

Fritz Connor Kessler

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Education

PhD in Geography, emphasis in cartography and geographical visualization, University of Kansas, Lawrence, KS, 1999.

Dissertation Topic: *The U-Boat Narrative: A Computer-Based Exploration of the 1939-1945 U-boat Conflict.*
Advisor: Dr. Terry Slocum

MS in Geography, emphasis in cartography, map projections, and expert system design, Pennsylvania State University, University Park, PA, 1991.

Thesis Topic: *MaPSS: An Expert System Designed to Assist a User in the Selection of a Suitable Map Projection.*

Advisor: Dr. Alan MacEachren

BS in Geography, emphasis in cartography, minors in Mathematics and History, Ohio University, Athens, OH, 1988.

Advisor: Dr. Huberts Blömer

Academic Employment History

Associate Research Professor, Penn State, 2017 – present

Senior Research Associate and Associate Professor, Penn State, 2015 – 2017

Adjunct Professor, Pennsylvania State University, 2007 to 2015

Professor, Frostburg State University, 2013 - 2015

Associate Professor, Frostburg State University, 2005 to 2013

Assistant Professor, Frostburg State University, 1999 – 2005

Adjunct Professor, Department of Mathematics, Frostburg State University, 1999

Graduate Teaching Assistant, University of Kansas, 1997 – 1999

Graduate Teaching Assistant, Penn State, 1989 – 1991

Membership in Academic and Professional Societies

North American Cartographic Information Society

Cartography and Geographic Information Society

American Association of Geographers

Honors and Awards

Gladys Snyder Award, 2016

The Helen and John S. Best Research Fellowship in Cartography, 2012

FSU's Faculty Achievement Award in Academic Accomplishment, 2005 and 2012

Honors on Doctorial Candidacy Exams and Dissertation Defense, 1999

George Jenks Scholarship in Cartography, 1996 and 1997

Outstanding Ohio University Undergraduate Geography Award, 1988

Ellen G. Farnsworth Scholarship, 1987

Ohio University Dean's Scholarship, 1985 and 1986

Ohio University's Dean's List, 1985 – 1988

Courses Taught

Penn State University

Online Courses

GEOG 486 – Cartography and GeoVisualization†
GEOG 583 – Geospatial System Analysis and Design†
GEOG 586 – Geographical Information Analysis †
*GEOG 597G – Challenges in Geospatial Analytics***
*GEOG 861 – The Earth is Round and the Map is Flat: ***

Resident Undergraduate Courses

GEOG 361 – Cartography: Maps and Map Construction†
*GEOG 464 – Advanced Spatial Analysis†**

Frostburg State University

Lower-Level Undergraduate

GEOG 103 – Introduction to Physical Geography†
*GEOG 275 – Introduction to Spatial Analysis†**

Upper-Level Undergraduate

*GEOG 310 – Fundamentals in the Mapping Sciences †**
*GEOG 317 – Introduction to Geographical Information Systems†**
*GEOG 380 – Research Methods and Field Research†**
*GEOG 412 – Geographic Visualization† **
*GEOG 415 – Applied Design in the Mapping Sciences†**
*GEOG 418 – Cartometrics***
GEOG 433 – Surveying and Field Techniques†

Undergraduate Non-Geography Courses

*IDIS 350 – Surviving in a Diseased World***
MATH 209 – Elements of Applied and Probability Statistics†

† indicates an existing course

* implements significant changes to an existing course

** indicates a new course development

Sabbaticals

Spring 2013. Surveyed the use and popularity of world map projection use in world atlases.

Spring 2006. A qualitative analysis of student perception of map projection distortion symbolization.

