

FRANCIS HARVEY

CURRICULUM VITAE

EDUCATION

- University of Washington, Seattle, Washington, Geography PhD** **1992-1996**
Awarded PhD degree in May 1996, dissertation title, *Geographic Information Integration and GIS Overlay*, Advisor: Nicholas R. Chrisman
- University of Dortmund, Germany, Spatial Planning, Master's of Science (Diplom-Ingenieur)** **1984-1991**
Received Diplom-Ingenieur degree in May 1991, master thesis title (translated from German), *Detection of potential erosion in alpine pastures using a Digital Elevation Model*
- University of Wisconsin, Madison, Wisconsin, Sociology** **1983-1984**
Emphasis on quantitative sociology

ACADEMIC POSITIONS

- Head of Department** **1/2015 - now**
Cartography and Visual Communication in Geography
Leibniz Institute for Regional Geography
- Professor of Visual Communication in Geography** **2/2015 - now**
Leipzig University
- Associate Professor** **5/2004 - 6/2015**
University of Minnesota, Department of Geography (on leave 2007)
- Affiliated Faculty, Center for German and European Studies** **1/2007 - 6/2015**
University of Minnesota, College of Liberal Arts
- Erasmus Mundus Visiting Professor** **4/2011 - 7/2011**
University of Münster, Department of Geography
- Visiting Professor** **1/2009 - 9/2011**
Jagiellonian University, Institute of Geography and Spatial Management, Krakow, Poland
- Senior Lecturer** **1/2007 - 12/2007**
University of Leicester, Department of Geography

Assistant Professor University of Minnesota, Department of Geography	7/2001 - 5/2004
Assistant Professor University of Kentucky, Department of Geography	8/1998 - 6/2001
Lecturer and Researcher Swiss Institute of Technology Lausanne (EPF-L), Institute of Geomatics	8/1996 - 8/1998
Research Assistant Comparative study of GIS use in low level radioactive waste siting Projects	1/1996 - 6/1996
Teaching Assistant GIS and cartography courses	9/1993-12/1996
Teaching Assistant and Tutor English language Program SPRING, Department of Planning, University of Dortmund, Germany	1/1986 - 12/1988

GRADUATE STUDENTS

Current Advisees:

PhD: Lea Bauer, Maria Turchenko, Eric Losang
Masters: —

Completed Advisees (PhD students with current position):

PhD: Natalia Ipatow (June 2018, Amt für Digitalisierung, Breitband und Vermessung), Jeff DeGrave (April 2015, Instructor UW-Eau Claire), Jennifer Kotting (March 2013, Co-advisor with Brenda Kayzar, Communications Director at NNAF - National Network of Abortion Funds) Elizabeth Fairley (January 2013, DMA) Emily Murai (January 2012, Co-advisor with George Henderson, Instructor UC-Santa Cruz), Roxanne Ornelas, (May 2007, Associate Professor, Miami University of Ohio)

Masters: Allen Lin (March 2015), Keith Erickson (February 2012), Kevin Dyke (Januart 2012), Sean O'Brien (June 2012), Chad Sigler (June, 2012), Tim Gladhill (September, 2011), Kathryn Klatt (August 2011), Jessica Campbell (June 2011), Tim Jacobson (February 2011), Alyssa Erickson (June 2010), Ben Butzow (December 2009), Eric Marquardt (May 2007), Katharine Kindervater (Hall) (May 2009), Chacko Jacob (December 2009), Nathan Aamot (May 2009), Claude Hanhart (May 2003)

Committee Memberships:

PhD: 15
Masters: 52

SCHOLARSHIP

RESEARCH GRANTS

Leibniz Association, Names change, places too. The challenge of developing geodata-based gazetteer research technologies and methods. 2019-2022. €920,000 (with Christian Lotz, Herder Institute)

Bundesministerium für Bildung und Forschung, Cyberatlas. Wissenschaftliche Infrastruktur für Erkenntnisgewinnung im 21. Jahrhundert, 2018-2019. €60,426 (with Eric Losang)

Leibniz Association, Help from science to improve the numerical analysis of population movement & urban development with existing statistical data for sustainable urban growth (hin&weg), 2018-2021. €946,382 (with Sebastian Lentz, Tim Leibert, Christian Hanewinkel, Eric Losang)

University of Minnesota Office of the Vice-President for Research, U-Spatial Spatial Sciences and Systems Infrastructure, 2011-2016. \$2,500,000 (with Steve Manson, Jon Foley, Steve Ruggles, Marv Bauer, Shashi Shekhar)

Federal Geographic Data Committee, Cooperative Agreements Program, Measuring Public Value of Geospatial Commons: A MetroGIS Case Study, 2010-2011. \$50,000 (with Randy Johnson, MetroGIS)

National Science Foundation, Collaborative Research: Graduate Ethics Education for Future Geospatial Technology Professionals, 2009-2010, \$46,661

European Commission, GDEG: Geographical Dimensions of European Governance, 2006-2010, €80,000

National Science Foundation, Administrative Technologies and the Governance of Agrarian Reform: Liberal Modernization of the Polish Cadastral Infrastructure, 2005-2008, \$175,000

Minnesota Department of Transportation, University of Minnesota, Bicycle Commuter Route Choice, 2005-2006, \$63,000 (with Kevin Krizek and David Levinson)

Graduate School, University of Minnesota, Grant-in-Aid for Summer Research in Poland 2004, \$9425

International Programs Office, University of Minnesota, Travel Grant to attend the 2004 International Geographical Union Conference in Glasgow, United Kingdom, \$500

Association of American Geographers, Travel Grant to attend the 2004 International Geographical Union Conference in Glasgow, United Kingdom, \$1500

Institute for Global Studies, College of Liberal Arts, University of Minnesota, Planning of Counter-Infrastructure workshop 2003, \$1000

Association of American Geographers, Travel Grant to attend the 2002 International Geographical Union Conference in Durban, South Africa, \$1500

Federal Geographic Data Committee/University Consortium for Geographic Information Science, Building the NSDI at the Base Establishing Best Sharing and Coordination Practices Among Local Governments, 2001-2002, \$47,374

College of Liberal Arts, University of Minnesota, Infotech Fees Committee, Instructional Technology for Future Maps and Map Makers, 2001 - 2002, \$9,800

National Science Foundation, Planning Grant from the CISE/Digital Government Program, 2001, \$28,549

University of Kentucky, Summer Faculty Research Fellowship, 2001, \$5000

Federal Geographic Data Committee/University Consortium for Geographic Information Science, Potentials and Pitfalls of the National Spatial Digital Infrastructure, 2000
\$29,541

University of Kentucky Research Foundation, Reception and Transformation of Geographic Thought in the Germany and the US, 2000, \$3,557

National Science Foundation, Collaborative Efforts in GIS-IT Research and Pedagogy with Vietnam National University, 1999, \$10,850

Varenius Project, Seed Grant to develop research on semantic interoperability (with Prof. Werner Kuhn), 1998-1999 \$3000

Varenius Project, Travel Grant to Participate in the Interop conference and I-20 workshop, December 1997, \$500

UNIL/EPFL, Collaborative Research Funds, Réseaux de Ingenieurs de SIG (with Prof. F. Golay and Prof. B. Berthoud), 1998, \$50,000

International Cartographic Association (ICA), Workshop on Generalization, Travel Grant, 1997, \$250

Graduate School, University of Washington, Western European Dissertation Grant 1995, \$3500

Association for Computing Machinery (ACM), Travel Grant to attend the Society and the Future of Computing Conference, Durango, Co., June 11 - 14, 1995, \$500

Association of American Geographers (AAG), Travel Grant to attend the 1994 IGU Regional Meeting, Prague, Czech Republic, August 22-26, 1994, \$1500

Other Grants and Awards

CLA CLA-OIT Tools for Discovery, Spatial Data Discovery and Access for Teaching and Learning, 2013-14, \$30,000

CLA-OIT Tools for Discovery, Course Development Grant for Digital Planet 1&2, 2009-10, \$30,855

GISDATA Summer Institute, Best Research Proposal, (Group Award), 1996

NCGIA, GISDATA Summer Institute, Young Scholar Award, 1996, \$1000

Department of Geography University of Washington, Ullman Award, 1996, \$150

PUBLICATIONS

In Press, Review, or Preparation

Geovisualization and Cartography for All. (Book proposal for Guilford Press, in preparation)

Herbert Bayer's 1953 World Geo-Graphic Atlas: A Novel Atlas—then and now (The Cartographic Journal, under review)

Connecting Historical Meaning and Cultural Memory from Geographical Texts: The Example of Italia Illustrata (Edited Book from Bibliotheka Herzingia, under review)

Books

Zhou, C., Su, F., Harvey, F., Xu, J (2017) Spatial data handling in big data era. Advances in Geographic Information Science. Springer Verlag, Berlin.

Harvey, F. (2016) A Primer of GIS. Fundamental geographic and cartographic concepts. Second Edition. Guilford Press, New York City.

Harvey, F. (2008) A Primer of GIS. Fundamental geographic and cartographic concepts. Guilford Press, New York City.

Harvey, F. (Ed.) (2012) Are there fundamental principles in GIScience. Published with CreateSpace and as eBook. (<http://gisci-concepts.org>)

Special Issues of Journals Edited:

Harvey, F. (2019) Bertin@50: Jacques Bertin's Legacy and Continuing Impact for Cartography. Special Issue 46(2) of *Cartography and Geographic Information Science (CaGIS)*.

