

Barnali (Mitra) Dixon Ph.D.

Associate Professor,
Coordinator of ESP Graduate Program & Associate Chair
Director of Geo-Spatial Analytics Lab
Environmental Science, Policy & Geography
College of Arts and Sciences
Dav 209, 140 Seventh Ave South
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Education

Ph.D. in Environmental Dynamics, an interdisciplinary program between Geography and Geology (GIS, remote sensing, fuzzy logic, and neural networks in ground water contamination modeling), University of Arkansas, Fayetteville (2001)
M.A. Geography (GIS, remote sensing and fuzzy logic in soil erosion modeling), University of Arkansas, Fayetteville (1995)
M.A. Geography (remote sensing and terrain evaluation in environmental geomorphology), Visva Bharati University, India (1991)
B.A. Geography (Honors), Visva Bharati University, India (1989)

Special Courses/Certificates

1. Vadose Zone Hydrology
 2. Watershed Management – Modeling and GIS Aspects
 3. Water Quality of Surface and Ground Water and Best Management Practices
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Professional Experience

Oct, 2011 – Present: Associate Chair, Dept. of Environmental Science, Policy and Geography, University of South Florida St. Petersburg.
Dec 2010 – present: Graduate Program Coordinator, Dept. of Environmental Science, Policy and Geography, University of South Florida St. Petersburg.
June 2008 – Present: Associate Professor, Dept. of Environmental Science, Policy and Geography, University of South Florida St. Petersburg.
August 2002 – Present: Director, Geo-spatial Analytics Lab, Dept. of Environmental Science, Policy and Geography, University of South Florida St. Petersburg.
August 2002- May 2008: Assistant Professor, Dept. of Environmental Science, Policy and Geography, University of South Florida St. Petersburg.
August 2001- July 2002: Visiting Assistant Professor, Dept. of Environmental Science, Policy and Geography, University of South Florida St. Petersburg.
May 1993 – July 2001: Research Assistant/Senior Research Associate, Soil Physics Laboratory, Dept. of Crop, Soil and Environmental Science, University of Arkansas at Fayetteville.

Responsibility May 1995 – July 2001

Research Responsibility

- ✓ Development of models using fuzzy logic and neural networks to predict ground water vulnerability to nitrate-N contamination in karst region of Arkansas,
- ✓ Identification of ground water vulnerability to pesticides and Nitrate-N using fuzzy logic in the Mississippi Delta region of Arkansas,
- ✓ Determination of spatial variability of contamination of ground water Nitrate-N in the Mississippi Delta region of Arkansas,
- ✓ Prediction of soil productivity and crop yield using neural networks and fuzzy logic,
- ✓ Managing the development of Order II digital soils database and compiling secondary attributes for soils,
- ✓ Development of the web site for the Savoy Experimental Watershed (SEW). This web site will provide environmental data and modeling tools (under construction)
- ✓ Development of the fuzzy logic based model used the parameters of USLE.
- ✓ Development and analysis of a digital database to characterize the Buffalo River Watershed.
- ✓ Lead GIS training workshop for the farm managers from African Countries organized by the University of Arkansas, International Exchange Program here in the USA (1994 – 1995 sponsored by the UN).

Responsibilities: August 2001- present

Teaching Responsibility:

Courses Include:

(i) Introduction to Physical Geography (ii) Introduction to GIS, (iii) Remote Sensing of the Environment, (iv) Advanced Remote Sensing, (v) Geographic Methods and Techniques, (vi) Digital Thematic Mapping, (vii) Computer Cartography, (viii) Environmental Modeling with GIS, (ix) GIS for Non-Majors, (x) Environmental Applications of GIS, (ix) Soils, Water and Landuse Interactions, (iix) Spatial Reasoning with GIS, (iiix) Seminar in Environmental Science, and (ivx) GIS for sustainability.

Research Responsibility:

Secured Grant Activities As PI:

- ✓ Prediction of Ground Water Vulnerability to Animal Wastes/Fertilizers in Karst Topography using Fuzzy Logic. USGS- AWRC: \$55,000 [Duration: 2000 – 2001].
- ✓ Development of a Methodology to Estimate Soil Moisture Content from NEXTRAD-WSR-88D: USF Internal Grant for New Researcher Award: \$9,250 [Duration: 2003]
- ✓ Determining impacts of spatial variability of water quality in the Tampa Bay. USF-Internal Award : \$6,500 [Duration: 2003].
- ✓ Ground Water Vulnerability Delineation using Neural Networks, Fuzzy Logic, and Neuro-Fuzzy techniques: Arkansas. USDA-CSREES: \$305,000 [Duration: 2001 – 2004].

- ✓ Application of Neural Networks and Neuro-Fuzzy Methods to Ground Water Vulnerability Mapping: A GIS-based Integrated Approach in Hillsborough County, FL. Dept. of Environmental protection, FL: \$ 58,921 [Duration 2003 – 2005]
- ✓ Ground Water Vulnerability Delineation Using Integrated GIS and Neuro-Fuzzy Methods for DeSoto, Pinellas and Marion County. USGS- FWRRRC \$152,237 [Duration 2003 – 2004]
- ✓ Development of an integrated methodology to assess vulnerability of ground water to **pathogen intrusion** using GIS, remote sensing, neural networks and neuro-fuzzy methods. USGS-Florida Water Resources Research (FWRRRC). \$186,119 [Duration 2005 – 2006]
- ✓ Web-based ground water pollution mapping contrast. Intergraph Corp. \$116, 165 [Duration 2005 – 2006]
- ✓ Interfacing SWAT and PHABSIM: A potential GIS-based Water Resource Management Tool. C-SPACE Grant from EPA. \$178,000 [Duration 2005 – 2006].
- ✓ Using RUSLE and SWAT to Estimate Fluxes and Fates of Eroded Soil Organic Carbon in the Hillsborough River Basin. C-SPACE Grant from EPA. \$105,152 [Duration 2006 - 2007]
- ✓ An Integrated GIS and Remote Sensing-Based Strategy for Assessing the Ecological Outcomes of Social Marketing. C-SPACE Grant from EPA. \$15,000 [Duration 2006 - 2007].
- ✓ Applicability of the SWAT model to quantify the effects of urbanization on the water budget for the Charlie Creek watershed: an integrated approach. USGS. \$52,029 [Duration 2007]
- ✓ Identifying Potential Watershed Nutrient Links to *Karenia* Red Tides: Integrated GIS Watershed Characterization of Southwest Florida coastal counties. FWRI. \$25,000 [Duration 2007]
- ✓ Google Earth Pro Centers of Excellence in ‘Training and Application of GIS’. \$192,000. [2010 – 2012].
- ✓ GIS workshop revenue \$54,754 [2009 – 2010].

Secured Grant Activities As Co-PI:

- ✓ Water Quality Sampling Strategy for Monitoring Coastal Rivers and Estuaries- Applying Technological innovations to Tampa Bay and tributaries. C-SPACE Grant from EPA. \$114,958 [Duration 2006 - 2007]. Co-PI
- ✓ Pre-schoolers’ vocabulary acquisition and understanding of scientific concepts from participation in repeated read aloud events involving informational picture books. Juvenile Welfare Board of Pinellas County and USF Collaborative for Children Families and Communities: \$15,000 [Duration: 2002 – 2003]
- ✓ A Proposal for Teaching FIO Ship time in Support of EVR 4930: Marine Environmental Instrumentation: A Practicum in the Collection and Analysis of Gulf Coast Oceanographic Data. Florida Institute of Oceanography as \$15,200. Co-PI. [2008-2009]

Submitted Proposal Passed Peer Review

- ✓ **Pending**¹: Integration of GIS, Neural networks and Neuro-Fuzzy Modeling Techniques to Assess the Vulnerability of a Drinking Water Distribution System. EPA-STAR Grants: \$599,891 [Duration 2004 – 2007].