Refereed Publications

Kessler, Fritz and Strebe, daan. "World Map Projections used in World Atlases: Rise of the Pseudocylindrics." (*in progress*)

Kessler, Fritz. "Map Projection Education in World Atlases: A Review." (*in progress*)

2019. Gallagher, Patricia and Kessler, Fritz. *Developing Map Marginalia Design Standards for the Alaskan Division of Geological & Geophysical Surveys*. Professional Report. (*under review*)

2018. Kessler, Fritz. "Map Projection Education in Cartography Textbooks: A Content Analysis." *Cartographic Perspectives*. doi: 10.14714/CP90.1449

2018. Kamptner, Erika and Kessler, Fritz. "What Motivates OpenStreetMap Users? Comparing User Contributions to Small-Scale Crisis Events." *GeoJournal*. doi: 10.1007/s10708-018-9912-1

2014. Ricker, Britta, Nadine Schuurman, and Fritz Kessler. Implications of Smartphone usage on Privacy and Spatial Cognition: Academic Literature and Public Perceptions. *GeoJournal*. DOI 10.1007/s10708-014-9568-4. doi: 10.1007/s10708-014-9568-4

2012. Battersby, Sarah and Kessler, Fritz. "Cues for Interpreting Distortion in Map Projections." *Journal of Geography*, 111(3):93-101. doi: 10.1080/00221341.2011.609895

2011. Kessler, Fritz. "Volunteered Geographic Information: A Bicycling Enthusiast Perspective." *Cartography and Geographic Information Science*, 38(3): 258-268. doi: 10.1559/15230406382258

2011. Kessler, Fritz and Slocum, Terry. "Analysis of Thematic Maps Published in Two Geographical Journals in the Twentieth Century." *Annals of the Association of American Geographers*, 101(2):292-317. doi: 10.1080/00045608.2010.544947

2004. Slocum, Terry, Sluter, Robert, Kessler, Fritz, and Yoder, Steven. "A Qualitative Evaluation of MapTime." *Cartographica*, 39(3):43-68. doi: 10.3138/92t3-t928-8105-88x7

2002. Kessler, Fritz. "Focus Groups as a Means of Qualitatively Assessing the U-Boat Narrative." *Cartographica*, 37(4):33-60. doi: 10.3138/c631-1lm4-14j3-1674

2001. Slocum, Terry, Yoder, Steven, Kessler, Fritz, and Sluter, Robert. "MapTime: Software for Visualizing Spatiotemporal Data Associated with Point Locations." *Cartographica*, 37(1):15-31. doi: 10.3138/t91x-1n21-5336-2r73

2000. Kessler, Fritz. "A Visual Basic Algorithm for the Winkel Tripel Projection." *Cartography and Geographic Information Science*, 27(2):177-183. doi: 10.1559/152304000783547939

Non-Refereed Publications

- Kessler, Fritz. "Projections." In *International Encyclopedia of Human Geography* 2nd edition, Volume 1. Edited by Robin Kitchin and Nigel Thrift. Oxford: Elsevier. (*Invited and in press*)
2018. Kessler, Fritz and Slocum, Terry. "Is the Map Losing its Power? A Survey of the Map's Changing Role in the Annals of the Association of American Geographers." In *Changing World Language Map*, ed. Stanly Bruun. (*Invited and in press*)
2017. Kessler, Fritz, Battersby, Sarah, Finn, Michael, and Clarke, Keith. "Map Projections and the Internet." In *Choosing a Map Projection*. Edited by Miljenko Lapaine and E. Lynn Usery. 117-148. Springer, New York, NY. doi: 10.1007/978-3-319-51835-0_4
2015. Slocum, Terry and Kessler, Fritz. "Thematic Mapping." In the *History of Cartography Project: Cartography in the Twentieth Century*, ed. Mark Monmonier, 1500-1525. Chicago: University of Chicago Press. (*Invited*) doi: 10.7208/chicago/9780226152127.001.0001
2014. Kessler, Fritz. "The Importance of Horizontal and Vertical Datums." *LiDAR News*, 4(5): 30-33.
2012. Kessler, Fritz. "Symbolizing America." In *Mapping America: Exploring the Continent*. 16-27. Black Dog Publishing London, England.
2011. Slocum, Terry and Kessler, Fritz. "Analysis of Thematic Map Design in the Geographical Journal and the Geographical Review during the Twentieth Century." In Proceedings of the 25th International Cartographic Association's Conference. Paris, France.
2009. Kessler, Fritz. "Projections." In *International Encyclopedia of Human Geography*, Volume 1. Edited by Robin Kitchin and Nigel Thrift, 455-473. Oxford: Elsevier. (*Invited*) doi: 10.1016/c2009-1-28241-4
- 2009, Kessler, Fritz and Griffin, Amy. "Results of the *Cartographic Perspectives* Readership Survey." *Cartographic Perspectives*, 53(Summer): 4-16. doi: 10.14714/cp63.158
2004. Slocum, Terry, Hugh Howard, Fritz Kessler, and Robert McMaster. "Recent and Ongoing Developments in Geographic Visualization." *American Congress on Surveying and Mapping: Bulletin*, January/February (207):8-17.
1992. Kessler, Fritz. "Adapting to the Changing Needs of Contemporary Cartography through the Development of New Map Projection Selection Strategies: A Review." *Technical Papers*. American Society of Photogrammetry and Remote Sensing & American Congress on Surveying and Mapping: 284-293.