Harvey, F., Kwan, M. & Pavlovskaya, M. (2005) Critical GIS. *Cartographica*, 40(4)

Harvey, F. (2003) US National Report to the International Cartographic Commission. *Cartography and Geographic Information Systems*, 30(2)

Harvey, F. (2000) Editorial Introduction. Special Issue on Social Construction of GIS. *International Journal of Geographic Information Science*, 14(8), 3.

Peer-Reviewed Articles, Book Chapters, and Proceedings Contributions (by year)

Harvey, F., & Losang, E. (2019). Bertin's matrix concepts reconsidered: transformations of semantics and semiotics to support geovisualization use. *Cartography and Geographic Information Science*, 46(2), 152-162.

Harvey, F. (2018). Die fortbestehende Bedeutung von Herbert Bayers World Geo-Graphic Atlas von 1953. *Kartographische Nachrichten*, 4, 202-207.

Harvey, F. (2018). Critical GIS: Distinguishing critical theory from critical thinking. *The Canadian Geographer/Le Géographe canadien*, 62(1), 35-39. Retrieved from <https://onlinelibrary.wiley.com/doi/abs/10.1111/cag.12440>

Harvey, F. (2018). Considerations of graphical proximity and geographical nearness. In S. Winter, M. Sester, & A. Griffin (Eds.), *Proceedings 10th International Conference on Geographic Information Science (GIScience 2018)* (pp. 4:1-418). Berlin: Springer Verlag. Retrieved from <http://drops.dagstuhl.de/opus/volltexte/2018/9332/pdf/LIPIcs-GISCIENCE-2018-4.pdf>

Abend, P., & Harvey, F. (2017). Maps as geomedial action spaces: considering the shift from logocentric to egocentric engagements. *Geographic Journal*, 82(1), 171-183. Retrieved from <https://link.springer.com/article/10.1007/s10708-015-9673-z>

Harvey, F. (2017). Improving GIScience Visualization: Ideas for a New Methodology. In Zhou, C., Su, F., Harvey, F., & Xu, J (Eds.), *Spatial Data Handling in Big Data Era* (pp. 127-137). Berlin: Springer Verlag.

Iwaniak, A., Leszczuk, M., Strzelecki, M., Harvey, F., & Kaczmarek, I. (2017). A Novel Approach for Publishing Linked Open Geodata from National Registries with the Use of Semantically Annotated Context Dependent Web Pages. *ISPRS International Journal of Geo-Information*, 6(8), 252. Retrieved from <http://www.mdpi.com/2220-9964/6/8/252/htm>

Harvey, F. (2015). Mind the Gap: Reconsidering the Material/Mind Duality and Geography's Twentieth Century Nihilist Technological Settlements. In S. Aitken & G. Valentine (Eds.), *Approaches to Human Geography: Philosophies, Theories, People and Practices* (pp. 193 - 216). Thousand Oaks: Sage.

Winter, S. Lopez, X., Harvey, F., Hennig, B., Jeong, M., Trainor, T. and Timpf, S. (2015) *Technological and Societal Influences on GIScience*. In Onsrud, H., and Kuhn, W., *Advancing Geographic Information Science. The Past and Next Twenty Years*. Needham, MA: GSDI Association Press. <https://spatial.umaine.edu/files/2016/02/AdvancingGIScience.pdf>

Harvey, F. (2015). Are the data sharing Problems with SDIs Problems of Zombies? ICA Proceedings: ICA: Rio de Janeiro. www.icc2015.org/.

- Harvey, F. (2014). We know where you are. And we're more and more sure what that means. In Pimple, Ken (ed.) *Emerging Pervasive Information Communication Technology*. (pp. 71-87). Berlin: Springer Verlag.
- Harvey, F. (2014). A world without GIS? Post-GIS futures for the New Millenium. *Geographica Polonica*, {87}(2), 241-250.
- Harvey, F. (2013). The Power of Mapping: Considering Discrepancies of Polish Cadastral Mapping. *Annals of the AAG*, 103(4), 824-843. Retrieved from <http://www.tandfonline.com/eprint/vlnQ6TedMZiPkMs8tEuC/full>
- Ahlqvist, Ola, Francis Harvey, Hyowon Ban, Wei Chen, Shaun Fontanella, Meng Guo, Nisheet Singh. (2013) *Making journal articles 'live': turning academic writing into scientific dialog*. *GeoJournal*, 78:61-68.
- Evans, Michael R., Dev Oliver, Shashi Shekhar, and Francis Harvey. (2013) *Fast and Exact Network Trajectory Similarity Computation: A Case-Study on Bicycle Corridor Planning*. In *Second ACM SIGKDDO International Workshop on Urban Computing*, Chicago, IL, USA: ACM.
- Harvey, Francis. (2013) *A New Age of Discovery: The Post-Gis Era*. In *Gi_Forum. Creating the Gisociety*, edited by Thomas Jekel, Adrijana Car, Josef Strobl, and Gerald Griesebner. Berlin: Wichmann Verlag. pp. 272-281.
- Coetzee, S, Harvey, F, Iwaniak, A, and Cooper, A. (2013) Sharing and Coordinating SDIs in the age of Crowd Sourcing and Volunteered Geographic Information. *Proceedings of the International Cartographic Congress*.
- Shannon, J., Harvey, F. (2013) Modifying areal interpolation techniques for analysis of data on food assistance benefits. In S. Timpf (Ed.) *Advances in Spatial Data Handling*. p. 125-141.
- DiBiase, David, Francis Harvey, Christopher Goranson, and Dawn Wright. (2012) *The GIS Professional Ethics Project: Practical Ethics for Gis Professionals*. In *Teaching Geographic Information Science and Technology in Higher Education*, edited by David J. Unwin, Kevin E. Foote, Nicholas J. Tate, and David DiBiase. Chichester, UK: John Wiley and Sons.
- Evans, Michael R., Dev Oliver, Shashi Shekhar, and Francis Harvey. (2012) *Summarizing Trajectories Into K-Primary Corridors: A Summary of Results*. In *Twentieth ACM Sigspatial International Conference on Advances in Geographic Information Systems*, Redondo Beach, CA, USA: ACM.
- Harvey, Francis, Adam Iwaniak, Serena Coetzee, and Antony K Cooper. (2012) SDI Past, Present and Future: A Review and Status Assessment. In *Spatial Enabling Government, Industry and Citizens*, edited by Abbas Rajabifard, and David Coleman. Needham, MA: GSDI Association Press.
- Harvey, F., Kne, L, Manson, S. and Johnson, K. (2012) U-Spatial: Support for the Spatial Sciences and Creative Activities. In A. Hill Duin, E. A. Nater, F. X. Anklesaria (Eds.), *Cultivating Change in the Academy*. Ebook available at the University of Minnesota Digital Conservancy, <https://cultivatingchange.wp.d.umn.edu>.
- Harvey, F. (2012). Practical ethics for professional geographers. In M. Solem, K. Foote, & J. Monk (Eds.), *Practicing Geography: Careers for Enhancing Society and the Environment* (pp. 187-197). Upper Saddle River, NJ.: Pearson Prentice Hall.
- Evans, Michael R., Dev Oliver, Shashi Shekhar, and Francis Harvey. (2012) *Summarizing Trajectories Into K-Primary Corridors: A Summary of Results*. Redondo Beach, CA, USA: ACM.
- Harvey, F. (2012). To volunteer or to contribute locational information? Towards truth in labeling for crowd-sourced geographic information. In Sui, D., Elwood, S., and Good-

- child, M.F. (Ed.), *Crowdsourcing geographic knowledge: Volunteered geographic information in theory and practice*. Berlin: Springer.
- Harvey, Francis, and Kotting, Jennifer. (2011). "Teaching Mapping for Digital Natives: New Pedagogical Ideas for Undergraduate Cartography Education" *Cartography and Geographic Information Science* 38(3): 269-77.
- Harvey, F. (2011). Spatial data infrastructures for cadastres: Foundations and Challenges. In T. Nyerges, H. Couclelis, & R. McMaster (Eds.), *The Sage Handbook of GIS and Society* (pp. 287-303). Los Angeles: Sage.
- Harvey, Francis, and Rob Raskin. (2011). "Spatial Cyberinfrastructure: Building New Pathways for Geospatial Semantics on Existing Infrastructures." In *Geospatial Semantics and the Semantic Web: Foundations, Algorithms, and Applications*, edited by Naveen Ashish, and Amin Sheth, 87-96. New York, Berlin: Springer.
- Harvey, F., & Kozak, J. (2011). Digital Earth: i co dalej? *What is beyond digital earth?* *Rocznik Geomatiki* 2011, 9 1(45), 7-18.
- McMaster, R. and Harvey, F. (2010). Geographic Information Science and Society. In J. Bossler, J. R. Jensen, R. McMaster, & C. Rizos (Eds.), *Manual of Geospatial Science and Technology*, Second Edition (pp. 653 - 657). New York: Taylor and Francis.
- DiBiase, D, C. Goranson, F. Harvey, and D. Wright (2009). The GIS Professional Ethics Project: Practical Ethics Education for GIS Pros. Proceedings of the 24th International Cartography Conference. Santiago, Chile, 15-21 November.
- Harvey, F. (2009). "Of Boundary Objects and Boundaries: Local Stabilization of the Polish Cadastral Infrastructure" *The Information Society* 25(5): 1-13.
- Harvey, F. (2009) "Anthropological and Geographical Perspectives on Parcel Elasticity in Poland", *Annals of Romanian Anthropology*, 46 (93-106).
- Huber, M., K. Mithöfer, et al. (2009). "Universal Land Registry to Support Independent Economic Development in Tanzania." *International Journal of Spatial Data Infrastructure Research*.
- Tulloch, D. L. and F. Harvey (2008). "When Data Sharing Becomes Institutionalized: Best Practices in Local Government Geographic Information Relationships." *URISA Journal* 19(2): 51-59.
- Harvey F., (2007) Is GI what we think it is? In A. Car, G. Griesebner and J. Strobl (Eds), *Geospatial Crossroads @ GI_Forum*. Proceedings of the First Geoinformatics Forum Salzburg (Heidelberg: Herbert Wichmann Verlag), Pp 54-61.
- Harvey F., (2007) Just another Private-public Partnership ? Possible constraints on scientific information in virtual map browsers. *Environment and Planning B Planning and Design* 34 (5) 761-764.
- Harvey, F., & Tulloch, D. L. (2006). Local Government Data Sharing: Evaluating the Foundations of Spatial Data Infrastructures. *International Journal of Geographical Information Science*, 20(7), 743-768.
- Harvey, F. (2006) Reconfiguring Administrative Geographies in the United States. *ACME*, 4(1), 57-79.
- Harvey, F. (2006). Status Functions, Collective Intentionality: Matters of Trust for Geospatial Information Sharing. In M. Raubal, H. Miller, A. Frank & M. F. Goodchild (Eds.), *Geographic Information Science - Fourth International Conference, GIScience 2006*, Münster, Germany, September 2006 (Vol. 4197, Pp. 145-152). Berlin, Germany: Springer Verlag.

