Robert Stewart

Curriculum Vitae
November 2017

Research Interests

I am geographic data scientist in the Geographic Information Science and Technology (GIST) group at the Oak Ridge National Laboratory and a joint faculty assistant professor in Geography at the University of Tennessee. My work is focused on statistical and computational methods in the areas of spatial and spatiotemporal modeling, with an emphasis on uncertainty, risk, and decision analytics. Areas of application include population dynamics, sociocultural/economic analytics, social media, and environmental risk. Quantifying uncertainty and risk as well as understanding the implications of both for decision making is a recurring theme in my work. I currently serve as team lead for the Geographic Data Sciences Team within the GIST group.

Education

2011 Ph.D. Geography, University of Tennessee
1995 M.S. Mathematics, University of Tennessee
1992 B.S. Mathematics and Statistics, University of Tennessee

Experience

2009-now **Geographic Data Sciences Team Lead, Oak Ridge National Laboratory**
As team lead, I oversee a diverse and talented group of ORNL staff, post-docs, interns and students. Research by this team spans a wide spectrum of expertise including imagery analytics, remote sensing, data mining, modeling and simulation, visualization, machine learning, and other big data challenges applied to a wide range of research domains. As researcher, my work is typically computational in nature with a focus on spatial and spatiotemporal analytics, population dynamics, uncertainty analysis, risk, and decision support. As a PI I currently lead the World SpatioTemporal Analytics and Mapping Project (WSTAMP), the Spatial Analysis and Decision Assistance Project (SADA), and significantly contribute to a number of other projects within larger the Geographic Information Science and Technology Group. Also, I currently serve as the ORNL liaison to the World Health Organization's Chemical Risk Network.

2011-now **Joint Faculty Assistant Professor of Geography, University of Tennessee**
Focus is on proposal development, serving on graduate committees, periodically teaching, and mentoring students in summer programs at the Oak Ridge National Laboratory.

1994-2009 **University of Tennessee Senior Research Associate**
Activities included serving as principle investigator, technical lead, and in most cases point of contact with sponsoring agencies such as the Environmental Protection Agency, the Nuclear Regulatory Commission, the Department of Energy, and the Oak Ridge National Laboratory. Effort centered largely on management and development of the Spatial Analysis and Decision Assistance (SADA) software program.

Awards, Honors, Service

2017 Invited Panelist, Open Source Software in Geography: Theories, Developments, and Pathways toward Openness II, Boston, AAG 2017 Annual Meeting.

stewartrn@ornl.gov 1.865.574.7646 @drbobatornl www.ornl.gov/sci/gist/index.shtml

Vice Chair (2015 – present), Association of American Geographers Geographic Information Science and Systems Specialty Group.

Invited Panelist, Chair, Speaker at the International Symposium on Spatio-Temporal Computing, Harvard, August 2017.
Invited Big Geospatial Data Program Committee Member, [look up details]

2016 Invited Panelist, Spatial Statistics and Big Data, AAG Annual Meeting, San Francisco
Vice-Chair, Geographic Information Science and Systems Specialty Group, AAG.

2015 Invited Speaker, JASON Summer Study (by invitation only), San Diego.

2014 DOE Oak Ridge National Laboratory Significant Event Award for R&D in WSTAMP Project
ORNL Liaison to WHO Chemical Risk Network (presently serving)

2013 Invited Panelist, Characterization & Survey For Decommissioning & Waste Management, WM2013.
Invited Speaker, Colloquium, University of Chicago at Illinois, School of Public Health

2010 Environmental Protection Agency 2010 Scientific and Technological Achievement Award

ongoing Reviewer for several journals including Risk Analysis, Applied Geography, Mathematical Geosciences, Environmental Modelling and Software, International Journal of Geographic Science, and Stochastic Environmental Research and Risk Assessment

Mentor for the HERE, SULI, ASTRO, post-BS, post-MS, and post-doc programs at ORNL

Academic Service

Joint Faculty Member, Geography Department, UT Knoxville

Teaching
Geographic Concept and Method (599), Geography Department, University of Tennessee.
Independent Study 593 (Data Analytics), Periodically. University of Tennessee, Knoxville.
Various university guest lectures and workshop in the U.S. and abroad (see next section)
Serving as major professor or committee members for Geography Department as needed