Book Publications

Kessler, Fritz and Battersby, Sarah. *Working with Map Projections: A Guide to their Selection*. CRC Press. Boca Raton: FL. (in progress)

Slocum, Terry, McMaster, Robert, Kessler, Fritz, and Howard, Hugh, 2009. *Thematic Cartography and Geovisualization*. 3rd ed., Prentice Hall Upper Saddle River: NJ.

Slocum, Terry, McMaster, Robert, Kessler, Fritz, and Howard, Hugh, 2005. *Thematic Cartography and Geographic Visualization*. 2nd ed., Prentice Hall Upper Saddle River: NJ.

Published Book Reviews

2012. *Lining up Data in ArcGIS*, by Maher, Margaret in *Cartographic Perspectives*, 72(Spring): 97-99.

2011. *Oxford Comprehensive Atlas of the World*, by Dibyesh, Anand, John, Burden, Peter, Grego, Keith, Lye, and Garrett, Nagle in *Cartographic Perspectives*, 69(Spring):75-78.

2010. *Cartography: Visualization of Spatial Data*, Third Edition, by Kraak, Menno-Jan and Ormeling, Ferjan, in *Applied Spatial Analysis and Policy Journal*, 4(2):141.

2006. *Working with Projections and Datum Transformations in ArcGIS: Theory and Practical Examples*, by Flacke, Werner and Kraus, Birgit, in *Cartography and Geographic Information Science*, 33(3):233-237.

2006. *Plotting the Globe: Stories of Meridians, Parallels, and the International Date Line*, by Ariel, Avraham and Berger, Nora Ariel, in *Cartographic Perspectives*, 55 (Fall):63-66.

2006. *Integrated Geospatial Technologies: A Guide to GPS, GIS, and Data Logging*, by Jeff Thurston, Thomas Poiker, and J. Patrick More, in *Cartography and Geographic Information Science*, 33(1):93-96.

2005. *A Railroad Atlas of the United States in 1946: Volume 1: The Mid-Atlantic States*, by Carpenter, Richard, in *Cartographic Perspectives*, 50(Winter):54-56.

Published Maps

2015. Kessler, F. "Trails in Garrett County, MD" Garrett County Maryland's Department of Tourism.

2001. Raesly, E. and G. Dates. "Water Quality Assessment of the Town Creek Watershed in Pennsylvanian and Maryland, 2001" Ridge and Valley Streamkeepers.

2001. Kinciger, A. P. and R. L. Raesly. "A Narrow Hybrid Zone between Two *Cottus* Species in Wills Creek, Potomac Drainage." *The Journal of Heredity*, 92(4):309-314.

Conference Presentations

2017. "Educating a General Readership on Map Projections in Twentieth Century Thematic World Atlases: A Survey." International Cartographic Association's 28th International Cartographic Conference, Washington D.C.