- Harvey, F. and Wardenga, U. (2006). Evaluating the Influence of Alfred Hettner's System of Geography on Richard Hartshorne's The Nature of Geography. *Historical Geography*. 32, 422-440.
- Harvey, F. (2006) Elasticity for Civil and Political Society between the Cadastre and Land Tenure. *Information Technology and Development*. 12(4), 291 - 310.
- Harvey, F., Kwan, M. & Pavlovskaya, M. (2005) Introduction: Special Issue on Critical GIS. *Cartographica*, 40(4), 1-4.
- Harvey, F. (2005) Aligning or Matching? Cartographic Perspectives on Geographic Integration. *Proceedings of AutoCarto 2005*.
- Harvey, F. (2005). The linguistic trading zones of semantic interoperability. Re-presenting GIS. P. F. Fisher and D. J. Unwin. Chichester, England, John Wiley and Sons: 43-55.
- Harvey, F. J., & Chrisman, N. R. (2004). The imbrication of geography and technology: The social construction of geographic information systems. In S. D. Brunn, S. L. Cutter & J. W. Harrington Jr. (Eds.), *Geography and Technology* (pp. 65-80). Dordrecht, Netherlands: Kluwer Academic Publishers.
- Harvey, F. (2003). Developing geographic information infrastructures for local government: The role of trust. *Canadian Geographer*, 47(1), 28-37.
- Harvey, F. (2003). Preface: Transitions in U.S. Cartography and Geographic Information Science. *Cartography and Geographic Information Science*, 30(2), 95-98.
- Harvey, F. (2003, 10-16August2003). How Do Local Governments Share and Coordinate Geographic Information? Paper Presented at the 21st International Cartographic Conference, Durban, South Africa.
- Harvey, F. (2003) Public Safety and GIS: What should certification accomplish? *URISA Journal*, 15(1), 15-20.
- Harvey, F. (2003) Knowledge and Geography's Technology. In: Anderson, Kay, Domosh, Mona, Pile, Steve, and Thrift, Nigel (Eds.) *Handbook of Cultural Geography* Beverly Hills: Sage.
- Harvey, F. and Brunn, S. (2002) Here, There, and Everywhere: Geoliminality and the Burden of Dasein. *Limen* 3, 2002(1), URL: <http://www.human.pefri.hr/cro/limen2.htm>. Last accessed: 28Mar2003.
- Harvey, F. (2002) Potentials and Problems for the involvement of local government in the NSDI, Sixth Global Spatial Data Infrastructure Conference, Budapest, 16-19September2002.
- Cheesman, J., Dodge, M., Harvey, F., Jacobsen, D., & Kitchin, R. (2002). 'Other' Worlds: Augmented, Comprehensible, Non-Material Spaces. In P. Fisher & D. Unwin (Eds.), *Virtual Reality in Geography*. London: Taylor and Francis.
- Harvey, F. (2002). Processing Spatial Data. In J. Bossler, J. R. Jensen, R. McMaster, & C. Rizos (Eds.), *Manual of Geospatial Science and Technology* (pp. 450 -464). New York: Taylor and Francis.
- Harvey, F. (2002). Visualizing data quality through interactive metadata browsing in a VR environment. In P. Fisher & D. Unwin (Eds.), *Virtual Reality in Geography* (pp. 332-340). London: Taylor and Francis.
- Harvey, F. (2001). Constructing GIS: Actor Networks of Collaboration. *URISA Journal*, 13(1), 29 - 37.
- Harvey, F. (2000) Editorial Introduction. Special Issue on Social Construction of GIS. *International Journal of Geographic Information Science*, 14 (8), 3.

- Harvey, F., Battenfield, B. P., & Carson-Lambert, S. (1999). Integrating geodata infrastructures from the ground up. *Photogrammetric Engineering and Remote Sensing*, 65(11), 1287-1292.
- Harvey, F. (1999). Designing for interoperability: Overcoming semantic differences. In M. F. Goodchild, M. J. Egenhofer, R. Fegeas, & C. A. Kottman (Eds.), *Interoperating Geographic Information Systems* (pp. 85-98). Boston: Kluwer Academic Publishing.
- Adams, A. B., & Harvey, F. (1999). Habitat Physical structure and *Arbutus menziesii* Status in Seattle, Washington. In A. B. Adams (Ed.), *The Decline of the Pacific Madrone* (pp. 50-66). Seattle: Pollard Group.
- Harvey, F., Kuhn, W., Bishr, Y., Pundt, H., & Riedemann, C. (1999). Semantic Interoperability: A Central Issue for Sharing Geographic Information. *Annals of Regional Science*, 33(2), 213-232.
- Harvey, F., Vauglin, F., & Bel Hadj Ali, A. (1998, 12-15 July 1998). Geometric Matching of Areas. Paper Presented at the SDH '98, Vancouver, BC. Harvey, F. (1998).
- Harvey, F. (1998) Geographic integration: From holism to systems. In U. Wardenga & W. J. Wilczynski (Eds.), *Religion, Ideology and Geographic Thought* (pp. 153-162). Kielce, Poland: International Geographic Union.
- Harvey, F. (1998). National Cultural Influences on GIS Design. In M. Craglia & H. Onsrud (Eds.), *Geographic Information Research: Trans-Atlantic Perspectives* (pp. 55-68). London: Taylor & Francis.
- Harvey, F., & Chrisman, N. R. (1998). Boundary objects and the social construction of GIS technology. *Environment and Planning A*, 30(9), 1683-1694.
- Harvey, F., & Wardenga, U. (1998). The Hettner-Hartshorne connection: Reconsidering the Process of reception and transformation of a geographic concept. *Finisterra*, 33(65), 131-140.
- Harvey, F. (1998). Designing for Interoperability. Overcoming Semantic Differences. In M. F. Goodchild & M. Egenhofer (Eds.), *GIS Interoperability*. Dordrecht: Kluwer.
- Chrisman, N. and Harvey, F. (1998) Extending the Classroom: Closed and Open Corpus Hypermedia Supported Learning, *Journal of Geography in Higher Education*. Vol. 22 (1), Pp 11-18.
- Harvey, F. (1997). Improving Multi-Purpose GIS Design: Participative Design. In S. Hirtle & A. U. Frank (Eds.), *Spatial Information Theory. A Theoretical Basis for GIS* (pp. 313-328). Berlin: Springer Verlag.
- Harvey, F. (1997). Agreeing to disagree: The social construction of geographic information technology. In *GIS/LIS '97*, 1 (pp. 808-815). Cincinnati, OH: ASPRS/AAG/URISA/AM-FM.
- Harvey, F. (1997) National Cultural Differences in Theory and Practice. *Information, Technology, and People*. 10(2) 132-146.
- Harvey, F. (1997) From Geographic Holism to Geographic Information System. *Professional Geographer*, 49 (1) 77-85.
- Harvey, F., & Vauglin, F. (1997). No Fuzzy Creep! A clustering algorithm for controlling arbitrary node movement. In N. R. Chrisman (Ed.), *AutoCarto 13*, 5 (pp. 317-326). Seattle: ASPRS/ASCM.
- Harvey, F. and Vauglin, F. (1996) Geometric match Processing: Applying multiple tolerances. *Proceedings, Seventh International Symposium on Spatial Data Handling*, Pp. 4A.13 - 4A.29.
- Harvey, F. and Gross, B. (Eds.) (1996) *Forum on the Durango Declarations*. The Information Society, 12 (1).

- Harvey, F. (1995) National and organizational cultures in geographic information system design: a tale of two counties. Proceedings, Twelfth International Symposium on Computer-Assisted Cartography (AutoCarto 12), Pp. 197-206. Charlotte, NC.
- Harvey, F. (1994) Defining unmoveable nodes/segments as Part of vector overlay: The alignment overlay. In Waugh, T. C., and Healey, R. C. (Eds.) Advances in GIS Research, Vol 1, Pp. 159-176. London: Taylor & Francis.