Dissertation Committee Memberships
Janna Caspersen, Geography Department, University of Tennessee (active)
April Morton, Data Sciences, Bredesen Center (UTK/ORNL) (active)

Master's Research Advising
April Morton, Mathematics, California Polytechnic Institute, Pomona (graduated 2012)
Apostolis Sambanis, Public Health, University of Illinois at Chicago (graduated 2012)

Master's Thesis Committee Memberships
Samantha Duchscherer, Mathematics, University of Tennessee (active)
Matthew Miller, Geography Department, University of Tennessee (Graduated, 2017)
Jessica Moehl, Geography Department, University of Tennessee (chair, graduated 2014)

1994-2009 **University of Tennessee Senior Research Associate**
Activities included serving as principle investigator, technical lead, and in most cases point of contact with sponsoring agencies such as the Environmental Protection Agency, the Nuclear Regulatory Commission, the Department of Energy, and the Oak Ridge National Laboratory. Effort centered largely on management and development of the Spatial Analysis and Decision Assistance (SADA) software program.

Peer Reviewed Publications & Conferences

2017

Aziz, H.M., N Nagle, A Morton, M Hilliard, D White, **R.N. Stewart** (accepted) Exploring the impact of walk-bike infrastructure, safety perception, and built-environment on active transportation mode choice: A random parameter model using New York City commuter data, Transportation,

Thakur G, K Sims, H Mao, J Piburn, K Sparks, M Urban, **R.N. Stewart**, E Weber, B Bhaduri (accepted) *Utilizing Geo-Located Sensors and Social Media Insight for Research in Population Dynamics and Land Classification* in Human Dynamics Research in Smart and Connected Communities, Springer.

Weber, E, V Seaman, R.N. Stewart, T Bird, A Tatem, J McKee, B Bhaduri, J Moehl, and A Reith (2017), *Census-independent population mapping in northern Nigeria*, Remote Sensing of Environment, In Press (Available Online 10/21/2017 @ https://doi.org/10.1016/j.rse.2017.09.024)

McManamay, R, S Nair, C DeRolph, B Ruddell, A Morton, **R.N. Stewart**, M Troia, L Tran, H Kim, and B Budhendra (2017) *US Cities can manage national hydrology and biodiversity using local infrastructure policy*, Proceedings of the National Academy of Sciences, currently online at www.pnas.org.

Sorokine, A and **R.N. Stewart** (accepted) Spatio-temporal Data Model for Integrating Evolving Nation-level Datasets, 2nd International Symposium on Spatio-temporal Computing, Harvard, August 2017.

Piburn, J, **R.N. Stewart**, A Myers, A Sorokine, D Axley, D Anderson, J Burdette, C Biddle, A Hohl, R Eberle, J Kaufman, and A Morton (accepted), *The World Spatiotemporal Analytics and Mapping Project (WSTAMP): Further Progress in Discovering, Exploring, and Mapping Spatiotemporal Patterns Across the World's Largest Open Source Data Sets*, 2nd International Symposium on Spatio-temporal Computing, Harvard, August 2017.

Piburn, J, **R.N. Stewart**, and A Morton (2017/Accepted) *A Simple Spatially Weighted Measure of Temporal Stability for Data with Limited Temporal Observations* 2nd International Symposium on Spatio-temporal Computing, Harvard, August 2017.

Morton, A, J Piburn, N Nagle, H M Aziz, S Duchscherer and **R.N. Stewart** (accepted), *A Simulation Approach for Modeling High-Resolution Daytime Commuter Travel Flows and Distributions of Worker Subpopulations*, Geocomputation 2017 Shortpaper, Leeds UK, September 2017.

Sparks, K, G Thakur, M Urban, and **R.N. Stewart** (accepted) *Temporal Signatures of Shops' and Restaurants' Opening and Closing Times at Global, Country, and City Scales*, Geocomputation 2017 Shortpaper, Leeds UK, September 2017.

R.N. Stewart, M Urban, D Anderson, S Duchscherer, D Axley, and J Piburn (accepted), *Towards a Virtual Reality Elicitation of Building Occupancy*, Geocomputation 2017 Shortpaper, Leeds UK, September 2017.