Proposals Under Review:

- ✓ (2012) GEODESIC: Laboratory for Integrative STEM Learning via Environmental Observations, NSF TUES, \$199,910 [Duration 2012 – 2015]
- ✓ (2012) Geo-Temporal Policing (GTP): Analysis and Methodology toward Near Real-Time Mapping for Applications of Law Enforcement. NIJ. \$498,269 [9/1/2012 – 8/31/2015]

Proposals Submitted but NOT Funded:

- ✓ (2006): Estimation of soil water content derived from NEXRAD, MODIS, ASTER, ETM+ and AVHRR: a comparative study using integrated GIS, remote sensing and geostatistical tools. NASA – Terrestrial hydrology Program. \$468,036 [Duration 2006 – 2009]
- ✓ (2007). A Proposal for Teaching FIO Ship time in Support of EVR 4930: Marine Environmental Instrumentation: A Practicum in the Collection and Analysis of Gulf Coast Oceanographic Data. Florida Institute of Oceanography as \$15,200 [Duration 2007]. Co-PI with Casper.
- ✓ (2006): Towards real-time mapping of soil moisture using WSR-88D, NN and neuro-fuzzy and GIS: An integrated approach. USDA-NRI Water and Watershed Program. \$480,043 [Duration 2007 – 2009]. Re-submitted
- ✓ (2007). Integrated GIS and Remote Sensing-Based Land Use Planning Tool to Improve Coastal Water Quality: PLUDMMM. The Cooperative Institute for Coastal and Estuarine Environmental Technology (CICEET), Environmental Program and Technology Development. \$278,00 [Duration 2007 - 2008]
- ✓ (2007): Managing Invasiveness in a Changing Environment: A Novel Tool for Assessing How Future Climate and Land Use Changes Impact Gulf Coast Invasive Fish Dynamics. EPA STAR \$599,107 [Duration 2008 – 2009] Co-PI with Casper
- ✓ (2007): Assessing Effects of Land use on Estuaries in Puerto Rico: An Integrative Approach. Sea Grant, Puerto Rico \$159,776 [Duration 2008 – 2009] Co-PI with Pyrtle
- ✓ (2007): Analysis and Prediction of CDOM Variability in SW Florida Rivers in Response to Changing Climate and Anthropogenic Environmental Modification. ONR Marine Environmental Optics (ONR322OP) \$710,505 [Duration 2008 – 2010] Co-PI with Dr. Coble
- ✓ (2008): Identifying Potential Watershed Nutrient Links to Karenia Red Tides: Integrated GIS-based Watershed-level Modeling using SWAT for the Manatee River Watershed (FWRI- Red Tide Control and Mitigation Grants): \$74,794 [Duration 2009 – 2010]
- ✓ (2008) Linking Land Use Changes and Estuarine and Coastal Water. NOAA Sea Grant. \$297,704 [Duration 2009 – 2010]

¹ Passed peer review was not funded due to budget cut: EPA Office of Water

- ✓ (2008) Integrated watershed level-hydrologic modeling for prediction of soil-derived carbon and sediments in coastal waters. NSF - ETBC (Emerging Topics in BC). \$1,052,704. [Duration 2008 to 2009]
- ✓ (2008) Linking Landuse Change, Soil Erosion and Sediment Yield, NSF-Chemical oceanography, \$112,284 [Duration 2008 to 2009] **Co-PI** with Dr. Pyrtle
- ✓ (2009) Linking Landuse Change, Soil Erosion and Sediment Yield in Estuaries Using GIS, RS and Cs137: An Integrated Approach, NSF-Hydrological Science, \$394,641 [Duration 2009 – 2011]
- ✓ (2009) Understanding the spatio-temporal dynamic & scale issues of landuse change & watershed characteristics & their links to in-stream & estuarine water quality : An integrated approach, NSF-Ecosystem Science Cluster, \$857,874 [Duration 2009 – 2011]
- ✓ (2009) GEOWE2B: Laboratory for Integrative Environmental Observations, NSF –CCLI, \$198,443 [Duration 2010 – 2011]
- ✓ (2009) Linking Landuse Change, Soil Erosion, and Sediment Yield in Estuaries Using GIS, RS and Cs137: An Integrated Spatio-Temporal Analysis, NSF-Geography and Spatial Sciences, \$273,449 [Duration 2010 – 2011]
- ✓ (2009) Nutrient Pathways to Coastal Blooms on the West Florida Shelf, NASA ROSES2009 A.22, \$160,000 [Duration 2010 – 2012] **Co-PI** with Dr. Hu
- ✓ (2009) Impacts of changing climate and land use patterns on coastal water quality in southwest Florida: Linking watershed and coastal circulation models with satellite and water quality observations, NASA Roses2009A.22, \$263,000 [Duration 2010 – 2012]
- ✓ (2010) Towards Real-Time Mapping of Soil Moisture using WSR-88D, Neuro-Fuzzy and GIS: An Integrated Approach. NSF Geo Sciences \$212,557 [Duration 2010 – 2012]
- ✓ (2010) GEOWE2B: Laboratory for Integrative Environmental Observations, NSF TUES, \$199,910 [Duration 2010 – 2012]
- ✓ (2011) Integrated GIS and Remote Sensing-Based Land Use Planning Tool to Improve Coastal Water Quality: PLUDMMM. FY2011 NIWR National Competitive Grants Proposal, 104G. FWRRC. \$249,387 [Duration 2011 – 2013]

Graduate Advising

Thesis/Dissertation Committee Chair:

- i. Ms. W. Batita – Co-Major Professor (Department of Environmental Management, Mediterranean Agronomic Institute of Chania(**MAICh**), Greece) ‘*Examining resolution effects on the prediction of the soil erosion using RUSLE and MUSLE models for in Florida and Greece*’. Graduated 2009.
- ii. Ms. Shannon Connley – Major Professor (Department of Environmental Science, Policy and Geography). Title: *Soil moisture mapping using remote sensing and GIS*. Graduated Summer 2010.
- iii. Dr. N. Williams – Co-Major Professor (College of Marine Sciences, USF Tampa). Title: ‘*Assessing impact of landuse changes on estuaries in Puerto Rico: an integrative approach*’. Graduated Fall 2010

- iv. Mr. Rene Baumstrak – Major Professor (Department of Environmental Science, Policy and Geography). Title: *An evaluation of image segmentation, texture analysis and pixel classification techniques for mapping Seagrass from satellite imagery in Springs Coast Florida and evaluating the effectiveness of these techniques in replacing traditional photointerpretation methods. Graduated Summer 2011*
- v. Mr. Fredrik Bradley - Major Professor (Department of Environmental Science, Policy and Geography). Title: *Development of a comprehensive flow path model to determining factors contributing to the spatial variability of water quality including CDOM Concentrations in selected agricultural watersheds using GIS and RUSLE Mode. Graduated Fall 2011*
- vi. Ms. Kristine Berg. Major Professor. Honors Thesis (Dept of Criminology). Title: *Drugs, Guns, Police and Spatial Analysis: St. Petersburg, Florida. Graduate Spring 2012.*
- vii. Ms. Rene Duffy – Co-Major Professor (Department of Environmental Science, Policy and Geography) Title: *A multi-scale approach for characterizing habitat selection of tidal creek fish in Charlotte Harbor, Florida. Graduated Summer 2012*
- viii. Ms. Katerina Smith - Major Professor (Department of Environmental Science, Policy and Geography). Title: *Analyzing and Mapping of factors that influence success and failure of conservation practice: a multi-scale study*
- ix. Mr. Chris King – Major Professor (Department of Environmental Science, Policy and Geography). Title: *Ground Water vulnerability mapping to pathogen using integrated GIS approach.*
- x. Mr. Jason Baybutt - Major Professor (Department of Environmental Science, Policy and Geography). Title: *Land flux mapping using GIS for Coral Reef Protection Zone.*
- xi. Mr. Steven West- Major Professor (Department of Environmental Science, Policy and Geography). Title: *Nutrient Flux Modeling Integrated in a GIS*
- xii. Ms. R. Hernandez-Cruz – Co-Major Professor (College of Marine Sciences, USF). Title: *‘A remote sensing study of sediment transport in tropical ecosystems’.*
- xiii. Ms. Julia Reeves – Co-Major Professor (Department of Environmental Science, Policy and Geography). Title: *Habitat Mapping in Florida coastal waters*

Thesis/Dissertation Committee Member

- xiv. Ms. C. Keller - dissertation committee (Dept. of Biology, USF Tampa) Title: *‘Status of Gopher tortoise population in central Florida.’* A major component of her dissertation is remote sensing (image classification of Landsat TM Data). Graduated 2005.
- xv. Ms. N. Candade – thesis committee (Dept. of Biomedical Engineering, USF). Title: *Application of SVM and NN in Digital Image Processing: A comparative study.* Graduated 2004
- xvi. Ms. S. Saleem - thesis committee (College of Marine Sciences, USF Tampa). Title: *Geomorphology of Submarine Springs West of Ft. Myers, Florida. Graduated 2007*
- xvii. Ms. Renee Duffy – thesis committee (Department of Environmental Science, Policy and Geography). Title: *A multi-scale approach to characterize habitat selection of tidal creek fish in Charlotte Harbor, Florida*

- xviii. *Mr. James Banning – thesis committee* (Department of Environmental Science, Policy and Geography). *Title: Assessing the Effectiveness of the Roaring Branch BMP Retrofit Using Macroinvertebrate Bioassessment, Graduated Spring 2010*
- xix. *Karen L. Dreger - thesis committee* (Department of Environmental Science, Policy and Geography). *The Use of Unmanned Surface Vehicles for Seagrass Mapping, Graduated Summer 2010*
- xx. *Kyle Buck - thesis committee* Department of Environmental Science, Policy and Geography). *Assessment of Environmental and Social Factors in Cancer Risk among Teens. Spring 2011.*
- xxi. *Lauren Bates- thesis committee* (Department of Environmental Science, Policy and Geography). *Understanding Environmental Deficit Phenomenon: Influences Affecting Children's Perceptions of Connectedness to Nature. Fall, 2011*
- xxii. *Marilyn Montgomery – dissertation committee* (Dept of Geography, Environment and Planning)) *Assessing the Environmental Justice Implications of Flood Hazards in Northwest Florida.*