Non-refereed Articles, Non-reviewed Conference Proceedings, Workshop Papers, and Other Publications

- Harvey, F., Kne, L., Manson, S. (2013) U-Spatial: A Consortium for the Spatial University. ESRI News, Winter 2012/2013. Available at: <http://www.esri.com/esri-news/arcnews/winter1213/articles/u-spatial-a-consortium-for-the-spatial-university> Last Accessed: 20April2013
- Harvey, F. 2013 Fusion Tables: The Fabled Slicer-Dicer for (most of) your Data. College of Liberal Arts, Office of Information Technology, Reboot. Available at <http://claoit.umn.edu/reboot.php?entry=382632>. Last Accessed: 20April2013
- Harvey F. 2009. Maps and Governance. In Kitchin R, Thrift N (eds) International Encyclopedia of Human Geography, Volume 6, pp. 431-435. Oxford: Elsevier.
- Harvey F. 2009. Hartshorne, R.. In Kitchin R, Thrift N (eds) International Encyclopedia of Human Geography, Volume 5, pp. 21-23. Oxford: Elsevier.
- Wright, D.J., DiBiase, D., Harvey, F., and Solem, M. (2009) [Graduate ethics curricula for future geospatial technology Professionals](#), Eos, Trans. AGU, 90 (52), Fall Meet. Suppl., Abstract IN34B-01.
- Harvey, F. (2009). "More than Names - Digital Earth and/or Virtual Globes? (Commentary)." International Journal of Spatial Data Infrastructure Research.
- DiBiase, D., Goranson, C., Harvey, F., and Wright, D. (2009) The GIS Professional ethics Project: Practical ethics education for GIS Pros, Proceedings of the 24th International Cartography Conference (icc2009), International Cartography Association (ICA), Santiago, Chile, November 15-21, 2009.
- Harvey, F. (2005) Semantics, Language and Geographic Information Interoperability. In Fisher, P. and Unwin, D. (Eds.) Re-presenting GIS. London Taylor and Francis.
- Harvey, F. (2003) Boundaries and Boundary Objects: The Administrative Production of Geographies in the United States. Paper for the Boundaries conference, Lancaster, England 3-4 April 2003.
- Harvey, F. (2003) Quality + Quality = Quantity? Paper Presented at the 99th Association of American Geographers' Meeting, New Orleans, LA, 5 - 8 March 2003.
- Harvey, F. (2001) The best government is that which governs least? Public Policy Problems for Geographic Information Access in the United States. Prepared for the ESF/NSF Workshop on Spatial Data Access and Participation, Spoleto, Italy, 6 - 9 December 2001.
- Harvey, F. (2001) "Trading Zones" for the Production of Pluralistic Geographic Knowledges Semantics, Language and Geographic Information Interoperability. Prepared for the ESRC Workshop on Spatial & Temporal Representation in a Digital Geography, Loughborough, UK, 30August - 2September 2001.
- Harvey, F. (2001) Developing GI Infrastructures for local government: The role of trust. Prepared for the GIS and Changing Society Invitational Workshop, Columbus, Ohio, 17 - 20 May 2001.

- Harvey, F. (2001, May 2001). NSDI from the Trenches. Local Government Perspectives. Geospatial Solutions, 11, 38-40.
- Harvey, F. (1998, 23-25 April 1998). Improving Access to Geographic Information Quality. Paper Presented at the First AGILE Meeting, Enschede.
- Harvey, F. (1998, 5-6 Dec 1997). Interoperability and Integration: Finding Semantic Agreement. Paper Presented at the Interoperating GISs: Report of the Specialist Meeting, Santa Barbara, CA.
- Harvey, F. (1998) Frontiers and Cyberspace. Essay appearing in the CPSR Global Digest No. 772. (20 Mar 1998).
- Harvey, F. (1997, 19-21 November 1996). Agreeing to disagree: The social construction of geographic information technology. Paper Presented at the GIS/LIS '97, Cincinnati, OH.
- Harvey, F. (1997, 3-4 Dec 1997). Designing for Interoperability. Overcoming Semantic Differences. Paper Presented at the Interop'97, Santa Barbara.
- Harvey, F., & Vauglin, F. (1997, 7-10 April 1997). No Fuzzy Creep! A clustering algorithm for controlling arbitrary node movement. Paper Presented at the AutoCarto 13, Seattle.
- Harvey, F. (1996, 19-21 November 1996). National culture and GIS design: Results from cross-cultural studies. Paper Presented at the GIS/LIS '96, Denver, Co.
- Harvey, F., & Vauglin, F. (1996, 12-16 August 1996). Geometric match Processing: Applying Multiple Tolerances. Paper Presented at the The Seventh International Symposium on Spatial Data Handling (SDH'96), Delft, Holland.
- Harvey, F. (1995, 27 February - 2 March 1995). National and organizational cultures in geographic information system design: A tale of two counties. Paper Presented at the Twelfth International Symposium on Computer-Assisted Cartography (AutoCarto 12), Charlotte, NC.
- Harvey, F. (1994, 5-9 September 1994). Defining unmoveable nodes/segments as Part of vector overlay. Paper Presented at the Sixth International Symposium on Spatial Data Handling, Edinburgh, Scotland.
- Harvey, F. (1994, 22-26 August 1996). Reprivatization in Eastern Germany: Problems and Solutions? Paper Presented at the IGU 1994, Prague.
- Harvey, F. (1994, 21-24 February 1994). Supporting Planning tasks in regional Planning: A conceptual design for visualization aids based on a task hierarchy. Paper Presented at the GIS '94, Vancouver, Canada.

Book Reviews:

- Harvey, F. (2012) Review of Code/Space. Rob Kitchin and Martin Dodge, International Journal of Geographical Information Science, Volume 26 Issue 10, 1999-2001.
- Harvey, F. (2009) Review of The Handbook of Geographic Information Science, edited by J.P. Wilson and A.S. Fotheringham, International Journal of Geographical Information Science, Volume 23 Issue 5, 683.
- Harvey, F. (2007) Review: Nicholas Chrisman's Charting the Unknown. ACSM Bulletin.
- Harvey, F. (2000) Review of The Virtual Embodied. CAA Reviews. Available at: <http://www.caareviews.org/reviews/j.wood.html>.
- Harvey, F. (1999) Review of Geographic Information Systems and Computer Cartography by Christopher Jones. Transactions in GIS 3(2) 199-202.
- Harvey, F. (1995). Book review: Pickles, J. (ed.) (1995) Ground Truth. Professional Geographer, 47(4), 484-486.

Newspapers and Magazines:

Harvey, F. (2001). The Local Government Perspective. U.S. National Spatial Data Infrastructure. GIM International. 15(3) 36 - 39.

Harvey, F. (2000). Quality Means More Than Standards. GIM International. 14(6) 77-79.

Invited Presentations

Harvey, F. (2018) Die kurzen Beine der Kartographie Rückschau und Standortbestimmung der gegenwärtigen geovisuellen Kommunikation. Gesellschaft für Erdkunde zu Berlin, 10September.

Harvey, F. (2018) Humangeographie und Digitalisierungf, Geographie Werkstatt Österreich 2018, Tainach, Austria, 28June.

Harvey, F. (2018) Tuple Talk: Maps and Places/Meaning and Memory. Bibliotheca Hertziana, Max-Planck-Institute für Kulturgeschichte, Flavio Biondos Italia Illustrata. Räpresentationen von Raumsprache und Raumdenken in Text und Karten, Rome, Italy, 16May.

Harvey, F. (2017) Der Atlas als Ausstellung: Spätmodernistisches Konzept für seine Neugestaltung. Hannover, 12December.

Harvey, F. (2017) The Atlas as Exhibition. Herbert Bayer's 1953 World Geographic Atlas, University College Dublin, School of Business Colloquium, Dublin, Ireland. 14September.

Harvey, F. (2017) Lernen, Wissen und Grenzobjekte. Für ein ökologisches Verständnis des geographischen Wissens, Hochschulverband für Geographiedidaktik, HGD-Symposium, Jena, 28June.

Harvey, F. (2017) Herbert Bayers World Geographic Atlas 1953. Der Atlas als Ausstellung, DGfK Sektion Halle-Leipzig, DGfK Sektion Halle-Leipzig Veranstaltung, Leipzig, 12October.

Harvey, F. (2016) Atlases, cartography and transformations considered in regards to future geovisualizations. NSF Workshop Cultural Analytics, Institute for Pure and Applied Mathematics, University of California, Los Angeles, 16April.

Harvey, F. (2016) Opening Remarks, Spatial Data Handling 17th Conference, Beijing, China, 18August.

Harvey, F. (2016) Visualizing spatial data. RegPol Conference, Bratislava, Slovakia, 22September.

Harvey, F. (2015) Die Zentralität der kartographischen Kommunikation in der Geographie:Neue Erwägungen. [The centrality of cartographic communication in geography. Some considerations. Friedrich-Alexander-University, Erlangen/Nürnberg. 2Dez2015.

Harvey, F. (2015) Communication and its Centrality to Cartography: A Reconsideration, ETH-Zürich. 22Oct2015.

Harvey, F. (2013) Post-GIS Futures. Palacky University, Olomouc, Czech Republic, 18November.

Harvey, F. (2013) Semantic Portals for Semantic Spatial Data Infrastructures. University of Wisconsin - Madison, Madison, WI, 28October.

Harvey, F. (2013) Wasn't geographic information always big? Some similarities, some differences, some thoughts about big data and cartographic mapping, St. Olaf College, Northfield, MN, 25October.

