellite-derived sea-ice thickness estimates. *Doctoral Dissertation*. Department of Geography. Spring 2009
- Drake, Dawn M., Connections between mastitis and climate: A study of holsteins on pasture in Northampton County, Pennsylvania. *Master Thesis*. Department of Geography. Spring 2008
- Modelski, Kimberly A., Comparison of climatic conditions and mosquito abundances in New Castle County, Delaware. *Master Thesis*. Department of Geography. Spring 2006.
- Wang, Lillian. *Locating groundwater discharge areas in Rehoboth and Indian River Bays*, Delaware using Landsat 7 imagery. *Masters Thesis*. Department of Geography. Spring 2005
- Schellenberg, Beth A., Investigation of sea-ice thickness variability in the Ross Sea. *Master Thesis*. Department of Geography. Fall 2002

Graduate Theses: Committee Member

- Childers, Daniel P., Neogene paleochannels in lower Delaware Bay and the Delaware inner continental shelf. *Doctoral Dissertation*. Geological Sciences. Summer 2014
- Black, Laura Ann, A collaborative framework for assessing vulnerability in interdependent infrastructure systems. *Doctoral Dissertation*. Civil and Environmental Engineering. Fall 2013
- Eshragh, Sepideh, Assessment of roundabout during evacuation: An experimental study. *Doctoral Dissertation*. Civil and Environmental Engineering. Fall 2013
- Benjamin, Andrew Edward, A synoptic climatology of tornadoes in the northeast United States. *Master Thesis*. Department of Geography. Summer 2013
- Adu-Gyamfi, Yaw Okyere, Adaptive multiscale data analysis in civil infrastructure systems: Theory, formulation and applications. *Doctoral Dissertation*. Civil and Environmental Engineering. Spring 2013
- Wedo, Andrea M., Boulder orientation, shape, and age along a transect of the Hickory Run Boulder Field, Pennsylvania. *Master Thesis*. Department of Geography. Spring 2013

- Carisio, Sebastian P., Evaluating areal errors in northern Cascade glacier inventories. *Master Thesis*. Department of Geography. Fall 2012
- Hayes, Alison Joan, A synoptic climatology of severe convective winds in the northeastern United States. *Master Thesis*. Department of Geography. Fall 2012
- Ingram, Abigail Lisa Marie, The impact of tropical circulation systems on the Chesapeake Bay Region: A climatology and damage assessment. *Master Thesis*. Department of Geography. Fall 2012
- Nickl, Elsa, Variability in land-surface precipitation estimates over 100-plus years with emphasis on mountainous regions. *Doctoral Dissertation*. Department of Geography. Summer 2012
- Van Stan II. John. Controls and dynamics of canopy-derived dissolved organic matter from co-dominant broadleaved deciduous canopies to the soil of a temperate catchment in the northeastern United States. *Doctoral Dissertation*. Department of Geography. Spring 2012
- Taromi, Reza, A multi-objective land development optimizing model. *Doctoral Dissertation*. Civil and Environmental Engineering. Spring 2011
- Kremer, Peleg, Local food systems as a strategy for sustainability: Analysis of scale dependent sustainable urban food system. *Doctoral Dissertation*. Energy and Environmental Policy. Spring 2011
- Bernstein, E. Rachel, Sea ice thickness and the distribution contributing to the mass balance of the Southern Ocean. *Master Thesis*. Department of Geography. Spring 2010
- Croope, Silvana, Managing critical civil infrastructure systems: Improving resilience to disasters. *Doctoral Dissertation*. Civil and Environmental Engineering. Spring 2010
- Fry, John C., Analysis of floristic diversity of *Ailanthus Altissima* Mill. Swingle (Tree of Heaven) and co-occurring native tree species in northeastern Maryland. *Master Thesis*. Department of Geography. Fall 2009
- Pier, Heather L., Modeling the influence of geographic variables on snowfall in Pennsylvania from 1950-2007. *Master Thesis*. Department of Geography. Spring 2009
- Cloud, Kimberly C., Changes and trends in streamflow during floods and droughts in the urbanizing Christina River Basin. *Master Thesis*. Department of Geography. Summer 2007
- Henderson, Gina, European snowcover extent variability: A climatology from 1967-2002. *Master Thesis*. Spring 2006
- Terando, Adam, The impact of reforestation on the climate of the southeast. *Doctoral Dissertation*. Department of Geography. Spring 2006
- Little, Jonathan D., Spatial variability of frost heave and thaw settlement in tundra environment: Applications of differential GPS technology. *Master Thesis*. Department of Geography. Spring 2006
- Johnson, Michelle L., New monthly precipitation estimates for the tropics. *Doctoral Dissertation*. Department of Geography. Fall 2005
- Archer, Betsy. Avian habitat related land cover changes in the Milford Neck Wildlife Conservation Area. *Master Thesis*. College of Marine Studies. Fall 2005.
- Bassan, Shy. Modeling Traffic Flow Transition and Breakdown Processes on Congested Freeways. *Doctoral Dissertation*. Civil Engineering. Summer 2005
- Quiring, Steven M., Developing a real-time agricultural drought monitoring system for Delaware. *Doctoral Dissertation*. Department of Geography. Summer 2005
- Dawson, Shelley, Selection of Geographic Information System (GIS) Software for the Mapping of Living Plant Collections. *Master Thesis*. Public Horticulture. Spring 2005