Publications

Journal Publications

1. **Mitra, B.**, H. D. Scott, J.C. Dixon and J.M. McKimney. 1998. Application of fuzzy logic to the prediction of soils erosion in a large watershed. *Geoderma*. 86:183 - 209.
2. **Dixon, B.**, H.D. Scott, J.C. Dixon, and K.F. Steele. 2002. Prediction of Aquifer Vulnerability to Pesticides Using Fuzzy Rule-Based Models at the Regional Scale. *Physical Geography* 23:130 - 152.
3. **Dixon, B.** 2004. Prediction of Ground Water Vulnerability using an integrated GIS-based neuro-fuzzy techniques. *Journal of Spatial Hydrology*. 4(2):1 – 38.
<http://www.spatialhydrology.com/journal/>
4. **Dixon, B.** 2004. Ground water vulnerability mapping: a GIS and fuzzy rule based integrated tool. *Journal of Applied Geography*. 25: 327 – 347.
5. **Dixon, B.** 2005. Applicability of Neuro-fuzzy techniques in predicting ground water vulnerability: A sensitivity analysis. *Journal of Hydrology*. 309: 17 - 38
6. **B. Dixon** and Earls¹, J. 2007. Examining Spatio-Temporal Relationships of landuse change, population growth and water quality in the SWFWMD. *Interdisciplinary Environmental Review (IER)*. Vol. IX (no.11) :71 - 93.
7. **Dixon, B.** Li D., Earls¹, J and Xinhua Liu. 2007. The Study on Groundwater Vulnerability Assessment Method. *Environmental Protection Science*. 33 (5):50 - 55.
8. **Dixon, B.** and Candade¹, N. 2008. Multispectral landuse classification using neural networks and support vector machines: one or the other or both? *International Journal of Remote Sensing*. 29(4) 1185 - 1206.
9. J. Earls¹ and **Dixon B.** 2008. A Comparison of SWAT Model-Predicted Potential Evapotranspiration: Using Real and Modeled Meteorological Data. *Vadose Zone Journal*:

¹ Student or Student Research Assistant

Special issue paper. Multiscale Mapping: Physical Concepts and Mathematical Techniques.
Soil Science Society of America. 7(2):570–580

10. Earls, J¹. and **Dixon, B.** 2008. Using the Fractal Dimension to Differentiate Between Natural & Artificial Wetlands. *Interdisciplinary Environmental Review (IER), Vol. X, (no. 1): 33-44.*
11. **Dixon, B.** 2009. A Case Study Using SVM, NN and Logistic Regression in a GIS to Predict Wells Contaminated with Nitrate-N. *Hydrogeology Journal.* 17:1507 – 1520.
12. **Dixon, B.** and Earls, J¹. 2009. Resample or not?! Effects of Resolution of DEMs In Watershed Modeling. *Hydrological Processes.* 23(12): 1714 – 1724.
13. Casper A.F²., **B. Dixon,** J. Earls, and J.A. Gore. 2011. Ecohydrology in ungauged river basins: Constraints in the integration watershed hydrology models with instream habitat models when setting minimum flows and levels. *Rivers Research and Applications.* 27(3):269-282 (DOI: 10.1002/rra.1355, 2010, Feb, 1st)
14. Williams, N¹., **B. Dixon** and A. J. Pyrtle. 2011. Estimating Soil Loss from Two Coastal Watersheds in Puerto Rico with RUSLE. *Interdisciplinary Environmental Review (IER)* 1(4) 108 - 127.
15. Casper, F²., **B. Dixon,** Steimle, E.T, Hall, M.L, and R.N. Conmy. 2012. High Resolution Mapping of the Spatial Variability of Water Quality in a River: Improvements from Integration of Geospatial and Sensor Technologies with Unmanned Surface Vehicles. *Applied Geography.* 32(2): 455 – 464.
16. Samui, P³. and **Dixon B.** 2011. Application of Support Vector Machine and Relevance Vector Machine to Determine Evaporative losses in reservoir. *Hydrological Processes.* (DOI: 10.1002/hyp.8278, Sep8, 2011)
17. **Dixon, B** and Earls, J¹. 2011. Effects of Urbanization on Streamflow Using SWAT with Real and Simulated Meteorological Data. [*In press: Journal of Applied Geography*]
18. Baumstark, R¹., **Dixon B.**, Carlson P., Palandro, D., and K. Kolasa. 2012. Alternative spatially enhanced integrative techniques for mapping seagrass in Florida’s marine ecosystem. [*In press: International Journal of Remote Sensing*]
19. **Dixon, B.** 2011. Sensitivity Analysis of Application of SVM and ANN Algorithms to Landuse Classification” A Spatial Uncertainty Perspective. [*In review: Journal of Applied Geography*]
20. **Buck, K.**, R. Johns, B. Dixon, and Guo, D. 2012. Assessment of Influence on Modifiable Cancer Risk among Teens. [*In review: Cancer*]
21. **Dixon, B.** and Lothe¹, A. 2012. JAVA Program for Calculation of Attenuation Factor of Pesticides. [*In review: Journal of Environmental Modeling and Software*]
22. Samui, P³. and **Dixon B.** 2012. Determination of Contaminated Wells: A Relevance Vector Machine Approach. [*In review: Environmental Modeling and Software*]
23. Nekesha B. Williams and **Dixon, B.** 2012. Sediment supply, transport and delivery: Towards a spatially-integrated conceptual framework for linking watershed source to aquatic sinks of sediment into coastal ecosystems. [*In review: International Journal of Geographic Information Systems*]
24. **Dixon, B.** 2012. Revisiting Applicability of GIS-based Neuro-Fuzzy Techniques in

2 Post doc for the project where I was the PI

3. Post doc and International Mentee

- Predicting ground-water vulnerability: An Assessment of Transferability and Sensitivity. [*In review*: Hydrology Journal]
25. Duffy R. and **Dixon B.** 2012. Developing a Habitat Suitability Model for Seagrass in Charlotte Harbor [*In review*: Applied Geography Journal]
 26. Bradley F, **Dixon B.**, A. Hoare and P. Coble. 2012. Linking Watershed, Soil and Landuse Characteristics to the Spatial Variability of In-stream Water Quality in Selected Florida Watersheds. [*In review*: Applied Geography Journal]
 27. Batita, W. **Dixon B.** and I. Manakos. 2012. Prediction and Estimation of Soil Erosion using RUSLE and MUSLE Models: A Comparative Study [*In review*: Applied Geography Journal]
 28. Johns, R, **Dixon, B.**, Z. Westmark, C. McHan and T. Stanley. 2012. Access to Essential Services in St. Petersburg Florida. [In preparation]
 29. Berg, K, **Dixon, B.**, S.Wang and R. Ferner. 2012. Space-Time Dynamics of Crime Analysis. [In preparation]
 30. **Dixon, B.**, Earls, J and C. K. King. 2012. Regional Scale Vulnerability Assessment to Pathogen: An Integrative Approach [In preparation]
 31. K. Couchiano, **Dixon, B.** and Earls J. 2012. GIS based analysis of Manatee Protection Efforts and Environmental Perspectives. [In preparation]

Text Book

1. **Dixon, B.** Uddameri, V. and C. Ray. 2013. GIS and Geocomputation for Water Resources Science and Engineering. Wiley and Sons. [In preparation]

Book Chapters/Invited Paper

1. Williams, N. B¹., **B. Dixon** and A. Johnson. 2010. Developing a conceptual framework for linking soil erosion to sediment deposition: Patterns in coastal ecosystems in the Caribbean. *IMPACT* 20 (4):15-16
2. Li, D3. **Dixon, B.**, Earls, J. F. Bradley and Xinghua, Liu. 2007. The Study on Vulnerability Assessment in Groundwater Recharge Area of Jinan. *Environmental Protection*, 378(8B):59 – 61. Environmental Protection of China Press.
3. Earls, J¹. and **Dixon, B.** 2005. A comparative study of the effects of input resolution on the SWAT model. Pages 213 – 222. In (C. A. Brebbia, and J. S. Antunes do Carmo eds.) *River Basin Management III*. WIT Press, Southampton, UK.
4. **Dixon, B.** 2004. Can an integrated ground water vulnerability mapping tool facilitate sensitivity analysis in a spatial domain?? In (J. F. Martin-Daque; C. A. Brebbia; A. e. Godfrey and J.R. Diaz de Teran eds.) *Geo Environment*. WIT Press, Southampton, UK.
5. **Dixon, B.** 2002. Application of Neuro-Fuzzy techniques to predict ground water vulnerability. Pages 485 – 495. In (C. A. Brebbia, ed.) *Risk Analysis III*. WIT Press, Southampton, UK.