Harvey, F. (2013) The Post-GIS Age of Discovery, GI_Forum and AGIT Conference, Salzburg, Austria, 5July.

Harvey, F. (2013) Participations All-embracing Compact, International Institute for Geo-Information Science and Earth Observation (ITC), Enschede, NL, 26June.

- Harvey, F. (2013) The Power of Mapping. The Case of the Cadastre Infrastructure in Poland, Gdańsk, Poland, 19June.
- Harvey, F (2013) U-Spatial. Support for Spatial Research at the University of Minnesota. UCGIS Summer Assembly, Fairfax, VA, 21May.
- Harvey, F (2013) Not just ethics: Consider focusing on values, choices, and responsibilities. 14May, Geocoded Data Privacy Workshop, Albuquerque, NM.
- Harvey, F. (2013) Still critical after all these years? 7April, alt.gis workshop, Santa Barbara, CA.
- Harvey, F. (2013) Commentary at session, "VGI at the Crossroads", 12Apr, AAG Meeting, Los Angeles, CA.
- Harvey, F. (2013) Commentary at session, "GIS and Ethics", 13Apr, AAG Meeting, Los Angeles, CA.
- Harvey, F. (2012) U-Spatial: An Overview, Digital Humanities 2.0 Group, 13Nov, Lincoln, NE.
- Harvey, F. (2012) An Overview of SDI for GIScientists, 8Nov, CSE 8290 Guest Lecture, University of Minnesota..
- Harvey, F. (2012) Post-GIS, or the Era of Geographic Information Ubiquity, 2Nov. Archaeology Consortium, University of Minnesota.
- Harvey, F. (2012) Professional Ethics and GIS Certification, 1Oct, GIS 8501 Guest Lecture, University of Minnesota.
- Harvey, F. (2012) The Post-GIS Era, 20May, Warsaw University of Technology.
- Harvey, F. (2012) GIS: An Introduction, 29Mar, Minnesota Evaluation Association Symposium, Minneapolis, MN.
- Harvey, F. (2012) GIS: An Introduction, 9Feb, Minnesota Evaluation Association Meeting, Minneapolis, MN.
- Harvey, F. (2011) Professional Ethics and GIS Certification, 3Dec, GIS 8501 Guest Lecture, University of Minnesota.
- Harvey, F. (2011) Free data and free GIS. Some Observations from Minnesota, USA, 30May, HafenCity University Hamburg, Hamburg, Germany.
- Harvey, F. (2011) The Power of Mapping: The Case of the Cadastral Infrastructure in Poland, 24May, Institute for Geoinformatics, Münster, Germany.
- Harvey, F. (2011) Free data and free GIS. Some Observations from Minnesota, USA, 13May, Wolne oprogramowanie w geoinformatyce, Wrocław, Poland.
- Harvey, F. (2010) The Limits of Maps. 3Dec, University of Washington, Department of Geography Colloquium.
- Harvey, F. (2010) Developments of open software and platforms for next generation applications and geospatial services, 12May, Polish Free-Open Software conference, Wrocław Poland.
- Harvey, F. (2008) Polish Cadasters? Institutions and Interactions: Anthropological and Geographical Perspectives on Property Elasticity in Poland, 11Jan, Jagellonian University, Krakow, Poland.
- Harvey, F. (2007) Is GI what we think it is?. 5Jul, Keynote presented at GI-Forum, University of Salzburg, Austria.
- Harvey, F. (2007) US NSDI. Technologie dla INSPIRE, 11Jun, Technologie dla geodezji, Warsaw, Poland.
- Harvey, F. (2006) Elasticity between the Cadastre and Land Tenure: Balancing Civil and Political Society Interests, 4Jan, Department of Geography, University of Gdansk, Poland.

- Harvey, F. (2005) In Practice We Trust? Sharing Geographic Information in US Local Governments and Coordination among Polish Government Offices, 26May, University College London, London, UK.
- Harvey, F. (2004) Matters of Trust? Sharing Geographic Information in Local Governments, 9Apr. University of Minnesota.
- Harvey, F. (2001) GIScience and Technology, 27Nov, Geog 4001, Modes of Geographic Inquiry, University of Minnesota.
- Harvey, F. (1999) Integrating Geodata Infrastructures, 25Oct, Illinois State University.
- Harvey, F. (1999) A-NT's and Boundaries: Social-Theoretical Perspectives on Geographic Information Technology, 26Feb, University of West Virginia.
- Harvey, F. (1998) Geographic Information Interoperability: The Recurrent Challenge, 13Oct, University of Kentucky GIS Colloquium.
- Harvey, F. (1997) Geometric Match Processing for GIS, 6May, University of Zürich.
- Harvey, F. (1996) GIS: An Introduction, 23Apr, University of Washington (Geography 100).

Presentations

- Harvey, F. (2018) Geographical Nearness and Graphical Proximity. GIScience, Melbourne, 30August.
- Harvey, F. (2018) This matters.... Geoprivacy panel at GI_Forum, Salzburg, 4July.
- Harvey, F. and Losang, E. (2018) Die Zukunft von Atlanten: Einige Überlegungen zu ihrer Weiterentwicklung. Deutscher Kartographen Tag, München, 8March.
- Harvey, F. and Domnick, I. (2018) Wandel der Kartographie. Panel session, München, 7March.
- Harvey, F. (2017) Landeskunde. Einige Betrachtungen, DGK, Konferenz, Berlin.
- Harvey, F. (2017) Bertin's Matrix Theory for Cartographic Information Communication, International Cartographic Association, International Cartographic Congress, Washington, D. C. 6July.
- Harvey, F. (2016) Atlases, cartography and transformations considered in regards to future geovisualizations, National Science Foundation, Institute for Pure and Applied Mathematics, Cultural Analytics, Los Angeles, 15April.
- Harvey, F. (2016) Generalisierung ist nicht nur ein Maßstabsproblem. Deutsche Gesellschaft für Kartographie, Konferenz, Stuttgart
- Harvey, F. (2016) The Atlas as Exhibition. Herbert Bayer's 1953 World Geo-graphic Atlas as Infographic Prototype, Deutsche Gesellschaft für Kartographie und Society for News Design, News-Infographics-Analytics-Maps, Berlin.
- Harvey, F. (2016) Reconsidering Accuracy in an era of ubiquitous cartography, International Geographical Union, Regional Conference, Moscow
- Harvey, F., Losang, E. (2016) Semiology and Semantics of Geographical Information Representation: Reconsidering Cartographical Visualisation, Greenwich GIS Research Group (g3), University of Greenwich, GIS Research UK (GISRUK) 2016, London.
- Harvey, F. (2015) Landeskunde. Einige Betrachtungen. Deutscher Geographen Tag, Berlin, 2October.
- Harvey, F. (2015) From immutable mobiles to mutable mobile: Maps as polysemantic Action spaces. Deutscher Geographen Tag, Berlin, 2October.

- Harvey, F. (2015) Visualization in GIScience. Leicester University, Workshop in Memory of Peter Fisher, Leicester, UK, 14July.
- Harvey, F. (2015) Reconsidering Accuracy in an era of ubiquitous cartography. International Geographical Union Regional Conference, Moscow, Russia, 18August.
- Harvey, F. (2015) Reconsidering Accuracy in an Age of Ubiquitous Cartography" at the 20 Years of GIScience Meeting, Bar Harbor, ME, USA, 2July.
- Harvey, F. (2015) Maps as Limits of Understanding, Contribution to the Panel on the Political Geography of GIS at the Association of American Geographers Annual Meeting, 23April, Chicago.
- Evans, M. and Harvey, F. (2013) Reliable Determination of Commonly Used Transportation Routes: Introducing the k-Primary Corridors Approach. Association of American Geographers 2013 Meeting, 11April, Los Angeles.
- Harvey, F. (2012) Privacy for Global Village Cyborgs. 20Oct, 4S/EASST Joint Conference, Copenhagen, Denmark.
- Harvey, F. (2012) U-Spatial: Supporting the Spatial Sciences. (Poster) GIScience 2012, 19Sep, Columbus, OH.
- Harvey, F. (2012) The Future of SDH Conferences. SDH 2012, 23Aug, Bonn, Germany.
- Harvey, F. (2012) Professional Ethics: Their Applied and Practical Importance for Geographers. 24Feb, AAG Meeting, New York City
- Harvey, F. (2012) Questions about Mapping and Baroque Geographies. 26Feb, AAG Meeting, New York City
- Wright, D., Harvey, F., DiBiase, D. and Solem, M. (2011) Teaching Ethics in GIS&T: Final Results of NSF Funded Research on Ethics in GIS&T Education. Association of American Geographers Annual Meeting, 15 April, Seattle, USA.
- Harvey, F. (2011) Wine/Bottle Dilemmas: Is VGI breaking down barriers only to build new barriers? VGI Preconference, 11 April, Seattle, USA.
- Harvey, F. (2011) Minnesota Artists Exhibition Program Panel. Minneapolis Institute of Arts, 17 March, Minneapolis, USA.
- Harvey, F. Mateusz Żak and Marcin Szwagrzyk (2010) Changes in time through cadastral data: The case of Zarszyn, a village in the Carpathians, Forum Carpaticum, 9 October, Krakow, Poland.
- Harvey, F. (2010) Access to Land in Rural Poland. International Geographic Union Conference, 13 July, Tel Aviv, Israel.
- Harvey, F. (2010) Elastic boundaries? Challenges for the stabilization of the Polish Cadastral Information Infrastructure. INSPIRE Conference, 24 June, Krakow, Poland.
- Harvey, F. (2010) Land cadastres and land tenure in Poland. European Commission Joint Research Centre, 29 June, Ispra, Italy.
- Harvey, F. and Dawn Wright (2010) Teaching Ethics in GIS&T: Final Results of NSF Funded Research on Ethics in GIS&T Education, 1.5-hour Plenary Presentation with Dawn Wright, Oregon State University, UCGIS 2010 Summer Assembly, 15 June, Hilton Head Island, South Carolina.
- Harvey, F. (2010) The new meaning of where? Pervasive and Autonomous Information Technology Workshop, APPE Conference, 3 March, Cincinnati, OH,
- Harvey, F. (2009) Reflections on Experiences Teaching GIS Professional Ethics. 23 March, Annual Meeting of the Association of American Geographers, Las Vegas.
- Harvey, F. (2009) Land tenure as boundary objects: from the multidimensional Past to the one dimensional future?, 13-16 September, Boundariescapes II Conference, Trapani, Italy.

