

**Jeffrey D. Colby**  
Department of Geography and Planning  
Appalachian State University  
Boone, NC 28608

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### Education

*University of Colorado, Boulder, CO*

- Doctor of Philosophy, Geography, December 1995  
Advisors: Dr. T. Nelson Caine, Dr. George Leavesley (USGS)
- Master of Arts, Geography, August 1989  
Advisor: Dr. Michael Hodgson

*University of Florida, Gainesville, FL*

- Bachelor of Science, Geography, December 1982

### Experience

*Appalachian State University, Boone, NC*

- Professor, Department of Geography and Planning, Fall 2013 - Present
- Graduate Program Director, Fall 2013 - Fall 2015
- Associate Professor, Department of Geography and Planning, Fall 2007 - Spring 2012
- Assistant Professor, Department of Geography and Planning, Fall 2003 – Spring 2007

Courses Taught:

- GHY 1010 Introduction to Physical Geography
- GHY 1510 Freshman Honors Physical Geography
- GHY 4810/5810 Digital Image Processing
- GHY 4812/5812 Advanced GIS
- GHY 48141/5814 Principles of GeoComputation
- GHY 5150 Seminar in GIScience
- GHY 5800 Advanced Quantitative and Qualitative Methods

- Full membership on the Graduate Faculty

*East Carolina University, Greenville, NC*

- Assistant Professor, Department of Geography, Fall 1996 – Spring 2003

Courses Taught:

- GEOG 1250 The Water Planet
- GEOG 2400 Spatial Data Management
- GEOG 3430 Geographic Information Systems I
- GEOG 4500 Principles of Computer Cartography
- GEOG 4430/6430 Geographic Information Systems II, Advanced GIS
- GEOG 6400 Seminar in Geographic Information and Analysis

- Adjunct Faculty, Department of Biology, Spring 2000 – Spring 2003

*University of Colorado, Boulder, CO*

- Instructor, Department of Geography & College of Architecture and Planning, Fall 1992 - Spring 1996
  - ENVD 2052 - Introduction to Geographic Information Systems
  - GEOG 4103 - Introduction to Geographic Information Systems
  - ENVD 3122/4361 - Planning Studio II Natural Systems, Computers and Simulations  
(Co-instructor, 6 credit hour studio)

*AppAqua (Appalachian Aquatic Science Research) RIEEE interdisciplinary research cluster. Director with Kristan Cockerill (Department of Culture, Gender and Global Studies), Chuanhui Gu (Department of Geology), Derek Martin (Department of Geography and Planning), and Shea Tuberty (Department of Biology), <http://appaqua.appstate.edu/>, Spring 2010 – Present.*

*Off-Campus Scholarly Assignment, Fall 2008*

*Teaching Fellows Trip Abroad to Europe (Italy, Switzerland, France, England): Faculty Supervisor 2007*  
Supervised 13 pre-service teachers from 8 NC Universities.

*International Expedition to the Hindu Kush, Northern Pakistan 1999*

Participated in the International Expedition to the Hindu Kush, July - August, studying glacial geomorphology and remote sensing field data collection. Overall expedition focused on the human impact on mountain environments in the Chitral area of the Hindu Kush Mountains. Funding provided by the Royal Geographical Society of London, and East Carolina University.

*Universidad de Costa Rica, Escuela de Ingeniería Civil, San José, Costa Rica*

Organization of American States PRA Fellowship, October - December 1993. Collaborated on research with the Proyecto Nacional de Desarrollo Urbano Sostenible (PRODUS), including data acquisition and processing for watershed characterization and technology transfer.

*National Oceanic and Atmospheric Administration, Boulder, CO*

- National Geophysical Data Center, Physical Science Aide, January 1987 – December 1994. Worked on the development of the Global Change Data Base Project (GCDP) which included acquisition, georeferencing, and quality control of global databases; global data distribution; beta test facility coordination; and management of the GCDP. Also, participated in a project to cartographically model calcium dust flux in the U.S. to assess sensitivity to acid rain deposition.
- Cooperative Institute for Research in Environmental Science (CIRES) - Worked on the development of the EPA/NOAA Global Ecosystems Database, an extension of the Global Change Data Base Project, including quality control and registration correction of the Gallo AVHRR NDVI data set.
- Marine Geology and Geophysics Division, Research Assistant, January - May 1989. Performed paleoclimate research. Memorandum submitted, "Initial Assessment of the PIRLA Data Base for Possible Climatic Signals."

*Geo-Graphics, Inc., (scientific graphics) Gainesville, FL*

- President, May 1983 - 1984. Overall organization of company, client presentations, co-ordination and execution of projects including cartographic/scientific graphic projects for environmental consulting firms, and university faculty.

### **Awards**

*Appalachian State University*

- Faculty Advisor, Christopher L. Coffey, nominated by Appalachian State University for the Southern Conference of Graduate Schools Outstanding Thesis Award, 2011.
- Faculty Advisor, Christopher L. Coffey, Cratis D. Williams Outstanding Thesis Award 2011.
- Faculty Advisor: James G. Dobson, Cratis D. Williams Outstanding Thesis Award 2007.
- Nominated for the College of Arts and Sciences Outstanding Advisor Award, 2007.