4 International Exchange Scholar

1. Student

6. **Mitra, B.**, J. M. McKimney and H. D. Scott. 1997. Development and use of digital databases in agricultural research. *Trends in Agronomy*, 1:1-17.
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Monographs

1. J. M. McKimney, **B. Dixon**, H.D. Scott and C. M. Scarlat. 2002. Soils of Mississippi County, Arkansas. Special report series. Arkansas Agricultural Experiment Station. Pub # 970. University of Arkansas, Fayetteville.
2. **Dixon, B.**, T. H. Udouj, H. D. Scott, R. L. Johnson and J.M. McKimney. 2001. Soils of Randolph County, Arkansas. Special report series. Arkansas Agricultural Experiment Station. Pub. # 199. University of Arkansas, Fayetteville.
3. **Dixon, B.**, T. H. Udouj, H. D. Scott, and J.M. McKimney. 2001. Soils of Clay County, Arkansas. Special report series. Arkansas Agricultural Experiment Station. Pub # 202. University of Arkansas, Fayetteville.
4. Johnson, R.L., **B. Dixon**, H. D. Scott, J.M. McKimney and T.H. Udouj. 1999. Soils of Jackson County, Arkansas. Special report series. Arkansas Agricultural Experiment Station. Pub. # 192. University of Arkansas, Fayetteville.
5. Scott, H.D., **B. Dixon**, J.M. McKimney, T. H. Udouj and R. L. Johnson. 1998. Soil of Desha County, Arkansas. Special report series. Arkansas Agricultural Experiment Station. Pub. # 187. University of Arkansas, Fayetteville.

Edited Volume(s)/ Peer Reviewed Conference Proceedings Papers

1. King, C, and **B. Dixon**. 2011. Integrating Virulo model and virus parameters in mapping ground water contamination risk to pathogens. Vol. 34, pages 267 - 275. In (**Jay. Lee, Editor**). Papers of The Applied Geography Conferences. Redlands, CA.
2. Williams, N.B4, **B. Dixon** and A. Johnson. 2010. Linking watersheds' hydrologic response to sediment delivery: A conceptual framework. In (**Garcia, Pedro M. Editor**). International Specialty Conference and 8th Caribbean Islands Water Resources Congress on Tropical Hydrology and Sustainable Water Resources in a Changing Climate (Proceedings). American Water Resources Association Technical Publication, Middleburg, Virginia, TPS-10-2, CD-ROM. ISBN 1-882132-83-1
3. **Dixon, B**, Earls, J. A. F. Casper, J. A Gore. 2009. Integrating Spatially Explicit Watershed Models With In-Stream Habitat Models: A Discussion on Constraints With Regard to the Resolution of Data. AWRA Spring Specialty Conference: Managing Water Resources and Development in a Changing Climate. Paper in AWRA conference CD. May 4 – 6th Anchorage, Alaska.
<http://www.awra.org/tools/members/Proceedings/0905conference/oral.html>
4. **Dixon, B** and Earls J. 2008. An estimation of Regional Soils Erosion Vulnerability using RUSLE-V. Papers of IASTED International Conference on Applied Simulation and

- Modeling. Corfu, Greece, June 23rd – 25th.
5. Earls, J. and **B. Dixon**. 2008. The Influence of Resolution on the SWAT Model: Examining Neighboring Basins. Spring Specialty Conference GIS and Water Resources V. San Mateo, CA, Mar 17-19, 2008. *Paper on Conference CD AWRA*.
 6. Earls, J¹ and **B. Dixon**. 2007. Application of the Soil and Water Assessment Tool (SWAT) in modeling the effects of landuse change on watershed hydrology. Vol. 30, pages 541-522. In (**L. Harrington & J. Harrington, Jr, eds.**). Papers of The Applied Geography Conferences. Indianapolis, IN.
 7. Earls, J¹ and **B. Dixon**. 2007. Spatial Interpolation of Rainfall Data Using ArcGIS: A Comparative Study. 27th Annual ESRI International User Conference. http://www10.giscale.com/link/display_detail.php?link_id=22230. San Diego, June 18-22, 2007.
 8. A.F. Casper², M.L. Hall, **B. Dixon** and E.T. Steimle. 2007. Combining Data Collection from Unmanned Surface Vehicles with Geospatial Analysis: Tools for Improving Surface Water Sampling, Monitoring, and Assessment. Proceedings of OCEANS 2007 MTS/IEEE Vancouver. 2007 ISBN CD-ROM: 0-933957-35-1, Vancouver, British Columbia. September 29 – October 4
 9. Earls¹ J., N. Candade¹ and **B. Dixon**. 2006. A Comparative Study of Landsat 5 TM Landuse Classification Methods including Unsupervised Classification, Neural Network and Support Vector Machine for Use in a Simple Hydrologic Budget Model. ASPRS Annual Conference - Prospecting for Geospatial Information Integration – Reno, NV - May 1-5.
 10. Earls¹ J and **Dixon, B.** 2006 The Influence of Resolution on the SWAT Model: Examining Neighboring Basins. In (**Maidment, David R. and John S. Grounds III, eds.**). GIS and Water Resources IV. Proceedings of the American Water Resources Association's 2006 Spring Specialty Conference. American Water Resources Association, Middleburg, Virginia, TPS-06-1, CD-ROM. ISBN 1-882132-70-X
 11. Earls¹ , J and **Dixon, B.** 2006. Comparison of annual calibration of SWAT model at differing resolutions. In (**Mark Colosimo & Donald F. Potts, eds.**). Adaptive Management of Water Resources. AWRA Summer Specialty Conference MT, June 26-28. ISBN: 1-882132-71-8.
 12. Earls, J¹. and **Dixon, B.** 2005. Calculation of Evapotranspiration and Hydrologic budget from Landsat TM derived landuse maps for two unique drainage basins. Vol. 28, pages 413-422. In (**G. A. Tobin and B. E. Montz, eds.**). Papers of the Applied Geography Conferences. Washington D.C.
 13. **Dixon, B.** and Candade, N¹. 2004. Comparison of Neural Network and Neuro-fuzzy Techniques in Ground Water Vulnerability Mapping: A Case Study. Pages 1 – 10. In (**Kenneth J. Lanfear and David R. Maidment, eds.**) AW RA's 2004 Spring Specialty Conference "Geographic Information Systems (GIS) and Water Resources III." American Water Resources Association, Middleburg, Virginia, TPS-04-1, CD-ROM.
 14. Candade¹ , N and **Dixon, B.** 2004. Multispectral classification of Landsat images:

1 Student Research Assistant

1 Student Research Assistant

2 Post Doc

- Comparison of Support Vector Machine and Neural Network classifiers. Presentation. ASPRS Annual Meeting. Denver, May 2004. Mira Digital Publishing. Bethesda, Maryland. ISBN 1-57083-072-X.
15. **Dixon, B.** 2003. Can contamination potential of ground water to pesticides be identified from hydrogeological parameters? Vol. 26, pages 237 – 247. In (**B. E. Montz and G. A. Tobin, eds.**) Papers and Proceedings of The Applied Geography Conferences. University of Colorado at Colorado Springs, Colorado Springs, Co.
 16. **Dixon, B.** 2002. Can ground water sampling strategy be improved by incorporating fuzzy logic in a GIS? Vol. 25, Pages 254 – 264. In (**B. E. Montz and G. A. Tobin, eds.**) Papers and Proceedings of The Applied Geography Conferences. Binghamton University, Binghamton, NY.

