

# Thomas E. Burley, GISP

Austin, TX

teburley [at] gmail <dot> com

Science professional offering technical and management experience with business-minded acumen. Articulate, results-focused leader with talent for identifying short-term and long-term needs and opportunities, and track record of exceeding expectations. Effective communicator with demonstrated experience with teaching and publications.

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## Professional Certifications

**Geographic Information Systems Professional (GISP)** – GIS Certification Institute (GISCI), Cert. Number: 62271

## Professional Experience

**Geographer – Dept. of the Interior, U.S. Geological Survey (USGS) – Austin, TX – May 2009 - present**

Manage multiple externally-funded projects in excess of \$500K; author peer-reviewed publications for dissemination of research; establish and maintain cooperator relationships in support of a reimbursable business model; develop complex methods for environmental data integration and analysis; mentor junior staff.

Led the development of a data management solution for the USGS National Water-Quality Assessment (NAWQA) Contaminant Trends in Lake Sediments (CTLS) study.

- Worked closely with senior staff to identify program needs and desired capabilities. Developed data model, physical design, and workflows. Provided guidance to junior staff on data integration workflows.
- Successfully tested database design resulting in first solution implemented in 12 years of effort allowing for national-scale integrated assessment, associated USGS publication in progress as second author.

Implemented improvements with analytical methods for regional-scale hydrologic characterization.

- Researched theoretical and technical aspects of existing methods to understand sources of error and process bottlenecks; learned new programming language to develop solution for characterizing surface hydrology.
- Disseminated findings among colleagues for staff efficiency, showed a 75% improvement of analysis results accuracy and level of effort reduction in excess of 50% resulting in staff cost savings.

Identified areas to improve and championed initiatives for Science Center project data governance.

- Networked with internal and external USGS colleagues to identify existing programs and plans that could be leveraged; co-authored funded proposal to develop first Texas program data management plan.
- Worked with senior management and staff to identify key issues, needs, and to implement program and project-level data management guidelines and best practices in support of USGS science.

**Other Project Highlights** for science, data management, and leadership

- Led 6-person team conducting an environmental characterization of a military installation.
- Developed hydrologic database for the Rio Grande basin for New Mexico; database in use for litigation support.
- Organized and taught technical training workshops for internal and external participants.
- Nominated by colleagues to serve as co-chair of Science Center conference planning and training committee.

**Research Associate II – The University of Tennessee – Knoxville, TN – June 2004 - May 2009**

Managed multiple externally-funded science and technical projects in excess of \$400K; hired and supervised graduate research assistants and project subcontractors; authored publications for dissemination of research; conducted scientific research using quantitative methods and geospatial analysis techniques; organized and taught technical training workshops at multiple U.S. venues including University guest lectures.

Directed multi-tier regional information system for environmental and geospatial data access and management.

- Led systems working group team comprising University IT support staff and graduate research assistants by prioritizing staff activities in support of long-term project goals.

- Developed and implemented hardware and software migration plan for front-end and back-end applications.
- Designed enterprise database logical model and Oracle database / ESRI software storage parameters.
- Administered ESRI and open source GIS applications including software installation, upgrades, and maintenance.

Worked with multi-agency ecosystem management cooperative to develop natural resource data management toolkit.

- Identified ecosystem management data gaps and management issues; provided recommendations for future work.
- Developed technical approach as a USGS publication for short-term and long-term data management needs.
- Worked with East Tennessee State University to reestablish a dedicated archive for Roan Mountain data and documentation at the Archives of Appalachia.

Conducted research to elucidate the spatial and temporal patterns of water-quality and their connection with land-cover patterns in two Tennessee watersheds.

- Demonstrated the applied utility of existing water-quality data, geospatial data, and multivariate statistics for landscape assessment and Total Maximum Daily Load development.

### ***Logistics Analyst – ALCOA Materials Management – Knoxville, TN – June 2003 - January 2004***

- Responsible for real-time management of all outbound North American rail shipments.
- Analyzed transportation data to identify opportunities for reducing rail transit times and improved reliability, cut transportation lead time for key routes by 20%.
- Facilitated the reinstatement of a rail service provider account representative resulting in improved service.
- Coordinated with 3<sup>rd</sup> party services and all Railroad Service Centers for real-time shipment management.