- Harvey, F. (2009) Geographic Information Ethics and GIScience: Developing a model curriculum, 21-23 October, MN GIS/LIS, Duluth.
- Harvey, F. (2008) Certification and Licensure. UCGIS Winter Meeting, Washington, DC.
- Harvey, F. (2008) Improving SDI relevance: developing trust through accuracy. GSDI Conference, Trinidad.
- Huber, M. and Harvey, F. (2008) Universal Land Registry to Support Independent Economic Development in Tanzania. GSDI Conference, Trinidad.
- Harvey, F. (2008) Polish Cadastres: Developing new spaces of governance. AAG Annual Meeting, Boston.
- Harvey, F. (2008) Certification and Accreditation. UCGIS Summer Meeting, Minneapolis.
- Harvey, F., Dibiase, D., Wright, D. (2008) Geographic Information Ethics and GIScience: Developing a model curriculum. GIScience 2008. Park City, Utah.
- Harvey, F. (2007) Polish Cadastres? Institutions and Interactions: Anthropological and geographical Perspectives on Property elasticity in Poland. Paper Landscapes--Lived Landscapes, Warsaw, Poland
- Harvey, F. (2007) Nowhere is everywhere? Towards Post-modernist ubiquitous computing-based geographic communication. AAG Annual Meeting, San Francisco.
- Harvey, F. (2007) A Bigger Picture: Information Systems and Spatial Data Infrastructure Research Perspectives. AGILE Annual Meeting, Aalborg, Denmark.
- Harvey, F. (2007) US NSDI. Technologie dla INSPIRE. Technologie dla geodezji, Warsaw, Poland. INSPIRE Polska Spotkanie [invited]
- Harvey, F. (2007) Polish Cadasters? Institutions and Interactions: Anthropological and Geographical Perspectives on Property Elasticity in Poland. Workshop 'Private Property: Post-socialist Promises and Experiences' «Propriété Privée: Promesses et expériences Post-socialistes», Bucharest, Romania.
- Harvey, F. (2007) Is GI what we think it is? GI Forum 2007. Salzburg, Austria. [invited]
- Harvey, F. (2007) Polish Cadastres? Institutions and Interactions: Anthropological and geographical Perspectives on Property elasticity in Poland. EUGEO, Amsterdam, The Netherlands.
- Harvey, F. (2007) Dead Peasants and Colonising Eurocrats? Rural Adaptations and Geographical Imaginations in Poland. RGS/IBG, London, United Kingdom.
- Harvey, F. (2007) A Bigger Picture: Information Systems and Spatial Data Infrastructure Research Perspectives. RGS/IBG, London, United Kingdom.
- Harvey, F. (2007) Land Cadastres and Land Tenure: Sustainability's Need for Elasticity. Cooperation and Coordination in the Area of Geoinformation for Sustainable Development in Poland and in Europe, Warsaw, Poland
- Harvey, F. (2006) Local SDI Practice in the United States. SDI-Return on Investment Workshop. Ispra, Italy
- Harvey, F. (2006) Metadata and Beyond. Annual Meeting of the American Association of Geographers
- Harvey, F. (2006) Geographic Information and the Cadastre in Poland. Annual Meeting of the American Association of Geographers
- Harvey, F. (2006) GIS Professional Certification. Annual Meeting of the American Association of Geographers
- Harvey, F. (2006) Logan's World. A Redlined Future for SDI. Beyond SDI Workshop, Münster, Germany

- Harvey, F. (2006) Status Functions, Collective Intentionality: Matters of Trust for Geospatial Information Sharing. GIScience 2006, Münster, Germany.
- Harvey, F. (2006) Culture and Technology Meeting in Geographical Names. Naming of Seas Conference, Seoul, Korea.
- Harvey, F. (2005) Elasticity of the land: Stretching the cadastre in Poland. 57th Annual Meeting of the West Lakes Division of the Association of American Geographers and the International Geographical Union's Commission on Geography & Public Policy. Iowa City, Iowa 5 November 2005.
- Harvey, F. (2005) Culture and Technology meeting in Geographic Names. 11th International Seminar on the Naming of the Seas. Washington D.C., 6 October 2005.
- Harvey, F. (2005) Is Alignment the Same as Matching? Integration from a Cartographic Perspective. ICC 2005, La Coruna, Spain, 13 July 2005.
- Harvey, F. (2005) Local Government Data Sharing and Trust in the US. ITC, Enschede, The Netherlands, 4 July 2005.
- Harvey, F. (2005) Polish Land Tenure and Cadastre. ITC, Enschede, The Netherlands, 4 July 2005.
- Harvey, F. (2005) Elasticity for Civil and Political Society between the Cadastre and Land Tenure. Europe in Transition: 15 Years of Post-socialist Development and its Lessons for European Integration. Cracow, Poland, 24 June 2005.
- Harvey, F. (2005) In Practice We Trust? Sharing Geographic Information in US Local Governments and Coordination among Polish Government Offices AGI Annual Lecture. London, England, 26 May 2005.
- Harvey, F. (2005) SDI Development in Poland. First Results from a National Survey. Ogólnopolskie Sympozjum "Krakowskie Spotkania z INSPIRE" Cracow, Poland, 4 May 2005.
- Harvey, F. (2005) Elasticity for Civil and Political Society between the Formal Cadastre and Informal Land Tenure. GSDI/FiG Joint Conference, Cairo, Egypt, 19 April 2005.
- Harvey, F. (2005) Going East? The EU, GIS and the Governance of Polish Rural Areas. GIS-RUK 2005, Glasgow, Scotland, 8 April 2005.
- Harvey, F. (2005) Aligning or Matching? Cartographic Perspectives on Geographic Integration. AutoCarto, Las Vegas, NV, 22 March 2005.
- Harvey, F. and Vick, B. (2005) The Enhanced Coordination of Cadastral Information. American Congress on Surveying and Mapping Conference, Las Vegas, NV, 22 March 2005.
- Harvey, F. (2004) Udostępnianie danych we władzach lokalnych a Ogólnokrajowa Infrastruktura Danych Przestrzennych (NSDI) w USA, Seminarium Infrastruktura danych Przestrzennych w Polsce i Europie – Strategia, Standardy, Metadane i Generalizacja, 02 December 2004.
- Harvey, F. (2004) How Do Local Governments Share and Coordinate Geographic Information? Cases from the United States. Fachhochschule Kärnten, Fachbereich Geoinformation, 23 November 2004.
- Harvey, F. (2004) Landwirtschaftlicher Strukturwandel in Polen. Formeller Kataster und Informelle Bodennutzung. Universität Leipzig, Institut für Geographie, 16 November 2004.
- Harvey, F. (2004) Changes to the Land. Implementing European Union Common Agricultural Policy in Poland. University of Wisconsin-Madison, Center for German and European Studies, 12 October 2004.
- Harvey, F. (2004) Enhanced Coordination of Cadastral Information. MN GIS/LIS, 5-7 October 2004.