Piburn, J, **R.N. Stewart** and A Morton, (accepted) *An Approximate Entropy Based Approach for Quantifying Stability in Spatio-Temporal Data with Limited Temporal Observations*, Geocomputation 2017 Shortpaper, Leeds UK, September 2017.

Stewart, R.N., J Piburn, E Weber, M Urban, A Morton, G Thakur, and B Bhaduri (2017). *Can Social Media Play a Role in the Development of Building Occupancy Curves?* Advances in Geocomputation: Geocomputation 2015--The 13th International Conference. D. A. Griffith, Y. Chun and D. J. Dean. Cham, Springer International Publishing: 59-66.

Piburn, J, A Morton, and **R.N. Stewart** (2017). *Attribute Portfolio Distance: A Dynamic Time Warping based approach to comparing and detecting common spatiotemporal patterns among multi-attribute data portfolios*. Advances in Geocomputation: Geocomputation 2015--The 13th International Conference. D. A. Griffith, Y. Chun and D. J. Dean. Cham, Springer International Publishing: 197-205.

Morton, A, N Nagle, J Piburn, **R.N. Stewart**, R McManamay (2017). *Hybrid Dasymetric and Machine Learning Approach to High-Resolution Residential Electricity Consumption Modeling* In Advances Advances in Geocomputation: Geocomputation 2015--The 13th International Conference. D. A. Griffith, Y. Chun and D. J. Dean. Cham, Springer International Publishing: 47-58.

Stewart, R.N., A Myers, D Axley, A Sorokine, and J Piburn (2017) Minisymposterium: World SpatioTemporal Analytics and Mapping Project (WSTAMP): Cloud Implementation of Open Source Algorithms and Data Stores for Sustainable, Scalable Analysis of Space-Time Data. Society for Industrial and Applied Mathematics (SIAM) Conference on Computational Science and Engineering, February 27- March 3rd, 2017, Atlanta, GA.

2016

Morton, A, J Piburn, R McManamay, N Nagle, **R.N. Stewart** (2016), *A Dasymmetric-Based Monte Carlo Simulation approach to the Probabilistic Analysis of Spatial Variables*. International Conference on GIScience Short Paper Proceedings, Montreal Canada. Volume 1 (1), pp. 208 – 211. http://escholarship.org/uc/item/9hf8b2wb

Thakur, G, K Sparks, **R.N. Stewart**, M Urban, and B Bhaduri, (2016), *Curating Transient Population in Urban Dynamics System*, International Conference on GIScience Short Paper Proceedings, Montreal Canada. Volume 1 (1), pp. 300 – 303. http://escholarship.org/uc/item/971896bp#page-1

Stewart, R.N., C Wilkerson, E Ragan, M Agreda, D White, S Duchscherer, and J Piburn (2016) *A 3D Virtual Environment for Spatio-Temporal Analysis: Theoretical Approach, Proof of Concept, and User Study*. International Conference on GIScience Short Paper Proceedings, Montreal Canada. Volume 1 (1), pp. 280 – 283. http://escholarship.org/uc/item/6mg271rn

Stewart, R.N., M Urban, S Duchscherer, J Kaufman, A Morton, G Thakur, J Piburn, J Moehl (2016) *A Bayesian Machine Learning Model for Estimating Building Occupancy from Open Source Data*, Natural Hazards 81 (3).

2015

Stewart, R.N., J Piburn, A Sorokine, A Myers, and D White (2015) *World Spatiotemporal Analytics and Mapping Project (WSTAMP): Discovering, Exploring, and Mapping Spatiotemporal Patterns across the World's Largest Open Source Geographic Data Sets*, ISPRS Annals of Photogrammetry, Remote Sensing, and Spatial Information Sciences. Volume II-4W2.

Stewart, R.N., K Tucker, and F Dolislager (2015) *SADA: A Free Geospatial Human Health Risk Tool*, Society of Toxicology Annual Meeting, San Diego, CA.