## **Education**

### **The University of Tennessee – Knoxville, TN**

- Dec. 2008 (Summa Cum Laude): Master of Science (M.Sc.) Geography (Hydrology / GIScience)
- Dec. 2004 (Cum Laude): Bachelor of Science (B.S.) Business Administration; Bachelor of Arts (B.A.) Geography

## **Key Strengths and Technical Capabilities**

Project and Personnel Management	UNIX/Sun Solaris (bash shell)
Public Speaking and Presentations Skills	Visual Basic.NET/VBA/VBScript
Technical Writing and Proposal Development	ArcGIS 9.x 10.x, ArcGIS Server 9.x, ArcSDE 9.x
Data Modeling and Integration	ERDAS IMAGINE 9.x
Database Concepts and Design	JavaScript
Surface-water hydrology and water quality	Oracle 10g / 11g
Metadata Standards (FGDC, ISO)	Python
Quantitative Methods (Statistical / Multivariate)	SQL

## **Publications, Articles, and Technical Reports**

- **Burley, T.E.**, 2012, Sound data management as a foundation for natural resources management and science: U.S. Geological Survey Fact Sheet 2011–3038, 2 p. Available at <http://pubs.usgs.gov/fs/2011/3038/>
- **Burley, T.E.**, Asquith, W.H., and Brooks, D.L., 2011, Spatially pooled depth-dependent reservoir storage, elevation, and water-quality data for selected reservoirs in Texas, January 1965–January 2010: U.S. Geological Survey Data Series 594, 13 p. Available at <http://pubs.usgs.gov/ds/594/>
- **Burley, T.E.**, 2010, Usage and administration manual for a geodatabase compendium of water-resources data–Rio Grande Basin from Rio Arriba-Sandoval County line, New Mexico, to Presidio, Texas, 1889–2009: U.S. Geological Survey Open-File Report 2010-1331, 62 p. Available at <http://pubs.usgs.gov/of/2010/1331/>

- **Burley, T.E.**, and Peine, J.D., 2010, The Future of Geospatial Data Management: A Natural Resource Perspective, *GeoWorld*, v.23, no. 7, p. 20-23.
- **Burley, T.E.**, and Peine, J.D., 2009, NBII-SAIN Data Management Toolkit: U.S. Geological Survey Open-File Report 2009-1170, 96 p. Available at <http://pubs.usgs.gov/of/2009/1170/>
- Tran, L.T., and **Burley, T.E.**, 2009, An Analysis of Spatiotemporal Variations of Water Quality in the Little River and Harpeth River Watersheds and their Connection with Land-Cover Patterns, ISSE Working Paper 2009-01, 146 p. Available at [http://is.se.utk.edu/pdf/issepubs/2009\\_01\\_WaterQualityAnalysis.pdf](http://is.se.utk.edu/pdf/issepubs/2009_01_WaterQualityAnalysis.pdf)
- **Burley, T.E.**, 2008, An Analysis of Spatiotemporal Variations of Water Quality in the Little River Watershed and Their Connection with Land-Cover Patterns, M.Sc. Thesis, University of Tennessee, 119 p. Available at <http://etd.utk.edu/2008/December2008MastersTheses/BurleyThomasEdward.pdf>