2016. With Terry Slocum. "Is the Map Losing its Power? A Survey of the Map's Changing Role in the *Annals of the Association of American Geographers*." Association of American Geographers 114th Annual Meeting, San Francisco, CA.

2014. "World Map Projections used in World Atlases: Rise of the Pseudocylindrics." AutoCarto Conference. Pittsburgh, PA.

2014. "Map Projection Education in World Atlases: A Review." North American Cartographic and Information Society's Conference. Pittsburgh, PA.

2013. With James Sloan. "Developing and Teaching an Online Course on Coordinate Systems through Penn State's World Campus." North American Cartographic and Information Society's Conference. Greenville, SC.

2013. With Rick Bradshaw. "Inspection of Topographic Distance Measurements with ArcGIS." North American Cartographic and Information Society's Conference. Greenville, SC.

2012. With Sarah Battersby. "Cues for Interpreting Distortion in Map Projections." American Association of Geographers 109th Annual Meeting New York, NY.

2010. "Integrating GPS and Health Data with Participatory Web Mapping: Technologies Designed for Analyzing Bicycle Racing Fitness." North American Cartographic and Information Society's Conference. Saint Petersburg, FL.

2010. With Terry Slocum. "Evaluating Changes in Thematic Map Design in the Annals over the 20th Century." Association of American Geographers 107th Annual Meeting Washington, D.C.

2009. With Amy Griffin. "Results of the Cartographic Perspectives Readership Survey." North American Cartographic and Information Society's Conference. Sacramento, CA.

2009. With Michael Braymen. "A GIS Tool for Evaluating Distortion of Map Projections." North American Cartographic and Information Society's Conference. Sacramento, CA.

2009. With Terry Slocum. "History of Thematic Cartography: Design and Construction Issues." Association of American Geographers 106th Annual Meeting Las Vegas, Nevada.

2006. With daan Strebe. "Student Perception of Map Projection Distortion Symbolization Methods." North American Cartographic Information Society's Conference, Madison, Wisconsin.

2004. "Lessons Learned: Reflections on Co-authoring *Thematic Cartography and Geographic Visualization*." North American Cartographic Information Society's Conference, Portland, Maine.

2003. "Descriptive Statistics for Geographically Referenced Data." Frostburg State University 32nd Annual Mathematics Symposium, Frostburg, Maryland.
2002. "Incorporating Student Learning Strategies into Interactive Teaching Tools." North American Cartographic Information Society's Conference, Columbus, Ohio.
2001. With MaryJo Price. "Cartographic Treasures amongst a Sea of Pearls." Mid-American Division of the Association of American Geographers Conference, Frostburg, Maryland.
2000. With Terry Slocum. "Utilizing Focus Groups as a Means of Qualitative Assessment for Software Development." Association of American Geographers 97th Annual Meeting Pittsburgh, Pennsylvania.
2000. "Introducing the U-boat Narrative: A Data Exploration System for the U-Boat War 1939-1941." The Society of Military History Conference Marine Corps University, Quantico, Virginia.
2000. "Introducing Earth to Map: Software for Understanding the Mathematics of Map Projections." North American Cartographic Information Society's Conference, Knoxville, Tennessee.
1999. "Results and Experiences of Using Focus Groups to Evaluate the U-Boat Narrative: A Data Exploration System for the U-Boat War 1939-1945." North American Cartographic Information Society's Conference, Williamsburg, Virginia.
1998. "The U-Boat Narrative: Data Exploration Possibilities of the U-boat Conflict 1939-1945." North American Cartographic Information Society's Conference, Milwaukee, Wisconsin.
1998. "Data Exploration and the U-Boat Conflict of 1939-1945." American Association of Geographers Conference: Great Plains and Rocky Mountain Meeting, Lawrence, Kansas.
1997. "A Critique of Map Projection Selection Guidelines." American Association of Geographers 94th Conference, Fort Worth, Texas.
1996. "Selecting map projections for the World Wide Web." American Congress on Surveying and Mapping Mid-Western GIS Conference, Kansas City, Missouri.
1992. "Adapting to the Changing Needs of Contemporary Cartography through the Development of New Map Projection Selection Strategies: A Review." American Society of Photogrammetry and Remote Sensing & American Congress on Surveying and Mapping Convention, Washington D.C.