Technical Reports and Other publications

1. **Dixon, B.** 2009. Existing methods of Nitrate Monitoring. Report completed for Harmonic Nitrate Monitoring. 64 p.
2. **Dixon, B.** 2008. Applicability of the SWAT model to quantify the effects of urbanization on the water budget for the Charlie Creek watershed. USGS Final report. 32 p.
3. **Dixon, B.** 2008. Identifying Potential Watershed Nutrient Links to *Karenia* Red Tides: Integrated GIS Watershed Characterization of a southwest Florida coastal counties. FWRI Final report. 25 p.
4. Earls J¹. and **Dixon, B.** 2007. Methodology for Sensitivity Analysis of the SWAT Model to the Resolution of Input, Calibration and Validation of Data. USFSRG Completion Report. 15 p.
5. **Dixon, B.** 2006. Ground Water Vulnerability Delineation Using Integrated GIS and Neuro-Fuzzy Methods. FWRRRC Completion Report. 30 p. Subcontract UF-EIES-0404012-USF (3/1/04 - 2/28/05).
6. **Dixon, B.**, H. D. Scott and A. M. Mauromoustakos. 2005. Ground Water Vulnerability Delineation Using Neural Networks, Fuzzy Logic, and Neuro-Fuzzy Techniques: Arkansas. USDA- CSREES Completion report 115 p.
7. **Dixon B.** 2004. Application of Neural Networks and Neuro-Fuzzy Methods to Ground Water Vulnerability Mapping: A GIS-based Integrated Approach in Hillsborough County. Funded by FL. Dept. of Environmental protection, FL. Completion report 75 p.
8. Leung, C. and **Dixon, B.** 2003. Pre-schoolers' vocabulary acquisition and understanding of scientific concepts from participation in repeated read aloud events involving informational picture books. Juvenile Welfare Board of Pinellas County and USF. 62 p. Collaborative for Children Families and Communities: Completion Report. 62 p.
9. **Dixon, B.** and H. D. Scott. 2001. Application of fuzzy logic to predict ground water vulnerability in Northwest Arkansas. AWRC-USGS Completion Report, MSC # 240
10. **Dixon, B.** and H. D. Scott. 1998. Use of fuzzy logic with modified DRASTIC parameters to predict ground water contamination. In (H. D. Scott, ed.) Vulnerability and

use of ground and surface waters in the southern Mississippi valley region. AWRC Completion Report No. 269, 16 – 51.

11. **Dixon, B.** 2001. Application of Neuro-fuzzy techniques to predict ground water vulnerability in Northwest Arkansas. Ph.D. Dissertation. University of Arkansas, Fayetteville, Arkansas.
12. **Mitra, B.** 1995. Application of fuzzy logic to identify soil erosion, M.A. Thesis, University of Arkansas. Fayetteville. Arkansas.
13. **Mitra, B.** 1991. Suri and Its Environs: A case study in environmental geomorphology, M.A.Thesis, Visva Bharati University. Santiniketan, West Bengal, India.

Invited Speaker

- i. Dixon, B. 2012. Statistical Regional modeling of nitrate in groundwater. Impacts of Excess Nitrogen in the Environment on Human Health: [RCN Human Health Conference](#). National Institutes of Health (NIH), North Bethesda. MD. Nov 14 – 15.
- ii. **Dixon, B.** 2012. Mapping the Tribes and the Terrain: Geospatial Analysis/Human Geography Consideration of Yemeni Tribes. [Tribal Dynamics III Yemen Workshop: USSOCOM's Interagency Task force](#). University of South Florida's Citizenship Initiative and the Center for the Study of International Languages and Cultures (CSILC).
- iii. **Dixon, B.** 2011. Decision Making, Sustainable Development and Water. [Downtown St. Pete Exchange Club Meeting](#). Yacht Club, St. Pete, August 25th.
- iv. **Dixon, B.** 2010. Clean water initiative in Africa! [Sunset Rotary of St. Petersburg](#), April 29th.
- v. **Dixon, B** and J. Earls. 2009. Integration of GIS for Infrastructure Management and Risk Analysis. ([Florida Planning and Zoning Association - FPZA](#)): Workshop on Urban Places/Rural Spaces: Planning For Tomorrow. Tampa, June 10 – 13.
- vi. **Dixon, B** and J. Earls. 2008. Tutorial session: Introduction to Using the Soil Water Assessment Tool Model Integrated with ArcGIS 9 with Demonstration. IASTED ([International Conference on Applied Simulation and Modeling](#)). Corfu, Greece, June 23rd – 25th
- vii. **Dixon, B.** 2007. Fractal Dimension Analysis of Wetlands: a joint venture between applied mathematics and theoretical physics. [Applied Mathematics Summer Workshop](#) hosted by Applied Mathematics Research Center, sponsored by Department of Defense. August 24th – 26th. Dover, Delaware.
- viii. **Dixon, B.** 2007. Examination of the spatial relationship of soils, landuse and slopes to florescence data in selected watersheds: An integrated analysis with GIS. CDOM workshop. [Charlotte Harbor National Estuary Program](#). May 28 – 30th, Ft. Meyers, FL
- ix. **Dixon, B.** 2006. Sensing Flow and Water Quality. Presented at [SWFWMD Workshop](#), Jan 26th 2006, Brooksville, FL
- x. Gore, J. **Dixon, B.**, and A. Casper. 2006. Assessing Florida's large rivers: GIS-based data-mining and the impacts of the Atlantic Multi-decadal Oscillation. [Great River Ecosystems Reference Condition Workshop](#), January 10-11, 2006, Cincinnati, OH.

- xi. **Dixon, B.** 2006. GIS application for Ground Water. Presented at the workshop hosted by [American Ground Water Trust](#). June, 2006, Arcadia, FL. Sponsored by USGS and American Ground Water Trust.
- xii. **Dixon, B.** 2005. Sensing the Flow and Water Quality: How remote sensing and GIS can facilitate spatio-temporal modeling of interactions among hydrology, pollutant loading and habitat. Seeing the Big Picture Symposium, Sarasota, FL. Sponsored by [Mote Marine Aquarium & Laboratory](#) and EDC Sarasota County. September 15-16.
- xiii. **Dixon, B.** and Earls, J. 2005. Mapping and Modeling: GIS and Remote Sensing Data Integration Issues. [Suwannee River Basin and Estuary Initiative](#) Second Annual Integrated Science Workshop Folkston, GA, June 28-29, 2005. Sponsored by [USGS](#).

Presentations at Professional Meetings and Abstracts

1. Williams, N. B⁵ and **B. Dixon**. 2011. Predicting Sediment Yield in a Tropical Watershed: A GIS based Conceptual Model. GSA Annual Meeting. Minneapolis, MN. Oct 9 – 12
2. King. C⁶ and **B. Dixon**, 2011. Integrating Virulo model and virus parameters in mapping ground water contamination risk to pathogens. 34th Applied Geography Conferences. CA. Oct 19 – 21.
3. Johns, R and **B. Dixon**, 2011. Policy Solutions to Food Deserts in St. Petersburg, Florida Poster. 47th Annual FSG Meeting, Gainesville, FL, Feb 18-20
4. King. C⁶ and **B. Dixon**, 2011. Mapping Ground Water Contamination Risk to Pathogen. A Comparative Study. 47th Annual FSG Meeting, Gainesville, FL, Feb 18-20.
5. Nowsu, F⁷ and **B. Dixon**. 2010. Using Remote Sensing to analyze changes in artisanal fisheries in Nigeria: A novel case study of Cross River Estuary. Fisheries Society of Nigeria (FISON) EKO2010, Oct 27, Lagos, Nigeria.
6. Williams, N.B, **B. Dixon** and A. Johnson. 2010. Linking watersheds' hydrologic response to sediment delivery: A conceptual framework. American Water Resources Association International Summer Specialty Conference, August 29th – September 1st, San Juan, Puerto Rico.
7. Williams N. B, **B. Dixon** and A. J. Pyrtle. 2010. Linking Soil Erosion to sediment Characteristics in a Coastal Tropical Watershed. Ocean Sciences Meeting, Portland, Oregon. 22-26, February
8. Williams, N., **B. Dixon** and A. J. Pyrtle. 2009. Estimating Soil Loss From Two Coastal Watersheds in Puerto Rico with RUSLE. 15th International Interdisciplinary Conference on the Environment. Interdisciplinary Environmental Association. Daytona Beach, Florida. July 8-11.
9. Bradley F⁶ and **Dixon B.** 2009. Examining the Relationship between RUSLE and In-Stream Water Quality Parameters: A Statistical Approach. 15th International Interdisciplinary Conference on the Environment. Interdisciplinary Environmental Association. Daytona Beach, Florida. July 8-11.