- Harvey, F. (2004) How do local governments share and coordinate geographic information?, International Geographical Union Congress, Glasgow, Scotland, 15-19 August 2004.
- Harvey, F. (2004) How do local governments share and coordinate geographic information? Issues in the United States. 10th EC GI&GIS Workshop, 'ESDI - State of the Art', Warsaw, 23-25 June 2004.
- Harvey, F. (2004) Cadastral Infrastructures in Post-socialist Transition and EU Accession: The Case of Poland. 10th EC GI&GIS Workshop, 'ESDI - State of the Art', Warsaw, 23-25 June 2004. (Poster)
- Harvey, F. (2004) How do local governments share and coordinate geographic information? Issues in the United States. Swedish Map Days, 25-26 March 2004. Gävle, Sweden.
- Harvey, F. (2003) How Do Local Governments Share and Coordinate Geographic Information? International Cartographic Congress, Durban, South Africa, 10-16 August 2003.
- Harvey, F. (2003) Boundaries and Boundary Objects: The Administrative Production of Geographies in the United States. Boundaries, Materialities, Differences, Continuities, Lancaster, UK 3-4 April 2003
- Harvey, F. (2003) Quality + Quality = Quantity? 99th AAG meeting, New Orleans, LA, 5-8 March 2003.
- Harvey, F. (2003) GIS and GIScience. What about ethics? Presented at Panel on GIS and Society: Past, Present, and Future organized by LaDona Knigge, Trevor Harris, and John Krygier, 99th AAG meeting, New Orleans, LA, 5-8 March 2003.
- Harvey, F. (2002) Dilemmas for Government: Theories and Practices of Data Sharing in the NSDI. Paper Presented at the Society for the Social Studies of Science Conference, Milwaukee, Wisconsin, 7-9 November 2002.
- Tulloch, D. and Harvey, F. (2002). Best Practices for Data Sharing in Local Government. Paper Presented at the URISA 2002 Conference, Chicago, Illinois, 26-30 October 2002.
- Harvey, F. (2002) Potentials and Problems for the involvement of local government in the NSDI, Sixth Global Spatial Data Infrastructure Conference, Budapest, 16-19 September 2002.
- Harvey, F. (2002) The MetroGIS initiative: development, integration and sharing of geographic data through regional collaboration. Sixth Global Spatial Data Infrastructure Conference, Budapest, 16-19 September 2002. (Presentation of Paper written by Randy Johnson/MetroGIS and David Arbeit/DNR)
- Harvey, F. (2002) Potentials and Problems for the Involvement of Local Government in the U.S. National Spatial Data Infrastructure. Paper Presented at the Regional Conference of the International Geographical Union (IGU), Durban, South Africa, 4-7 August 2002.
- Harvey, F. (2002) Semantic Interoperability and Citizen/Government Interaction. Key note Paper Presented at the Joint Symposium on Geospatial Theory, Processing, and Applications, Ottawa, Canada, 8-12 July 2002.
- Wardenga, U. and Harvey, F. (2002). The Reception and Transformation of Alfred Hettner's System of Geography in Richard Hartshorne's *The Nature of Geography*. Paper Presented at the Session Empires of Science during the Association of American Geographers Conference, Los Angeles, California, 19-23 March 2002.
- Harvey, F. (2001) Re-Opening Geography's Museum: The Reception and Transformation of Alfred Hettner's System of Geography in Richard Hartshorne's *The Nature of Geography*, Friday Coffee Hour, Department of Geography, University of Minnesota, 9 Nov 2001.
- Harvey, F. (2001) Opening the Doors of Government: The Virtual Clearinghouse for Kentucky. Brown Bag Presentation at the Department of Geographic Information Science and Engineering. University of Maine 24 May 2001.

- Harvey, F. (2001) Potentials and Problems for the Involvement of Local Government in the NSDI. FGDC Coordinating Group Meeting. Washington D.C., 9 January 2001.
- Harvey, F. (2001) Potentials and Problems for the Involvement of Local Government in the NSDI. USGS/FGDC Research Seminar. Washington D.C., 8 January 2001.
- Harvey, F. (2000) Potentials and Problems for the Involvement of Local Government in the NSDI. Brown Colloquium Presentation. Minneapolis, MN, 7 December 2000.
- Harvey, F. (2000). Potentials and Problems for the Involvement of Local Government in the NSDI. Paper Presented at the GIScience 2000 Conference, Savannah, Georgia, 28-31 October 2000.
- Harvey, F. (2000). Potentials and Pitfalls for Vertical Integration for the NSDI: Local Infrastructures for whom and by whom? Paper Presented at the 4S/EASST meeting in Vienna, Austria, 27-30 September 2000.
- Leinbach, T. R. "Research Issues in GIScience", 6th Annual Conference, GIS Data Centre, Vietnam National University, Ho Chi Minh City, July 25, 2000, (with collaboration by Francis Harvey)
- Harvey, F. (2000) Bringing GIS to Human Geographers: Quantitative/Qualitative Complementarities, First International Conference on GIS Education. California State University at San Bernadino, San Bernadino, 16 - 19 July 2000.
- Harvey, F. (2000) Potentials and Pitfalls for Local Governments in the NSDI: Building Geographic Information Infrastructures from the Ground Up, National Association of Counties (NACO) Annual Meeting, Charlotte, 15 - 18 July 2000.
- Harvey, F. (2000) The Role of Public Participation in the NSDI, Annual Meeting of the Association of American Geographers, Pittsburgh, 4 - 8 April 2000.
- Harvey, F. (1999) Vertical Integration: The Geographic Key to a Successful National Spatial Data Infrastructure, Fifty-fourth Meeting, Association of American Geographers Southeastern Division, Tampa, 20-23 November 1999.
- Harvey, F. (1999) Rethinking Social Networks: Merging ANT and Boundary Objects, Society for the Social Studies of Science Conference, San Diego 30 October 1999.
- Harvey, F. (1999) Pitfalls and Potentials of Localizing the National Spatial Data Infrastructure (NSDI), Critical Geography Conference, Cincinnati, 23 October 1999.
- Harvey, F. (1999) Pessimistic Generalization. Workshop on Automated Generalization, Ottawa, Canada. 18-20 August 1999.
- Harvey, F. (1999) Quality needs more than standards. International Cartographic Conference, Ottawa, Canada. 14-21 August 1999.
- Harvey, F. (1999) Integrating Geodata Infrastructures from the Ground Up. Nineteenth Annual ESRI International User Conference. 26-30 July 1999.
- Harvey, F. (1999) Approaching Networks of Engineering: Merging quantitative and qualitative approaches. GIS and Society Conference, Minneapolis, MN. 20-26 June 1999.
- Harvey, F. (1999) What is semantic interoperability? Annual Meeting of the American Association of Geographers. Honolulu, HI, 23 - 27 March 1999.
- Harvey, F. (1999) Visualizing Data Quality through Interactive Metadata Browsing. Workshop on Virtual Reality and Geography, University of Leicester. 3-5 January 1999.
- Harvey, F. and Wardenga U. (1998) The Hettner-Hartshorne Connection: Reconsidering the Process of Reception and Transformation of a Geographic Concept. IGU Commission on the History of Geographic Thought, Lisbon, Portugal, 27-29 August 1998.
- Harvey, F. (1998) Improving Access to Geographic Information Quality. Paper Presented at the First AGILE conference, Enschede, Holland, 23-25 April 1998.

- Harvey, F. (1997) Designing for Interoperability: Overcoming Semantic Differences. Paper Presented at the Interop '97 Conference, Santa Barbara, CA, 3-4 December 1997.
- Harvey, F. (1997). Improving Multi-Purpose GIS Design: Participative Design. Paper Presented at the COSIT '97 Conference, Hidden Valley, PA, 15-18 October 1997.
- Harvey, F. (1997). Agreeing to disagree: The social construction of geographic information technology. Paper Presented at the GIS/LIS '97 Conference, Cincinnati, OH, 28-30 October 1997.
- Harvey, F. (1997) Geographic Integration: From Holism to Systems. XXth International Congress of History of Science, 20-26 July 1997, Liège, Belgium.
- Harvey, F. (1997) Boundaries in GIS Design. Approches sociologiques des SIG et de leurs impacts sur les organisations. 23 June 1997, Lausanne.
- Harvey, F. (1997) Generalization and GIS: Holism and Purpose. Second Workshop on Progress in Automated Map Generalization. 19 - 21 June 1997, Gävle, Sweden.
- Harvey, F. (1997) Boundaries of GIS. Research Conference on Socio-Economic Research and Geographic Information Systems. 17-22 May 1997, Catelvecchio Pascoli, Italy.
- Harvey, F. (1997) Quality needs more than Standards. Embedding and Navigating. First CASSINI International Meeting on Data Quality and Error. 21-23 April 1997, Paris.
- Harvey, F., & Vauglin, F. (1997). No Fuzzy Creep! A clustering algorithm for controlling arbitrary node movement. AutoCarto 13. 9 April 1997, Seattle: ASPRS/ASCM.
- Harvey, F. (1997) Agreeing to Disagree: Boundaries in the Construction of GIS. AAG Annual Meeting, 1-5 April 1997, Ft. Worth, Texas.
- Harvey, F. (1997) Research Methodologies: An Elementary Overview, 5 February 1997, Meeting "SIG et Méthodologie", Le Pont, Switzerland.
- Harvey, F. (1997) National Culture and GIS Design: Results from Cross-Cultural Comparisons, 27 January 1997, Technical University of Vienna, Austria.
- Harvey, F. (1996) National Culture and GIS Design: Results from Cross-Cultural Comparisons, 17 December 1996, University of Münster, Germany.
- Harvey, F. (1996) National Culture and GIS Design: Results from Cross-Cultural Comparisons, 20 November 1996, GIS/LIS '96, Denver.
- Harvey, F. (1996) Agreeing to Disagree: Boundary objects and GIS technology. NCGIA Brown Bag Seminar, 23 October 1996, Santa Barbara.
- Harvey, F. and Vauglin, F. (1996) Geometric match Processing: Applying multiple tolerances. Seventh International Symposium on Spatial Data Handling, 12 - 16 August 1996, Delft, The Netherlands.
- Harvey, F. (1996) National Cultural Influences on GIS Design, 1996 GISDATA Summer Institute, 25 July 1996, Berlin.
- Harvey, F. (1995) Modern geography: From Holism to System. ISPAS, University of Vechta, 21 August 1995, Vechta, Germany
- Harvey, F. (1995) National and organizational cultures in geographic information system design: a tale of two counties. Proceedings, Twelfth International Symposium on Computer-Assisted Cartography (AutoCarto 12), 27 February - 2 March 1995, Charlotte, NC.
- Harvey, F. (1994) Defining unmoveable nodes/segments as Part of vector overlay: The alignment overlay. Sixth International Symposium on Spatial Data Handling, 5 -9 September 1994, Edinburgh, Scotland.
- Harvey, F. (1994) Alignment of cartographic features through modification of the fuzzy overlay algorithm. Institut Géographique National (IGN), September 2 1994, Paris, France.