Grants Awarded

- Global Programs Faculty Travel Grant, University Office of Global Programs, \$3,000, 2017
- Global Programs Faculty Travel Grant, University Office of Global Programs, \$3,000, 2016
- Gladys Snyder Junior Faculty Award, \$1,700, January 2016
- Faculty Development and Sabbatical Subcommittee Grant, \$650, November, 2009
- Frostburg State University Foundation Grant, \$650, November, 2009
- Maryland Department of Natural Resources Grant "Working Woodlot Initiative," \$5,500, July, 2005
- Faculty Development and Sabbatical Subcommittee Grant, \$875, November, 2001
- "A Qualitative Assessment of Map Projection Education Software"

Workshop Presentations

1997. "Paper and Electronic Maps: Available Resources at the University of Kansas' Map Library" Workshop held at the T.R. Smith Map Collection for the University Community, University of Kansas (co-presented with Jennie Dienes).

1997. "Digital Orthophoto Quads and Their Role in Large Scale Mapping" Workshop held at the T.R. Smith Map Collection for the Kansas Association of Mappers. University of Kansas, October, 1997.

Invited Presentation

2009. "Creating Effective Map Design with GIS." Western Maryland GIS User's Group. Cumberland, MD.

Poster Presentations

2015. "Celebrating the International Map Year." Association of American Geographers 113th Annual Meeting. Chicago, IL.

2004. "The International Cartographic Committee's Newly Established Working Group on Map Projections." ACSM/TAPS Conference, Nashville, TN.

Students Supervised in the Masters of Geographic Information Science (MGIS) Program

Shively, James, "Using GIS to Define Access to Veteran Healthcare in Ohio," expected graduation fall, 2018.

Case Robertson, "A Fundamental Study into Interior Navigation Technologies," graduated spring, 2018

Patricia Gallagher, "Developing Map Marginalia Design Standards for the Alaska Division of Geological & Geophysical Surveys," graduated summer, 2018

Erika Kamptner, "What motivates OpenStreetMap Users? A Study of User Contributions through a Comparison of Small-Scale Crisis Events," graduated fall, 2017

Chris Klaube, "Development of an Address Point Editing Application for Local Governments & Public Safety Answering Points," graduated spring, 2016

Parrish Henderson, "More Than a Mollusk: Using GIS to Effectively Repopulate Oyster Habitats in the South River (a Tributary of the Chesapeake Bay)," graduated summer, 2016

Jonas Miller, "User-Defined Geospatial Risk Index and Weighting for Initial Emergency Response Mapping," graduated fall, 2016

Kymerlie Kelly, "An Analysis of Symbol Design for an Indoor Navigation System," graduated spring, 2015

Rick Bradshaw, "Inspection of Topographic Distances Measurements within ArcGIS," graduated fall, 2013

Michael Braymen, "Improving Decision Making in Choosing a Projection," graduated fall, 2008

Service Activities

DEPARTMENT LEVEL

Penn State University

Fixed-Term Faculty Promotion Committee: 2017 to present

Graduate Curriculum Committee: 2015 to 2017

Masters of Geographic Information Science Graduate Selection Committee: 2015 to present

Frostburg State University, Department of Geography

Department Chair: 2011 to 2015

Internship Director: 2000 to 2015

Library Liaison: 2000 to 2015

Technology Committee Chair: 2002 to 2011

Department Evaluation Committee: 2001 – 2004, 2008, 2010 to 2015

Geography Program Review Committee: 2003 to 2004, 2008 to 2009, and 2013 to 2014

Graduate Program Development Committee: 2001 to 2003

Geography Search Committee: Human Geography position: 2010 and Remote Sensing positions: 2001 and 2006