5 A former PhD. Student

6 Student

7 Fulbright Scholar hosted by me

10. **Dixon, B.** and Shannon Conley. 2009. Characterization of Soil Properties to Derive Pedo-Transfer Functions to Map Soil Moisture at a Regional Scale: A Comparative Study. AWRA Spring Specialty Conference: Managing Water Resources and Development in a Changing Climate. Paper in AWRA conference CD. May 4 – 6th Anchorage, Alaska.
11. **Dixon, B.**, Earls, J. A. F. Casper, J. A Gore. 2009. Integrating Spatially Explicit Watershed Models With In-Stream Habitat Models: A Discussion on Constraints With Regard to the Resolution of Data. AWRA Spring Specialty Conference: Managing Water Resources and Development in a Changing Climate. May 4 – 6th Anchorage, Alaska.
12. Bradley, F⁸. and **B. Dixon.** 2009. Using GIS to Investigate Soil Physical Properties in Four South Florida Watersheds. 45th Annual FSG Meeting, St. Augustine, FL, Jan 23-25.
13. Connelly, S². and **B. Dixon.** 2009. Mapping Soil Moisture at a Regional Scale Using Integrated Remote Sensing, GIS, and Radar Precipitation: A Comparative Study. 45th Annual FSG Meeting, St. Augustine, FL, Jan 23-25.
14. Bradley, F². and **B. Dixon.** 2008. Investigating the Impacts of Soil Erosion and Sediment Yield on Water Quality. USF 2008 Poster Symposium & Competition title Global Challenges for the 21st Century, Tampa, FL. Nov 6.
15. Bradley, F., **B. Dixon** and D. Li. 2008. Investigating Groundwater Contamination Potential in Jinan, China Using GIS. Annual ESRI International User Conference. San Diego, CA. Aug 4-8
16. A.F. Casper, **B. Dixon**, M. Hall , E. T. Steimle, R. N. Conmy. 2008. Hi-resolution mapping of water quality in an urban river: An example from the Hillsborough River, Tampa FL. 56 Annual North American Benthological Society (NABS), Salt Lake City, June 10 - 14
17. Earls, J¹ , **B. Dixon** and Karlin A. 2008. Using ERDAS Imagine to Derive Impervious Surfaces from High Resolution Aerial Photography and LiDAR. Annual Meeting American Association of Geographers - Boston, MA, April 15-19.
18. Earls, J¹. and **B. Dixon.** 2008. The Influence of Resolution on the SWAT Model: Examining Neighboring Basins. Spring Specialty Conference GIS and Water Resources V. San Mateo, CA, Mar 17-19.
19. Earls, J¹. and **B. Dixon.** 2008. The Effects of Landuse and Soil Characteristics On Nutrient Loading Using the Soil & Water Assessment Tool (SWAT): A Comparative Study. Ocean Sciences Meeting, Orlando, FL, Mar 2-7, 2008.
20. Bradley, F². and **B. Dixon.** 2008. Using RUSLE to Investigate the Watershed Source-Sink Relationship of CDOM. AAG Boston, MA, Apr 15-19.
21. Bradley, F²., **B. Dixon** and J. Earls. 2008. Characterization of the Spatial Variability of Terrestrial Watershed Properties In Relation to In-Stream CDOM Distributions. AWRA Spring Specialty Conference - GIS and Water Resources V, San Mateo, CA. Mar 17-19.
22. Earls, J¹ and **B. Dixon.** 2007. Assessment of the Effect of Varying Input Soil Data To Predict Stream flow Using the SWAT Model. ASA-CSSA-SSA International Annual Meeting. New Orleans, LA, Nov 4-8.
23. Earls, J¹ and **B. Dixon.** 2007. Application of the Soil and Water Assessment Tool (SWAT)

8 Grad student

1 Student Research Assistant

1 Student Research Assistant

- in modeling the effects of landuse change on watershed hydrology. 30th Applied Geography Conferences. Indianapolis, IN. Oct 17 – 20.
24. **Dixon, B.**, Stetson, R¹. and Smith S. 2007. Examining Resolution Effects on the Prediction of the Revised Universal Soil Loss Vulnerability Equation (RUSLE-V). Florida Society of Geographers Annual Meeting, Jacksonville, FL. February.
 25. **Dixon, B.**, Stetson, R¹ and Smith S. 2007. Creating a Soil Erosion Vulnerability Map at 3 Different Resolutions for the US Southeast” Florida Academy of Sciences Annual Meeting St.Petersburg, FL. March.
 26. Stetson, R¹ and **Dixon, B.** 2007. Resolution Effects on the Prediction of RUSLE in 3 different physogeographic Regions of the US” American Association of Geographers Annual Meeting, San Francisco, CA. April.
 27. Earls J¹ and **Dixon B.** 2007. Spatial Interpolation of Rainfall Data Using ArcGIS: A Comparative Study”. 27th Annual ESRI International User Conference. San Diego, June.
 28. Stetson, R¹, **Dixon B.**, Candade, N⁷. 2007. A Comparison of Kriging Methods for Well Contaminates in the Tampa Bay Region of Florida. 27th Annual ESRI International Users Conference, San Diego, CA. June.
 29. Earls, J¹. and **Dixon, B.** 2007. Evaluation of Drainage Basin Delineation: ArcHydro & the Soil & Water Assessment Tool (SWAT). Association of American Geographers Meeting, San Francisco, CA, April.
 30. Earls, J¹. and **Dixon, B.**2007. Sensitivity Analysis of the SWAT Model to the Resolution of Input, Calibration and Validation of Data. American Society of Photogrammetry and remote Sensing Annual Conference, Tampa, FL, May.
 31. Earls, J¹. and **Dixon, B.**, 2007 Effects of Input Resolution on Stream flow Predicted by the SWAT Model. Presented at Florida Academy of Sciences Annual Meeting, St. Petersburg, FL, Mar.
 32. Earls, J¹. and **Dixon, B.**, 2007. Evaluation of the Sensitivity of Fractal Dimension Analysis for Classification of Natural vs. Artificial Wetlands. Presented at Florida Society of Geographers Annual Meeting, Jacksonville, FL, February.
 33. Johns R, **Dixon, B.**, Dennison, D¹ and Stetson, R¹. 2007. Space-Time Convergence in the Creation of Opportunities for Violent Crime against Children in Pinellas and Hillsborough Counties, Florida: minimizing access through public policy. Florida Society of Geographers Annual Meeting, Jacksonville, FL, February.
 34. Earls, J¹., **Dixon, B.** & Prieto, M¹. 2006. Sensitivity of Fractal Dimension Analysis to Resolution of Input Data for Classification of Natural vs. Artificial Wetlands. Presented at the 29th Annual Applied Geography Conference, Tampa, FL, Oct.
 35. Earls¹ J and **Dixon, B.** and Holmes, M. 2006. An Evaluation of the SWAT Model Sensitivity and autocorrealtion to Regression Analyis of Flow Data for Charlie Creek, Central FL. 29th Applied Geography Conference, Tampa FL. Oct 11 – 14.
 36. Earls¹, J and **Dixon, B.** 2006. A comparison of Model-Predicted Evapotranspiration by the SWAT Model with real and Modeled Meteorology. 18th Wo0rld Congress of Soil Scince, Philadelphia, PA. July 10th – July 14th.

1 Student Research Assistant

2 grad student

37. Earls¹, J and **Dixon, B.** 2006. The Influence of Resolution on the SWAT Model: Examining Neighboring Basins. Spring Specialty Conference GIS and Water Resources IV. Houston, TX, May 8-10.
38. Earls¹, J and **Dixon, B.** 2006. Comparison of annual calibration of SWAT model at differing resolutions. Adaptive Management of Water Resources, AWRA Summer Specialty Conference MT, June 26-28.
39. **Dixon, B.**, Candade, N¹. and J. Earls¹. 2006. Development of an integrated methodology to assess vulnerability of ground water to pathogen intrusion using GIS, remote sensing, neural networks and neuro-fuzzy methods. American Association of Geographers, Annual Meeting, Chicago, IL, March.
40. Earls¹, J. and **Dixon, B.** 2006. Utilizing SWAT to Model Spatio-Temporal Influences on River Basins At Differing Resolutions Annual Meeting Association of American Geographers, Chicago, IL Mar 7-10.
41. Earls¹, J., N. Candade¹ and **B. Dixon.** 2006. A Comparative Study of Landsat 5 TM Landuse Classification Methods including Unsupervised Classification, Neural Network and Support Vector Machine for Use in a Simple Hydrologic Budget Model. ASPRS Annual Conference - Prospecting for Geospatial Information Integration – Reno, NV - May 1-5
42. **Dixon, B.**, R. Stetson¹ and J. Earls¹. 2005. Examining Spatio-temporal relationships of landuse change, population growth, and water quality in Tampa Bay area. Applied Geography Conference. Washington D.C. November.
43. **Dixon, B.** and Candade N¹. 2005. Integrated GIS and machine learning algorithms applied to ground water contamination mapping: a comparative study. Applied Geography Conference. Washington D.C. November.
44. Earls¹, J and **Dixon, B.** 2005. Using landsat 5 TM to determine landuse classification for representing seasonal ET from 2 unique Drainage Basins in a hydrologic budget. Applied Geography Conference. Washington D.C. November,
45. Earls¹, J. and **Dixon, B.** 2005. SWAT: How Much Does Resolution of Soils Matter When Comparing Real vs. Simulated Meteorological Data? Soil Science Society of America Annual Meeting. Salt Lake City. November. Poster.
46. **Dixon, B.** and Candade, N¹. 2005. Can Logistic Regression and/or Feature Selection Methods Be Used to Predict Contaminated Wells? a Case Study of Polk County, Florida. Soil Science Society of America Annual Meeting. Salt Lake City. November. Poster.
47. **Dixon, B.** and Candade N¹. 2005. Groundwater Contamination Mapping Using Integrated GIS and Neural Networks: A Sensitivity Analysis. Presentation. International Conference on Environmental Science and Technology. January, New Orleans.
48. Candade¹, N. and **B. Dixon.** 2005. Effects of Training Sizes and Dimensionality on NN and SVM Performance: A Comparative Study. American Association of Geographers, Annual Meeting, Denver, CO, April.
49. Stetson¹ R, **Dixon, B.** and Candade, N¹. 2005. Comparison of various krigging methods for