- Mallem, Shilpa. Utilization of the travel time and delay data from GPS for optimal routing. *Doctoral Dissertation*. Civil Engineering. Spring 2005
- Thomas, Brent, Climatic influences on Delaware's Inland Bay's nutrient concentrations: A predictive water budget-based model of dissolved inorganic nitrogen and phosphorous levels. *Master Thesis*. Department of Geography. Spring 2004
- Jennings, Jennifer, The role of land use and land cover in the delivery of nutrients to Delaware's Inland Bays. *Master Thesis*. College of Marine Studies. Summer 2003
- Hamad, Khaled, Integrating travel data collected by GPS into GIS using dynamic segmentation approach. *Doctoral Dissertation*. Department of Civil and Environmental Engineering. Spring 2003
- Johnson, Michelle, Estimating precipitation over the Amazon Basin from satellite and in-situ measurements. *Master Thesis*. Department of Geography. Spring 2002
- Sipel, Ross, The synoptic and topographic forcing of microclimates across the San Francisco Bay area. *Master Thesis*. Department of Geography. Summer 2001
- Grundstein, Andrew J., A climatology of snow water equivalent in the Northern Great Plains of the United States. *Doctoral Dissertation*. Department of Geography. Spring 2001
- Grilli, Annette R., Sensitivity of sea-surface albedo to sea state. *Doctoral Dissertation*. Department of Geography. Spring 2000
- Detwiler, James E., Air mass mapping for use in environmental analysis. *Master Thesis*. Department of Geography. Spring 1999
- Schwimmer, Reed., Marsh shoreline erosion, antecedent topography, transgression: A GIS model of salt marsh evolution. *Doctoral Dissertation*. Department of Geology. Summer 1999
- Hodny, Jay W., Water resources of Delaware: A climatic water budget microanalysis. *Doctoral Dissertation*. Department of Geography. Spring 1998
- Bailey, Allison R., Detecting and monitoring phragmites invasion of coastal wetlands: A comparison of remote sensing techniques. *Master Thesis*. College of Marine Studies. Fall 1999
- Camp, Edward R., Jr., Demonstrating the use of public opinion surveys and a geographic information system to identify recreational boater conflicts on the Nanticoke River. *Master Thesis*. College of Marine Studies. Spring 1997
- Conly, Michael., Precipitation measurement biases and their effect on a hydraulic model. *Master Thesis*. Department of Geography, University of Oklahoma. Spring 1995
- Brewer, Michael J., The effect of climate change on natural vegetation patterns. *Doctoral Dissertation*. Department of Geography. Spring 1996
- McCarthy, Deidre C., Geographic Information Systems and their application in historic preservation. *Master Thesis*. College of Urban Affairs and Public Policy. Spring 1996

Service

University

Guidance and assistance to faculty and students using GIS in their research
 Director of Graduate GIS Certificate Program
 Advisor of Undergraduate Internship Program
 Member of Environmental Science and Studies Program Academic Council
 Advisor for undergraduate students in Environmental Science and Studies Program,
 Geography

Department Seminar Series coordinator (Fall 1998, Fall 2004)

Member of Hydroclimatology and Physical geography faculty search committees
Member of RDMS and DGS GIS staff search committees
Judge for annual Delaware Geography Bee
Department Representative to Delaware Valley Geographic Association, Fall 1996 –
Spring 1998
Career advisor for students seeking employment in the geography and environmental
science area

Discipline

Peer-reviewer for Electronic journal, *Applications and Advances in Remote Sensing*,
September 1999 – present
Peer-reviewer for *Remote Sensing Core Curriculum, Education Initiative* of American
Society of Photogrammetry and Remote Sensing, Fall 1999-present
Peer-reviewer for NSF proposals and Geography/Climatology journals
Member of and participate in the Delaware Geographic Data Committee (DGDC), Spring
1999 – present
Member of and participate in the State Mapping Advisory Committee for Delaware
(SMAC) and its subcommittees (Education & Training, Metadata, Framework
committees), Spring 1999 –present
Appointed member to AMS Program Committee on Satellite Meteorology and
Oceanography, January 1998 – January 2002
Lead delegate to the University Consortium for Geographic Information Science
(UCGIS) representing the University of Delaware. Fall 1997 – present

Community

Provide guidance, direction and technical assistance to the community in the use of GIS
Wrote and administer exams for “From a Distance” competition. *Science Olympiad
Invitational*, January 2002 and *Delaware State Olympiad*, March 2002-present
University of Oklahoma, Geography Department, Board of Visitor’s, September 1998-
present
Guest speaker in numerous K-6 grade classrooms during Geography Awareness Week
and GIS and Remote Sensing topics.

Professional Associations

Association of American Geographers (AAG)
American Geophysical Union (AGU)
American Meteorological Society (AMS)
Delaware/Philadelphia Local Chapter of AMS
American Society of Photogrammetry and Remote Sensing (ASPRS)