UNIVERSITY LEVEL

Frostburg State University, Department of Geography

Technology Committee Advisory Group: 2004 to 2006

University's Self-Study Committee: 2004 to 2005

PROFESSIONAL LEVEL

President, North American Cartographic Information Society: 2017 to present

Vice President, North American Cartographic Information Society: 2016 to 2017

Vice President Elect, North American Cartographic Information Society: 2015 to 2016

Cartographic Education Section Editor, *Cartographic Perspectives*: 2015 to present

Editorial Board, *Cartographic Perspectives*: 2011 to present

Editor in Chief, *Cartographic Perspectives*: 2008 to 2010

Board of Directors, Cartography and Geographic Information Science, 2015 to present

Board of Directors, North American Cartographic Information Society: 2010 to 2012

Board of Directors, North American Cartographic Information Society: 2004 to 2006

Secretary, International Cartographic Committee's Working Group on Map Projections: 2002 to 2005

Advisory Board, University Consortium for Geographic Information Science: 2005 to 2006

COMMUNITY LEVEL

Developed a new grid coordinate system for Penn State and State College's police departments for their emergency response teams.

Through GEOG 415, I supervised the design and production of the following new maps for local Alleghany and Garrett County, MD organizations.

Garrett County Trails Commission – Garret County Trail System (2014)

City of Frostburg – Parks and Recreation & Enterprise Zoning (2010)

Evergreen Heritage Center – historic land grand boundaries (2010)

Evergreen Heritage Center – Old railroad historic trail (2009)

Frostburg’s Visitor’s Bureau – Trail Town Map (2009)

Frostburg First – Business District Overview of Downtown Frostburg (2009)

City of Frostburg – Parking map (2009)

Great Alleghany Highland’s Trail – Frostburg’s Trail Head of Great Alleghany Passage (2005)

City of Frostburg – Frostburg Street Map (2003)

Professional Employment History

August 1996 - August 1997:

Map Librarian, *T. R. Smith Map Collection, University of Kansas, Lawrence, KS*

Extracted digital data per patron’s request

Maintained GIS system hardware, software and peripherals

Organized the digital data collection and made it available for patron's use

Assisted patrons in locating source materials in the map collection

August 1995 - May 1996:

Research Assistant, *Kansas Geological Survey, Lawrence, KS*

Developed and maintained ARC/INFO spatial databases dealing with Kansas geo-hydrology

Produced customized GIS data layers from internal and external geospatial data sources

Programmed AML routines for efficient data acquisition and conversion into spatially correct topology

Utilized ArcView and ArcInfo workstation to customize maps for publication and presentation

Produced metadata for hydrological GIS products

August 1992 - March 1995:

Cartographer, *R. R. Donnelley & Sons, Lancaster, PA*

Researched and acquired source material and base information for cartographic projects

Determined appropriate scale, projection, design, and layout of maps for clients

Used cartographic methods to produce maps for publications, such as *Reader’s Digest Travel Guide USA*

Compiled and produced multimedia maps such as those found in *Grolier’s Multimedia Encyclopedia*

August 1991 - August 1992:

Systems Analyst, *Intergraph Corporation, Huntsville, AL*

Programmed cartographic/GIS applications in C

Debugged Intergraph software packages

Wrote documentation for executables

September 1988 - July 1989:

Cartographic Technician, *U.S. Geological Survey, Towson, MD*

Prepared monochrome and multicolor maps and illustrations for publication

Acquired base maps, determined appropriate design strategies, and edited pre-press maps

Consulted with hydrologists regarding map symbolization and design for publication and presentation

February 1988 - June 1988:

Student Cartographer, *Ohio University Cartographic Laboratory, Ohio University, Athens, OH*

Designed maps and other graphics for publication and presentation

Prepared monochrome and color maps using pen-and-ink methods

Acquired source materials, base information and data for various cartographic projects