- Harvey, F. (1994) Reprivatization in Eastern Germany: Problems and Solutions? International Geographic Union Regional Meeting 1994, 22-26 August 1994, Prague, Czech Republic.
- Harvey, F. (1994) Supporting Planning tasks in regional Planning: A conceptual design for visualization aids based on a task hierarchy. GIS '94, 21-24 February 1994, Vancouver, Canada.
- Harvey, F. (1994) Careers in geographic information systems (GIS). University of Washington Extension, Emerging Careers in Technology Meeting, 14 April 1994 Seattle, WA.
- Harvey, F. (1991) Sharing Spatial Digital Data in the Swiss Government: Types and Problems. NCGIA Seminar, 6 June 1991, Santa Barbara.
- Harvey, F. (1991) Organizational and technical aspects of sharing spatial data in the Swiss Federal Government: The Project GEOSTAT. Eleventh Annual ESRI User Conference, 22-27 May 1991, Palm Springs, CA.
- Harvey, F. (1991) The collection and Provision of spatial data at the national level. Second Annual European Conference and Exhibition on Geographical Information Systems (EGIS '91), 2-5 April 1991, Brussels, Belgium.
- Harvey, F. and Arnold, K. (1989) Design and implementation of a map library for the Swiss Federal Office of Statistics. Arc/Info European User's Conference, 24-27 October 1989, Rome, Italy.

PROFESSIONAL SERVICE

Editorship

8/06 - 8/09 Geography Compass, GIS-Section (co-editor with Libby Wentz)

Editorial Board Participation

9/98 - 2017 URISA Journal
 11/01 - 2010 International Journal of Geographical Information Science
 5/04 - now Cartographica
 6/08 - now Europa Regional
 4/07 - now GeoJournal
 2/12 - now Polish Journal of Geoinformatics (PTIP)
 10/12 - now URISA Journal section editor for social, economic, political and governance issues

International Geographical Union (IGU) Geographical Information Science Commission

8/12 - 8/16 Chair (three year term)
 4/09 - 8/16 US representative (commissioner)

Geographic Information System Certification Institute

2/06 - 4/10 Board Member representing UCGIS

University Consortium for Geographic Information Science

6/01 - 6/06 Vice-Chair of the Education Committee

Association of American Geographers

4/09 - 4/13 GIS Specialty Group Vice-Chair and Current Chair
 8/02 - 4/06 Geographic Information Standards Committee Member

1/01 - 4/01 Nystrom Committee Member

Society for the Social Studies of Science

10/12 - 5/13 Graduate Student Mentor

United States Government

9/08 - 9/10 National Science Foundation, Geography and Spatial Sciences Panelist

5/03 - 6/03 Reviewer of Cooperative Agreements Program Applications

3/00 - 12/00 Member of GeoData Organizational Initiative (supported by USGS/FGDC)

Reviewer of manuscripts for:

University of Minnesota Press	since Aug. 2013
International Journal of E-Planning Research	since Jun. 2013
Acme	since Feb. 2008
Annals of the Association of American Geographers	since March 2000
Canadian Geographer	since June 2004
Cartographica	since Sep. 2004
Computers in Urban Planning and Urban Management	since Feb. 2007
Computers, Environment and Urban Systems	since Nov. 2001
Cultural and Social Geography	since Nov. 2001
Cartography and Geographic Information Systems	since January 2000
Environment and Planning A	since January 2000
Environment and Planning B	since Oct. 1998
Europa Regional	since July 2007
Geographical Review	since Feb. 2008
International Journal of Geographic Information Routledge Press	since May 2005
Science	since May 1998
South African Journal of Geodesy	since Nov. 1999
Spatial Data Handling 2006, 2008	since August 1998
Transportation Review Board	Since 1 January 2013
The URISA Journal	2000, 2002, 2004,
	since Oct. 1998
	since April 1999

Also I serve as reviewer for conferences including GIScience, GSDI, and AGILE and as proposal reviewer for the Humboldt Foundation, Austrian Ministry of Science, Canadian SSHRC, European Union, and Research Councils UK. I have provided external reviews for two promotion and tenure cases.

Conferences and Workshop Organization

Situationsbestimmte Verbesserungsansätze für die geovisuellen Kommunikation (2018) with Eric Losang at AGIT 2018, Salzburg, 6July.

Globalisierung und Digitalisierung – (neue) Weltbezüge der Geoinformation (2018) with Tilo Felgenhauer, Jena, 24-25May.

Code|Geo|Graphic (2018) Berlin (with Till Straube, Florian Ledermann, Sebastian Meier), 19April.

12th Symposium on Spatial and Temporal Databases (SSTD 2011), Minneapolis, 24-26August. (local organizer).

Werkstattgespräch Atlas-Zukünfte (2016), Leipzig, 16.-17June.

Regular organizer and chair of sessions at Association of American Geographers Conferences and GIScience conferences.

Professional Association Memberships

American Association of Geographers (AAG)
 Geographic Information Systems Speciality Group
 Russian and Central Eastern European Speciality Group
Association for Computing Machinery (ACM)
 Computers and Society (SIGCAS)
International Geospatial Society
Society for the Social Study of Science
Computer Professionals for Social Responsibility (CPSR)

UNIVERSITY SERVICE (University of Minnesota - Twin Cities)

Department of Geography/University of Minnesota

9/12 - 5/14 Chair of Graduate Admissions
7/06 - 6/12 Director of Graduate Studies, Master of Geographic Information Science Program
1/11 - 5/11 Co-chair of Cartography Lab Review Committee
9/10 - 5/11 Chair of GIS Search Committee
8/10 - 5/11 Member of Graduate Studies Committee
8/10 - 5/11 Member of School of Geography Committee
9/09 - 5/10 Chair of Diversity Committee
5/08 - 5/09 Co-chair of Urban Search Committee
1/07 - 5/07 Awards committee
9/04 - 12/06 Graduate Admissions and Financial Aid Committee
12/03- 6/04 Merit Review Committee
8/02 - 6/04 Graduate Policy Committee
8/02 - 5/04 BioPhysical Search Committee
5/02 - 1/03 Temporary GIS Search Committee
8/01 - 7/02 Undergraduate Education Policy
8/01 - 7/02 Personal Committee
8-01 - now MGIS Advisory Committee
1/00 - 6/01 UK GIS Interest Group Chair and GIS Day Chair
9/99 - 6/01 Chair, Cartography Laboratory Advisory Committee
9/99 - 6/01 Personnel Committee
6/99 - 6/01 GIS Day Committee Chair and GIS Day Chair
9/98 - 6/01 Undergraduate Committee
9/98 - 9/99 Cartography Laboratory Advisory Committee

College of Liberal Arts/University of Minnesota

5/13 - now Advisory board member, Center for Austrian Studies
9/12 - 8/14 Elected member of CLA Assembly
6/12 - 8/14 Appointed member of CLA Budget Advisory Committee
9/03 - 6/04 Elected member of CLA Assembly
9/08 - now Faculty research awards committee

University of Minnesota

7/13 - 5-15 Elected member, Faculty Senate
5/03 - 6/09 Member, Campus Committee on Student Behavior
6/08 - 6/09 Chair, Campus Committee on Student Behavior

University of Minnesota Faculty Associations

Center for German and European Studies
Center for Austrian Studies Advisory Board
Minnesota Population Center

Elected Positions

American Association of Geographers (AAG) Geographic Information Systems Speciality Group Vice-Chair (2008, 2009), Chair (2009, 2010), Past-Chair (2011, 2012)
International Geographical Union Geographic Information Science Commission, Chair (2010, 2011, 2012, 2013, 2014, 2015, 2016), Incoming-Chair (2009, 2010)
International Geographical Union Geographic Information Science Commission, US Commissioner (2009, 2010, 2011, 2012, 2013)
MetroGIS, Higher Education Representative (2010, 2011, 2012, 2013,, 2014)

WORKSHOPS ORGANIZED

WORKSHOPS AND CONTINUING EDUCATION ACTIVITIES (PARTICIPANT)

9/11 - 5/12 UMN Mid-Career Teaching Program
9/05 - 5/06 UMN Mid-Career Teaching Program

TEACHING

LEIPZIG UNIVERSITY MODULES TAUGHT

Kritische Kartographie (MSc)
Angewandte Geographie, a 2SWS module Changes in Technology—Changes in the City (BSc)

UNIVERSITY OF MINNESOTA COURSES TAUGHT

Mapping Our World (GEOG 1502)
Problems in Geographic Thought (GEOG 8001)
GIS and Society (GEOG 8292)
Advanced Geographic Information Science (GEOG 5563)
Digital Planet (GEOG 3521)
Digital Mapping (GEOG 3523)
Transitions in Central and Eastern Europe (GEOG 8980) (co-taught with T. Wolfe (History))
Information Geographies (GEOG 8980)

EXTERNAL COURSES TAUGHT

4/05 - 5/05 GIS, Society, and Engineers, Fachhochschule Kärnten, Austria
4/05 - 5/05 GIS and Society, Universität Münster, Germany
9/05 - 10/05 Ethics in GI Science and Society I, Universität Münster, Germany
5/11 - 7/11 Ethics for GI Scientists, Universität Münster, Germany
5/11 - 7/11 Cost Benefit Analysis, Universität Münster, Germany

5/12 - 5/12 GIS and SDI Research Topics, Technical University of Warsaw, Poland
9/16 - 9/16 3rd RegPol² school "Beyond disparities: strategies towards a balanced spatial development"

EDUCATIONAL MATERIAL

Understanding GIS Operations: A Transformational Approach, ESRI Virtual Campus course (2000)