Thakur, G., B Bhaduri, J Piburn, K Sims, **R.N. Stewart**, M Urban (2015). *PlanetSense: A Real-time Streaming and Spatio-temporal Analytics Platform for Gathering Geo-spatial Intelligence from Open Source Data*, ACM Sigspatial, Seattle, WA. (Among top 3 vision papers*)*

Stewart, R.N., M Urban, J Weaver, and D White. *A Geographic Data Fusion Model for Estimating Quantitative Population Dynamics from Qualitative Survey Data*. Journal of GEOINT Science. (2015)

2014

Bhaduri, B., E Bright, A Rose, C Liu, M Urban, and **R.N. Stewart** (2014), Data Driven Approach for High Population Distribution and Dynamics Models, Winter Simulation Conference, Savannah, Georgia

Purucker, S.T., **R.N. Stewart,**, and J Wulff (2015) *A spatial decision support system for efficient environmental assessment and remediation*. In Madden, M., Allen, E., (Eds.) Landscape Analysis Using Geospatial Tools (accepted), Springer-Verlag.

2013

Stewart, R.N. D White, M Urban, A Morton, C Webster, M Stoyanov, E Bright, and B Bhaduri (2013) *Uncertainty quantification techniques for population density estimates derived from sparse open source data.* Proceedings of the SPIE: Geospatial InfoFusion III (refereed) 8747: 874705-874705.

2012

Stewart, R.N. (2012) *A Subsurface Decision Model for Supporting Environmental Compliance*, NUREG/CR-7021. Washington, D.C., United States Nuclear Regulatory Commission.

2011

Stewart, R.N. (2011). *A Geospatial Based Decision Framework for Extending MARSSIM Regulatory Principles into the Subsurface*. Doctoral Dissertation, Department of Geography at the University of Tennessee

Stewart, R.N. and S.T. Purucker (2011) *An environmental decision support system for spatial assessment and selective remediation.* Environmental Modelling & Software 26(6): 751-760

2009

Purucker, S. T., **R. N. Stewart**, and C. J. Welsh (2009) *SADA: Ecological Risk Based Decision Support System for Selective Remediation*. Chapter 11, A. Marcomini, G.W. Suter, and A. Critto (ed.), Decision Support Systems for Risk Based Management of Contaminated Sites. Springer Science + Business Media, LLC, New York, NY, pgs. 239-256.

Mahmoud, M., Y Liu, H Hartmann, S Stewart, T Wagener, D Semmens, **R.N. Stewart**, H.V. Gupta, D Dominguez, F Dominguez, D Hulse, R Letcher, B Rashleigh, C Smith, R Street, J Ticehurst, M Twery, H van Delden, R Waldick, D White, L Winter. (2009). *A Formal Framework for Scenario Development to Support Environmental Decision Making*. Environmental Modelling & Software. 24(7): 798-808.

2008

Liu, Y., M Mahmoud, H Hartmann, S Stewart, T Wagener, D Semmens, **R.N. Stewart**, H Gupta, D

Dominguez, D Hulse, R Letcher, B Rashleigh, C Smith, R Street, J Ticehurst, M Twery, H van Delden, R Waldick, D White, and L Winter., (2008), *Formal scenario development for environmental impact assessment studies*, Developments in Integrated Environmental Assessment, edited by Jakeman, A., A. Voinov, A. E. Rizzoli, and S. Chen, Elsevier. Volume 3: 145-162

Voinov, A., R Hood, J Daues, H Assaf, and **Stewart, R.N.** (2008) *Building a Community Modelling and Information Sharing Culture* In Developments In Integrated Environmental Assessment, edited by Jakeman, A., A. Voinov, A. E. Rizzoli, and S. Chen, Elsevier. Volume 3: 345-366

2007

Modis, K, H-L Yu, G Christakos, **R.N. Stewart** and G Papantonopoulos (2007). *"BME-generated temperature maps of the Nea Kessani geothermal field"*, Invited chapter, In Geothermal Energy Research Frontiers, Columbus, F. (ed.), Nova Science Publ., Inc., Hauppauge, NY.

Purucker, S.T., C.J.E. Welsh, **R.N. Stewart**, and P Starzec. (2007). *Use of habitat-contamination spatial correlation to determine when to perform a spatially explicit ecological risk assessment*. Ecological Modelling, 204(1-2):180-192 (winner of EPA 2010 Level II Scientific and Technological Achievement Award).