¹ Student Research Assistant

¹ Student Research Assistant

- contaminated wells in Tampa Bay region FL, Poster. Florida Society of Geographers, Annual meeting. Orlando, Feb. 2005.
50. **Dixon, B.**, Scott, H.D and A. M. Mauromoustakos. 2004. A GIS-based comparison of neural networks and neuro-fuzzy models to predict ground water vulnerability. Seattle November 2004.
 51. **Dixon, B.** 2004. Can integrated ground water vulnerability mapping tool facilitate sensitivity analysis in a spatial domain? Presentation. International Conference on Geo Environment. Spain, July 2004.
 52. **Dixon, B.** 2005. Does Resolution Matter? A comparative Assessment of Physically-based SWAT Model. Presentation. 4th International Conference in Risk Analysis and Hazard Mitigation. Greece, September, 2004.
 53. **Dixon, B.** 2004. A comparison of fuzzy logic and neuro-fuzzy based methodologies to predict ground water contamination potential. Presentation. American Association of Geographers, Annual Meeting, Philadelphia, PA, March 14th – 19th.
 54. Candade², N and **Dixon, B.** 2004. Application of GIS-based neural networks to predict ground water contamination potential. Poster. American Association of Geographers, Annual Meeting, Philadelphia, PA, March 14th – 19th
 55. **Dixon, B.** 2004. Ground Water Vulnerability Mapping Tool: NN and fuzzy logic: one, the other, or both?? Presentation. AWRA's 2004 Spring Specialty Conference Geographic Information Systems (GIS) and Water Resources III Water. Nashville, May 2004.
 56. Candade¹ N and **Dixon, B.** 2004. Comparison of Neural Network and Neuro-fuzzy Techniques in Ground Water Vulnerability Mapping: A Case Study. Poster. AWRA's 2004 Spring Specialty Conference Geographic Information Systems (GIS) and Water Resources III Water. Nashville, May 2004
 57. Candade¹, N and **Dixon, B.** 2004. Multispectral classification of Landsat images: Comparison of Support Vector Machine and Neural Network classifiers. Presentation. ASPRS Annual Meeting. Denver, May 2004.
 58. Candade¹, N. and **Dixon, B.** 2004. Supervised classification of spectrally enhanced Landsat TM data of Joshua Creek Watershed, Florida. Presentation. Annual meeting of Florida Society of Geographers, 2004, Pensacola Beach, FL. February 6th – 8th .
 59. Candade, N and **Dixon, B.** 2004. Integrated Vulnerability Assessment of Ground Water for Hillsborough County, Florida: A Case Study. AWRA Annual Conference, Orlando, November.
 60. **Dixon, B.** 2003. Assessing Transferability of a GIS-Based Neuro-fuzzy Model to Predict Ground Water Contamination Potential. Presentation. American Association of Geographers, Annual Meeting, New Orleans, LA, March.
 61. **Dixon, B.** 2003. A comparison of fuzzy logic and neuro-fuzzy based methodologies to predict groundwater vulnerability. Presentation. Soil Science Society of America Annual Meeting, Denver, CO, Nov 2 – 5th
 62. **Dixon, B.** 2003. Can contamination potential of ground water to pesticides be identified from hydrogeological parameters? Presentation. 26th Applied Geography Conference. Colorado Springs, CO, November 5th – 8th.

63. Bailey,¹ A. N. and **Dixon, B.** 2003. A Methodology to Estimate Soil Moisture Content from WSR-88D Data. Presentation. American Association of Geographers, Annual Meeting, New Orleans, LA, March.
64. Streubert¹, M. and **Dixon, B.** 2003. Effects of varying resolution in the assessment of SWAT modeling. Florida Society of Geographers, Boca Raton, FL, February 6th – 8th
65. **Dixon, B.** 2002. Can ground water sampling strategy be improved by incorporating fuzzy logic in a GIS? Presentation. 25th Annual Applied Geography Conference. Binghamton, NY, October
66. **Dixon, B** and H. D. Scott. 2002. Determining appropriate size of the training data sets for Neuro-fuzzy models to predict ground water vulnerability in Northwest Arkansas. Presentation. Southern Branch, American Society of Soil and Water, Annual Meeting, Orlando, FL, February
67. **Dixon, B.**, H. D. Scott and J. V. Brahana. 2002. Application of Neuro-Fuzzy techniques to predict ground water vulnerability. Presentation. Third International Conference on computer Simulation in Risk Analysis and Hazard Mitigation, Sintra, Portugal, June.
68. **Dixon, B.**, H. D. Scott, J. V. Brahana, A. Mauromoustakos, and J. C. Dixon. 2001. Delineation of ground water vulnerability to agricultural contaminants using Neuro-fuzzy techniques. Presentation. Annual Meeting of Soil Science Society of America, Charlotte, NC, October.
69. **Dixon, B.**, T. H. Udouj, and H. D. Scott. 2000. Examination of Spatial variability of parameters affecting contamination of ground water in Arkansas Delta. Presentation. Southern Regional Geological Society of America Meeting . Fayetteville, AR. April.
70. **Dixon, B.**, T. H. Udouj, H. D. Scott, A. Mauromoustakos, T. Kresse and F. Limp. 1999. Analyses of the Spatial Variability of Bentazon Contamination of Wells in the Arkansas Delta Presentation. Arkansas GIS Users Forum. Eureka Springs, AR. September.
71. **Dixon, B.**, H. D. Scott, T. Kresse, K. F. Steele, and W.F. Limp. 1999. Comparison of the Spatial Variability of Pesticide Contamination of Wells in the Arkansas Delta. Presentation. Annual Meeting Program of Soil Science Society of America. Salt Lake City, Utah October-November.
72. **Dixon, B.**, H. D. Scott, H. S. Lin, K. F. Steel and J. C. Dixon. 1998. Comparison of modified DRASTIC and fuzzy-logic predictive models in ground water contamination. Presentation. Annual Meeting Program of Soil Science Society of America, Baltimore. October.
73. Udouj, T.H., **Dixon, B.** and H. D. Scott. 1998. Application of GIS and RS techniques to the analysis of Spatial and Temporal Changes in the Buffalo River Watershed. Presentation. American Society of Soil and Water, Southern Regional Meeting, Little Rock, AR. February.
74. J. V. Skinner Jr., **B. Mitra** and H. D. Scott. 1997. Use of Fuzzy Logic to Predict Soil Productivity and Crop Yield. Presentation. Annual Meeting Program of Soil Science Society of America. Anaheim CA. October.
75. **Mitra, B.** and T. H. Udouj. 1997. Applications of GIS in natural resource management: primary and secondary attributes of soils, Lonoke and Prairie Counties. Presentation.

¹ Student Research Assistant

Arkansas GIS Users Forum. Hot Springs, AR. September.

Awards, Honors

- ✓ Recipient of USF SP Chancellor's Award for excellence in Service for 2011
- ✓ Recipient of USF SP Chancellor's Award for excellence in research and creative Scholarships for 2007
- ✓ Recognized as USF's "Rising Research Star" (2005).
- ✓ USF International Travel Awards (2002) to attend Third International Conference on computer Simulation in Risk Analysis and Hazard Mitigation, Sintra, Portugal, June
- ✓ Awarded numerous travel awards by the University of Arkansas, Fayetteville (1995 – 2001) to attend conferences.

Service Responsibility:

Professional Service:

1. Conference Organizations

- i) Vice President of Florida Society of Geographers (2011 – 2013)
- ii) Nominee as Counselor for IEA (2011)
- iii) Panelist for the Power Panel: Education for the Geospatial Infrastructure Industry. GITA (Geospatial Infrastructure Solutions Conference), Tampa, April 19-22 (2009)
- iv) International Environmental Association (IEA) advisory group member for North America for the start-up of KAO- Honors society (2009)
- v) Co-chair for the break-out session for the Terrestrial and Coastal Carbon Fluxes in the Gulf of Mexico Workshop (May 6-8, 2008), St. Petersburg, FL
- vi) Active member of American Society of Photogrammetry and Remote Sensing (ASPRS) National Conference Planning committee. Coordinating Student Volunteer for the ASPRS National Meeting in Tampa, May 2007
- vii) Organized Panel for GIS and Environment for the Interdisciplinary Environmental Research, 2006
- viii) Organized and hosted GIS day 2001 – 2009
- ix) Editorial Board Member for the Open Civil Engineering Journal 2007 - 2009
- x) Executive Member for *Florida Society of Geographers* (3-year term). 2005-2007.
- xi) Session Panelist: Making your own way: Grant proposal writing for graduate school and beyond, *American Association of Geographers*, April 2005, Denver.
- xii) Organized student chapter for American Society of Photogrammetry and Remote Sensing (ASPRS) 2004- present
- xiii) Served as a Session Chair for 'the Sampling and Design Session', Applied Geography Conference. October 22 – 26th, 2002, Binghamton, NY
- xiv) Session Chair: 'The Sampling and Design Session', Applied Geography Conference.