### **Professional Proceedings and Invited Workshops**

- 2012. **Burley, T.E.** Invited Session Moderator: Applied GIS. Texas GIS Forum Conference. Austin, TX.
- 2011. **Burley, T.E.** Abstract. "Building a Water-Resources Geodatabase for the Rio Grande Basin". Texas GIS Forum Conference. Austin, TX.
- 2011. Invited Participant: DataONE "Best Practices for Data Management" workshop. Santa Fe, NM. Best Practices and Tools available online at: <https://www.dataone.org/>
- 2010. **Burley, T.E.** Abstract. "Standardized Metadata: Preserving Today's Data Resources for Tomorrow". Texas GIS Forum Conference. Austin, TX.
- 2010. **Burley, T.E.** Abstract. "Building a Water-Resources Geodatabase for the Rio Grande Basin". ESRI International User Conference. San Diego, CA. Available at: <http://proceedings.esri.com/dvd/uc/2010/uc-index/UC/abstracts/a1280.html>
- 2010. **Burley, T.E.** Abstract. "Design and Compilation of a Water Resources Geodatabase for the Rio Grande Basin – San Acacia, New Mexico to Fort Quitman, Texas". National Water Quality Monitoring Conference. Denver, Colorado. Available at: [http://acwi.gov/monitoring/conference/2010/D2/D2\\_Burley.pdf](http://acwi.gov/monitoring/conference/2010/D2/D2_Burley.pdf)
- 2008. Peine, J.D., **T.E. Burley**, B.L. League, S.C. Hetrick. Abstract. "Data Management: A Critical Link between Scientists and Managers". Society for Conservation Biology Conference. Chattanooga, TN.
- 2007. **Burley, T.E.** and J.D. Peine. Co-Chair of Moderated Session. "Collaborative Data Objectives for Resource Management and Science, Collection and Documentation Standardization, Archiving and Sharing." Southern Appalachian Man and the Biosphere Conference. Gatlinburg, TN
- 2007. Invited Panel Discussion Participant. "Portal Community Implementation and Examples." Organization of Fish and Wildlife Information Managers Conference. National Conservation Training Center. Harpers Ferry, WV
- 2007. Peine, J.D., **T.E. Burley**, B.L. League, S.C. Hetrick. Poster. "NBII Support for the Appalachian Trail Mega-Transsect Initiative." Southern Appalachian Man and the Biosphere Conference. Gatlinburg, TN.
- 2007. Invited Panel Discussion Participant. "Portal Community Implementation and Examples." Organization of Fish and Wildlife Information Managers Conference. National Conservation Training Center. Harpers Ferry, WV.

- 2006. Peine, J.D. and **T.E. Burley**. Abstract. “Roan Mountain and Data Management: Facilitating Science through Data and Information Management.” Southern Appalachian Man and the Biosphere Conference. Gatlinburg, TN.
- 2006. **Burley, T.E.** Abstract. “NBII-SAIN Roan Mountain Data Management Toolkit.” East TN Geographic Information Council Conference. Knoxville, TN.
- 2005. Peine, J.D. and **T.E. Burley**. Abstract. “Information Management for Roan Mountain Massif: Processes for Adaptive Mgmt. and Science.” Southern Appalachian Man and the Biosphere Conference. Cherokee, NC.
- 2005. Peine, J.D. and **T.E. Burley**. Abstract. “The Appalachian Trail Community and the NBII Portal: Progress and Lessons.” Southern Appalachian Man and the Biosphere Conference. Cherokee, NC.

### **Honors and Awards**

- 2010; 2012. Department of Interior (DOI) Special Thanks for Achieving Results (STAR) Award
- 2007-2008; 2008-2009. UTK Dept. of Geography Outstanding Professional Achievement Award

### **Professional Training and Development**

- 2012. Python for Scientists and Engineers
- 2011. Introduction to JavaScript Webinar
- 2011. The Data Warehousing Institute (TWDI): Data Asset Management
- 2011. Selected to attend USGS Leadership Intensive Workshop
- 2010. USGS Empowering Authors Technical Writing and Publications
- 2009. Introduction to Programming with Microsoft .NET
- 2008. Oracle Database 10g Administration Workshop I
- 2008. ArcGIS Server Enterprise Configuration and Tuning for Oracle
- 2007. Leica Geosystems Instructor-Led Training: Fundamentals of ERDAS IMAGINE I and II
- 2006. ESRI Instructor-Led Training: Advanced Analysis with ArcGIS
- 2006. ESRI Instructor-Led Training: Quality Assurance/Quality Control for GIS Data
- 2006. USGS-NBII FGDC Metadata “Train the Trainer” Workshop
- 2005. May - August, Toastmasters International – UT Chapter Club 7650
- 2005; 2006. USGS-NBII FGDC Metadata Training Workshop
- 2004 - 2006; 2010. ESRI User Conference – multiple training seminars