Non-Peer Reviewed Conferences, Workshops, Lectures, & Reports

2017

Invited Panelist, Open Source Software in Geography: Theories, Developments, and Pathways toward Openness II, Boston, AAG 2017 Annual Meeting.

Towards a Virtual Reality Elicitation Approach for Facility Occupancy 3D Virtual and Augmented Realities for Geoinformation Science, II

2016

Invited Panelist, Spatial Data Mining and Big Data Analytics (chair: Diansheng Guo), Association of American Geographers Annual Meeting, San Francisco , CA.

Stewart, R.N., Wilkerson, C., Ragan, E. (2016) ST World: Spatiotemporal Analytics Within a Prototype Serious Gaming Environment Association of American Geographers Annual Meeting, San Francisco , CA.

2015

Piburn, J, **R.N.Stewart** (2015) Using non-linear data mining algorithms for exploring global spatiotemporal trends, Conference on Complex Systems, Tempe, AZ

Stewart, R.N., J Piburn, A Sorokine, and A Myers, (2015) WSTAMP: Discovering, Exploring, and Mapping Patterns of Strategic Importance from SpatioTemporal Data Across Major Global Vendors, Conference on Complex Systems, Tempe, AZ.

Stewart, R.N., J Piburn, A Myers, D White, A Sorokine, 2015*, The World Spatiotemporal Analysis and Mapping Project (World STAMP).* Association of American Geographers Annual Meeting, Chicago, IL.

Duchscherer, S., **RN Stewart**, M Urban, *Reverse Engineering Census Summary Data for Population Density Estimation*, (2015) Association of American Geographers Annual Meeting, Chicago, IL.

Morton, A., Stewart**, R.N. Stewart**, S. Duchscherer, and M. Urban, (2015), *A Bayesian Model for Estimating Building Occupancy: Integrating Data, Knowledge, and Uncertainty in an Open Source Environment*, Association of American Geographers Annual Meeting, Chicago, IL.

Piburn, J., **R.N. Stewart**, 2015, *Using Dynamic Time Warping for Finding and Assessing Spatiotemporal Trends in Large Global Datasets: applications and findings from the World STAMP Project*, Association of American Geographers Annual Meeting, Chicago, IL

Moehl, J., **R.N. Stewart**, N. Nagle, 2015, *Comparing Demographic Household Modeling Techniques*, Association of American Geographers Annual Meeting, Chicago, IL

Urban, M., **R.N. Stewart**, A Myers, D Axley, E Bright, 2015, *Open Source Occupancy Modeling and Services*, Association of American Geographers Annual Meeting, Chicago, IL.

2014

Stewart, R.N., A Rose, E Bright, 2014 *Spatial Analysis and Decision Assistance: A Free Program Integrating LandScan High Resolution Population Datasets with Advanced Spatiotemporal Risk-Based Decision Support Models*. Association of American Geographers Annual Meeting, Tampa, FL.

Sorokine, A, RN Stewart, 2014, *Multiperspective Database Architecture for Spatiotemporal*

Geodatasets, Association of American Geographers Annual Meeting, Tampa, FL

Urban, M, **RN Stewart**, A Myers, D Axley, and E Bright, 2014, *Occupancy Modeling Framework Overview*, Association of American Geographers Annual Meeting, Tampa, FL.

2013

Stewart, R.N., Bright, Eddie, Rose, Amy, McGinn, Wilson. *Enriching Risk Based Decision Support Models with Large Scale, High Resolution Population Data*, Society for Risk Analysis Annual Meeting, December 8th-11th, 2013. Baltimore, MD.

Stewart, R.N. *What Can('t) SADA Do for You?*, University of Illinois at Chicago (invited speaker), 5/2013

Stewart, R.N. and White, D. 2013. *Towards a 3D Virtual Gaming Environment for Spatiotemporal Analytics,* Association of American Geographers Annual Meeting, Los Angeles, CA, April 9th-13th

Sorokine, A. and **Stewart, R.N.** 2013. *Ontology-driven Geographic Database Design for Spatiotemporal Data Mining,* Association of American Geographers Annual Meeting, Los Angeles, CA, April 9th-13th

Morton, A. and **Stewart, R.N.** 2013. *A Spatiotemporal Process Model for Capturing Museum Visitation Dynamics.* Association of American Geographers Annual Meeting, Los Angeles, CA, April 9th-13th.