- October, 2002, Binghamton, NY.
- xv) Helped organizing regional specialty conference: Measuring the earth - Digital Elevation Technologies and Applications – organized by ASPRS and MAPPS and Co-sponsored by NASA and USGS. October 29 – November 2, 2001, St. Petersburg, FL.

2. Reviewed manuscript for

- i. Journal of Spatial Hydrology
- ii. Journal of Hydrology
- iii. Journal of Environmental Management
- iv. International Journal of Remote Sensing
- v. Science of the total environment
- vi. Computers and Geosciences
- vii. American Society of Photogrammetry and Remote Sensing (ASPRS)
- viii. Journal of American Water Resources Association (AWRA)
- ix. Hydrological Science Journal
- x. Hydrogeology Journal
- xi. Professional Geographer
- xii. International Journal of GIS
- xiii. Perspective on Agriculture, Nutrition and Natural Resources
- xiv. Environmental Monitoring and Assessment

3. National and International Professional Advising/Project Reviewer

- i. Advisor to the Government of New Zealand (2009)
- ii. German-Israeli Program in Water Technology, Technion – Israel Institute of Technology (2010)
- iii. Panelist for Proposals for NSF SBE REU Annual Merit Review Report (NSB 10-27) (Oct, 2010)

4. Hosted International Scholars

- ✓ A Fullbright exchange scholar from University of Calabar, Calabar, Nigeria 2009 – 2010 (Francis Nowsu)
- ✓ A Visiting a Senior Research Scholar from Kuwait- Kuwait Institute of Scientific Research (KISR), Summer 2011 (Waleed Roy)
- ✓ A visiting scholar from China (working at EPA equivalent of China) currently spending 1 year in my lab learning about the models and she is being sponsored by the Chinese Government (DaQui Le) – 2007 - 2009
- ✓ A visiting scholar from Argentina (Director of their Environmental Protection Agency) Summer of 2008 (Paula Blanco)

Departmental, College, University and System-level Service:

1. Departmental Committees:

- i) Member of Executive Committee for ESP&G (2004 - 2005)
- ii) Member of the Steering Committee for ESPG POD (2002 – 2003)
- iii) Member of Budget Committee for ESPG POD (2003)
- iv) Member of the Colloquium Committee for ESP&G (2003 – 2005)
- v) On-line Curriculum and Distance Learning Committee ESPG (2006 – 2007)
- vi) Ad-Hoc election committee member for Chair and Co-Chair (2008)
- vii) Member of the ESPG Graduate committee (2008 – 2010)
- viii) Chair of the ESPG Graduate committee (2010 – present)
- ix) Chair of the ESPG Budget Committee (2008 – present)
- x) Member of the Annual Review Committee (2007 – 2009, 2011)
- xi) ESPG Graduate Program Coordinator (2010 – present)
- xii) ESPG Associate Chair (2011 – present)
- xiii) Chair of the Curriculum Committee (2011 – present)

2. Search Committees (Dept and College Level):

- i) Mathematics (Chair Dr. G. Yanev, 2003)
- ii) Criminology I (Chair Dr. W. Ruffle, 2003)
- iii) Criminology II (Chair Dr. W. Ruffle, 2003)
- iv) Environmental Chemist (Chair Dr. E. S. Van Vleet, 2003)
- v) Wetlands Ecologist (Chair Dr. E. S. Van Vleet, 2003)
- vi) Wetlands Hydrologist (Chair Dr. E. S. Van Vleet, 2003)
- vii) Senior Environmental Scientist (Chair Dr. E. S. Van Vleet, 2003 - 2004)
- viii) Office Assistant (ESP&G, 2003)
- ix) Lab Manager (ESP&G, 2003 - 2004)
- x) Mathematics (Chair Dr. M. Gaulter, 2005)
- xi) Mathematics (Chair Dr. D. Cassil, 2005)
- xii) Statistics (Chair Dr. D. Cassil, 2006)
- xiii) Geography (Chair Dr. R. Johns, 2006)
- xiv) Physics (Chair, Dr. B. Dixon, 2008)

College-Level Service:

- i) Member of the CAS Academic Programs Committee (APC) 2010 – 2011.
- ii) Member of the CAS Faculty Council (2010 – 2012)
- iii) Member of the CAS Academic Programs committee (2010 – 2011)
- iv) Member of the CAS Tenure Promotion (T & P) Committee (College Level) 2010 – 2012

USFSP University-Level Service:

- i) Member of Faculty Roles and Reward Committee, University of South Florida St.

- Petersburg. 2002 - 2003
- ii) Member of Research and Library Council, University of South Florida St. Petersburg. 2002 – 2003
- iii) Member of search Committee for Assistant Vice President for Research and Community Partnership, University of South Florida St. Petersburg. (Chair Dr. M. Wilson), 2003.
- iv) Member of the Executive Council for Center for Science & Policy Applications for the Coastal Environment (C-SPACE). 2005 - 2011.
- v) Member for the University of South Florida St. Petersburg Research Council. 2007 – 2008
- vi) Member of the USF SP Tenure Promotion Committee (University Level) 2008 – 2010.
- vii) Co- Chair of the USF SP Strategic Planning Sub-Committee for Environmental stewardship. 2008.
- viii) Member of the ‘Space Request Review Team’ (University level) 2009.
- ix) Member of the Enrolment Committee (University level senate committee for USFSP) 2010 – 2011
- x) Member of the Student Green Fee Committee (SGFC) USFSP 2011 - 2013

USF System Wide Service

- i) Served as a reviewer to evaluate proposal for USF (Tampa) Internal Awards (USF Faculty Senate Research Council), 2003.
- ii) Served as a reviewer to evaluate proposal for USF (Tampa) Internal Awards (USF Faculty Senate Research Council), 2005.
- iii) Served as a reviewer to evaluate proposal for USF (Tampa) Internal Awards (USF Faculty Senate Research Council), 2006
- iv) Member of the ‘Proposal Development Enhancement Task Force’ Office of Research and Innovation (USF system-wide) 2010.
- v) USFSP designee for the Academics and Campus Environments (ACEAC) Council, Board of Trustee Workgroup (USF system-wide) 2010 – 2012

Community Service

1. Worked closely with USF Family Village through USF’s Collaborative for Children Families and Communities program to conduct research titled: to Pre-schoolers’ vocabulary acquisition and understanding of scientific concepts from participation in repeated read aloud events involving informational picture books. This project was funded by Juvenile Welfare Board of Pinellas County. 2002.
2. Participated Community Water Leadership Program (a collaborative effort between USF’s Institute of Government and South West Florida Water Management District (SWFWMD). 2003.
3. Working closely with Dr. Meg Lowmen (New College) to help the Center for Ecological Assessment (CEA) in Sarasota County organize a workshop for resource managers on

remote sensing application to environmental science. 2005.

4. Hosted GIS Day from 2001 – present.
5. Hosted GIS workshop to train professionals in the community
6. Trained teachers with GIS for USGS and National Ground Water trust
7. Member of the Pinellas County Complete Count Committee for 2010 Census. 2009 – 2010
8. Invited to give a talk to AP Human Geography Teachers' Workshop (June 23, 2010)
9. Polk County Election Commission Data Rearranging and Redistricting using GIS (Fall 2011)
10. Hosted a forum of Crime Mapping that attracted many local, city and county law enforcement agencies from the nation (2006).
11. Hosted a Forum on Emergency Response: Critical Need Assessment for Data Exchange Capabilities, Interoperability, Seamless Spatial Coverage & Web-based GIS (2007).
12. Hosted a forum on Exploring Collaborative Opportunities and Resource Sharing in GIS Training (2008).

Professional Workshops Offered

- a. GIS for Beginner I & II
- b. GIS for Intermediate I & II
- c. GIS for Advanced I & II
- d. GIS for Fisheries I & II
- e. Environmental Application of GIS
- f. GIS for IT Professional
- g. Transportation Application of GIS
- h. Spatial Interpolation with GIS
- i. Integration of GIS for Infrastructure Management and Risk Analysis
- j. GIS for Emergency Management and Response Personnel
- k. GIS for Teachers
- l. Remote Sensing for Beginners
- m. Environmental Application of Remote Sensing
- n. Advanced Remote Sensing
- o. GIS for Human Terrain Analysis

Workshop participants include county, state and federal agencies involved in environmental protection, emergency response, planning and development, as well as transportation and defense industry. The workshop participant also include professional from various corporations.