Moehl, J and **Stewart, R.N.** 2013. *Relating Indicators and Economic Growth*. Association of American Geographers Annual Meeting, Los Angeles, CA, April 9th-13th.

Urban, M. and **Stewart, R.N.** 2013. *Developing Uncertainty in Population Density Data*. Association of American Geographers Annual Meeting, Los Angeles, CA, April 9th-13th.

Stewart, R.N., 2013. *Application of SADA for 3D Subsurface Characterization and Suggested Approach for Volumetric Compliance with Decommissioning Dose Criteria,* Waste Management Symposium, February 24th-28th, Phoenix (invited panelist, Panel Session 87: Characterization for Decommissioning and Waste Management)

2012

Stewart, R.N. and Urban, M., and Morton, A. 2012. *Population Density Tables: Incorporating socio-cultural dynamics in estimating small area populations at risk,* Society for Risk Analysis Annual Meeting, December 8th-14th, San Francisco, CA.

Stewart, R.N. and Urban, M, 2012. *Eliciting and Transforming Population Density Knowledge into a Bayesian Prior Probability Distribution*, Association Of American Geographers Annual Meeting, New York, NY.

2011

Conley, J. and **Stewart, R.N,** 2011**.** *Using Fine Resolution Population Data and Spatial Interaction Modeling to Estimate Risk from Airborne Toxic Releases,* The 11th International Conference of Geocomputation, London.

Urban, M., Bright, E., **Stewart, R.N.**, Lee, R., and Sylvester, L., 2011 *Creating a Database for Demographic and Socio-cultural Characteristics,* Association of American Geographers Annual Meeting, Seattle, WA.

2010

Stewart, R.N., 2010. *A Geostatistically Informed Environmental Sampling Design for Improving Boundary Delineation of Contaminated Areas*, Association of American Geographers Annual Meeting, Washington D.C

2009

Norrman, J., Purucker, S.T., Back, P.-E., Engelke, F., **Stewart, R.N**., 2009. Metodik för statistik utvärdering av miljötekniska undersökningar I jord (Method for statistical evaluation of environmental soil investigations). Naturvårdsverket (Swedish Environmental Protection Agency), Rapport 5932. ISBN 978-91-620-5932-3.

Stewart, R.N., 2009. *Spatial Analysis and Decision Assistance Version 5 Overview*, Midwestern States Risk Assessment Symposium, Indianapolis, IN.

Stewart, R.N., 2009. *Spatial Analysis and Decision Assistance (SADA): An integration of spatial analysis, risk, sample design, and GIS*, Interagency Steering Committee on Multimedia Environmental Models Public Workshop, Rockville, MD.

2008

Norman, J., Purucker, S.T., **Stewart, R.N**., Back, P.-E., Englelke, F., 2008. Framework for optimizing the evaluation of data from contaminated soil in Sweden. Conference proceedings of ConSoil 2008, 10th International Conference on Soil-Water Systems; Milan, Italy

Lecturer: ITRC ARAMS/SADA Conference October, 2008. Kennebunkport, ME, SADA Training

USEPA, TRIAD Conference June 10th-12th, 2008 in Amherst, MA. SADA Training.
State of Illinois, Department of Natural Resources May 21-22nd, 2008. SADA Training.
University of Tennessee SADA Training, Knoxville, TN, April 23rd-25th, 2008. SADA Training

2007

Purucker, S.T., **Stewart, R.N.**, Dolislager, F., 2007. *Human health and ecological risk assessment with Spatial Analysis and Decision Assistance (SADA) Freeware.* Office of Solid Waste and Emergency Response, Technology Innovation Program, CLU-IN Studio Internet Seminar (presentation).

Stewart, R.N.., Purucker, S.T., Powers, G.E., 2007. *SADA: A Freeware Decision Support Tool Integrating GIS, Sample design, Spatial Modeling, and Risk Assessment.* Proceedings of the International Symposium on Environmental Software Systems, Prague, Czech Republic.

Stewart, R.N., 2007, Purucker, S.T., 2007. *SADA: A freeware decision support tool integrating GIS, sample design, spatial modeling, and environmental risk assessment*. 233rd American Chemical Society National Meeting, Chicago, IL.

University of Helsinki, "Overview of Environmental Methods in SADA", Helsinki, May 2007.

Uranium Recovery Workshop, SADA training, Denver CO, May 2007.

University of Tennessee, "Environmental Assessment Methods Using SADA", Knoxville, TN, April, 2007.

Uses of Spatial Analysis and Decision Assistance. Office of Solid Waste and Emergency Response, Technology Innovation Program, CLU-IN Studio Internet Seminar.

2006

Starzec, P., Purucker, S.T., **Stewart, R.N.**., 2006. Kvantifiering och presentation av osäkerheter i riskbedömning och beslutsprocess: exemplifiering med fallstudier. Rapportutkast (Swedish).

Stewart, R.N., 2006. SADA: A Freeware Decision Support Tool Integrating GIS, Sample design, Spatial Modeling, and Risk Assessment, Graduate Seminar, Department of Geography, UTK, Knoxville, TN

Stewart, R.N., 2006. SADA: A Freeware Decision Support Tool Integrating GIS, Sample design, Spatial Modeling, and Risk Assessment, East Tennessee Geographic Information Systems Conference, October, 2006.

Stewart, R.N., 2006. SADA: A Freeware Decision Support Tool Integrating GIS, Sample design, Spatial Modeling, and Radiological Assessment, Health Physics Society Midyear, Knoxville, TN.

Stewart, R.N.., Purucker, S.T., 2006. *SADA: A Freeware Decision Support Tool Integrating GIS, Sample design, Spatial Modeling, and Risk Assessment*. Proceedings of the Third Biennial Meeting of the International Environmental Modelling and Software Society, Burlington, Vermont.

University of Tennessee, "Environmental Assessment Methods Using SADA", Knoxville, TN, 25-27 October 2006.

Swedish Geotechnical Institute, Goteborg, Sweden, 10-12 May 2006. SADA Training

University of Tennessee, "Environmental Assessment Methods Using SADA", Knoxville, TN, 26-28 April 2006.

2005

Stewart, R.N., Purucker S.T., Powers, G.E, 2005. *Spatial Approaches for Subsurface Sample Design, Characterization, and Decision Support*, Proceedings of the ANS Topical Meeting on Decommissioning, Decontamination, & Reutilization, Denver, Colorado

University of Tennessee, "Environmental Assessment Methods Using SADA", Knoxville, TN, 5-7 October 2005.

Swedish Geotechnical Institute, Goteborg, Sweden, 12-15 September 2005. SADA Training.

US Naval Facilities Engineering Command (NAVFAC) SADA Workshop, Philadelphia, Pennsylvania, 2-3 August 2005.

University of Tennessee, "Environmental Assessment Methods Using SADA", Knoxville, TN, 23-25 February 2005.

2004

Stewart, R.N., Purucker S.T. 2004.*Incorporating Secondary Information Into Environmental Sampling Designs*. Joint Proceedings of the Sixth International Symposium on Spatial Accuracy Assessment in Natural Resources and Environmental Sciences and the 15th Annual Conference of the International Environmetrics Society

Petróleo Brasileiro SA (Petrobras), Rio de Janeiro, Brazil,16-20 Aug 2004 SADA Workshop.

2003

Stewart, R.N. and Gogolak, C. 2003. *Viable Geobayesian Approach for Supporting and Characterizing 2d and 3d Sampling Designs*, US Nuclear Regulatory Commission Letter Report, April 2003.

Stewart, R.N., Purucker, S.T. 2003. *Geospatially-Based Secondary Sample Designs*, Society for Risk Analysis World Congress on Risk, Belgium.

Stewart, R.N., Purucker, S.T. 2003. *Geospatially-Based Secondary Sample Designs*, Society for Risk Analysis World Congress on Risk, Belgium

Purucker, S.T., **Stewart, R.N**., Welsh, C.J.E., 2003. *Secondary Sample Designs for Risk Assessment*. Society for Risk Analysis; Baltimore, Maryland, (poster).

Stewart, R.N., Purucker, S.T., 2003. *Initial Sample Designs for Risk Assessment*. Society for Risk Analysis; Baltimore, Maryland, (poster)

Lecturer: FIELDS/SADA 2003 Training Conference in Chicago, 5-7 March 2003.

2002

Purucker, S.T., **Stewart, R.N**., 2002. SADA: Freeware to Assist in Integrating Ecological and Human Health Risk Assessment with Geostatistical Analyses. Society for Risk Analysis; New Orleans, Louisiana, (poster)

Stewart, R.N., 2002. *Evaluation of Terminated Licenses Parts 30, 40, and 70: The Terminated License Tracking System*, NUREG/CR-6669, United States Nuclear Regulatory Commission, Office of Nuclear Material Safety and Safeguards.

2001

Stewart, R.N., Purucker, S.T**.**, Dolislager, F.G., Clauberg, M., 2001. Spatial Analysis and Decision Assistance (SADA): Incorporation of Geospatial Statistical Analysis into Risk Assessment Based Decision Making. Society for Risk Analysis; Seattle, Washington, (poster).

Stewart, R.N., 2001 Spatial Analysis and Decision Assistance Overview Opening remarks at the annual EPA FIELDS/SADA Conference, Denver, Colorado, 2001

Stewart, R.N. 2001. Test and Evaluation of the Proof-of-Concept Version of SADA Incorporating Bayesian Geostatistics, US Nuclear Regulatory Commission Letter Report.

2000

Stewart, R.N., 2000. *Geostatistically Based Sampling Strategies*, FIELDS/SADA 2000 Annual EPA Conference, Chicago Illinois.

Stewart, R.N. Purucker, S.T. 2000. *Geospatial Decision Frameworks for Remedial Design and Secondary Sampling* NATO/CCMS Special Session on Decision Support Tools Number 245. EPA 542-R-01-002.

Lecturer: Geospatial Methods For Environmental Decision Making and Cost Benefit Analysis, Fifth Course on Mathematical Ecology at The Abdus Salam International Centre for Theoretical Physics, Trieste, Italy, 2000.

<2000

Stewart, R.N., 1998. *Geostatistics in Environmental Decision Making*, A presentation given to the National Institute for Environmental Renewal in Pennsylvania covering the contribution of spatial statistics in providing a clear and defensible decision framework.

Douthat, D., **Stewart, R.N.**, Armstrong, A.Q., 1995. *Fixed Capital Investments for the Uranium Soils Integrated Demonstration Soils Treatment Technologies*, prepared for the Office of Technology Development at DOE.

Douthat, D., **Stewart, R.N.**, Armstrong, A.Q., 1995. *Cost Results from the 1994 Fernald Characterization Field Demonstration for Uranium-Contaminated Soils*, prepared for the Office of Technology Development at DOE.

Douthat, D., **Stewart, R.N.**, Armstrong, A.Q, 1995. *Operating and Life-Cycle Costs for Uranium-Contaminated Soil Treatment Technologies*, prepared for the Office of Technology Development.

Stewart, R.N., Armstrong, A.Q., James, B.R., Douthat, D.M., Purucker, S.T., 1995. *Cost Versus Risk Reduction in Remedial Action: A Decision Framework*. ORNL/TM 13143

Stewart, R.N., Purucker, S.T., Lyon, B.F., 1995. *Geostatistical Applications in Environmental Remediation*. ES/ER/TM 146.

Lyon, B.F., Purucker, S.T**.**, **Stewart, R.N.**, 1994. *The Value of Perfect Information: How Much is a Crystal Ball Worth?* Proceedings of the International Specialty Conference. Cost Effective Acquisition and Utilization of Data in the Management of Hazardous Waste Sites. Air & Waste Management Association. Pittsburgh, PA. CONF-940386-2:44-55.

Purucker, S.T., Lyon, B.F., Nanstad, L.D., **Stewart, R.N**., 1994. Decision Support for CERCLA Investigations: An Introduction to Decision Analysis Applications. ES/ER/TM-134

Professional Affiliations

The Society for Risk Analysis
Association of American Geographers
International Society for Bayesian Analysis
International Association for Mathematical Geosciences
American Society of Photogrammetry and Remote Sensing
World Health Organization Chemical Risk Assessment Network Member

Funding

Over the course of my career I have been awarded and/or directed over $10 million dollars in funding primarily from US Federal Agencies including EPA, DOE, NRC, and others including both UT and ORNL. Details may be made available for official reasons.