*East Carolina University*

- College of Arts and Sciences, College Research Award 1999-2000.

### **Publications**

*Peer Reviewed - Journal Articles, Book Chapters, Conference Proceedings*

Swinson, B., Cockerill, K., Colby, J., Tuberty, S., Gu, C., 2015. To Restore or Not to Restore: Assessing Pre-project Conditions of a Habitat Restoration Project on the New River, North Carolina. *Environmental Processes*, Published online 14 September 2015.

Gu, C., Anderson, W.P., Colby, J.D., and Coffey, C.L., 2015. Air-stream Temperature Correlation in Forested and Urban Headwater Streams in the Southern Appalachians. *Hydrological Processes*, 29: 1110-1118. Published online 18 May 2014.

Turner, A.B., Colby, J.D., Csontos, R.M., and Batten, M., 2013. "Flood Modeling Using a Synthesis of Multi-Platform LiDAR Data," *Water*, 5: 1533-1560.

Turner, A. B., Colby, J.D., Csontos, R.M., and Batten, M., 2012. "Developing a More Robust Urban Flood Model by Combining Airborne, Mobile, and Terrestrial LiDAR Data." *International LiDAR Mapping Forum Proceedings*, Denver, CO., January 23-25.

- Bishop, M., and Colby, J.D., 2011. "Topographic Normalization of Multispectral Satellite Imagery." In *Encyclopedia of Snow, Ice, and Glaciers*, eds. V.P. Singh, P. Singh, U.K. Haritashya. New York: Springer. (Category A: major discipline subjects, about 5000-9000 words)
- Colby, J.D., and Dobson, J.G., 2010. Flood Modeling in the Coastal Plains and Mountains: Analysis of Terrain Resolution." *Natural Hazards Review*, 11(1): 19-28.
- Colby, J.D., and Dobson, J.G., 2006. "Flood Modeling in the Coastal Plains and Mountains." In, *Proceedings of the American Water Resource Association Conference, GIS and Water Resources IV*, edited by D. Maidment, Houston, TX, May 8-10.
- Bishop, M.P., Colby, J.D., Luvall, J.C., Quattrochi, D.A., and, Rickman, D.L., 2004 "Remote Sensing Science and Technology for Studying Mountain Environments." In, *GIScience and Mountain Geomorphology*, edited by M. P. Bishop and J. F. Shroder Jr., Praxis Scientific Publishing and Springer Verlag, 41 pp.
- Bishop, M.P., Shroder Jr., J.F., and Colby, J.D., 2003 "Remote Sensing and Geomorphometry for Studying Relief Production in High Mountains." *Geomorphology*, 55: 345-361.
- Colby, J.D., 2003. "Physical Characterization of the Navarro Watershed in Costa Rica for Hydrologic Simulation." In *GIS for Water Resources and Watershed Management*, edited by J.G. Lyon. London: Taylor and Francis, pp. 179-187.
- Woolard, J. W., and Colby, J.D., 2002. "Spatial Characterization, Resolution, and Volumetric Change of Coastal Dunes using Airborne LIDAR: Cape Hatteras, North Carolina." *Geomorphology*, 48:269-287.
- Andrews, B., Gares, P.A., and Colby, J.D., 2002. "Techniques for GIS Modeling of Coastal Dunes." *Geomorphology*, 48:289-308.
- Wang, Y., Colby, J.D., and Mulcahy, K., 2002. "An Efficient Method for Mapping Floodplain Extent in a Coastal Floodplain Integrating Landsat 7 TM and DEM Data." *International Journal of Remote Sensing*, 23(18):3681-3696.
- Bishop, M.P., and Colby, J.D., 2002. "Anisotropic Reflectance Correction of SPOT-3 HRV Imagery." *International Journal of Remote Sensing*, 23(10):2125-2131.
- Colby, J.D., 2001. "Simulation of a Costa Rican Watershed: Resolution Effects and Fractals." *Journal of Water Resources Planning and Management*, 127(4):261-270.
- Colby, J.D., Mulcahy, K.A., and Wang, Y., 2000. "Modeling Flooding Extent Due to Hurricane Floyd in the Coastal Plains of North Carolina." *Global Environmental Change Part B: Environmental Hazards*, 2(4):157-168.
- Colby, J.D., and Keating, P.L., 1998. "Land Cover Classification Using Landsat TM Imagery in the Tropical Highlands: The Influence of Anisotropic Reflectance." *International Journal of Remote Sensing*, 19(8):1479-1500.
- Bishop, M.P., Shroder Jr., J.F., Sloan, V.F., Copland, L., and Colby, J.D., 1998. "Remote Sensing and GIS Science and Technology for Studying Lithospheric Processes in a Mountain Environment." *GEOCARTO International*, 13(4):75-87.
- Colby, J.D., 1996. "Physical Characterization of the Navarro Watershed in Costa Rica for Hydrologic Simulation." In *Proceedings of the AWRA Symposium on GIS and Water Resources*, edited by C.H. Hallam, J.M. Salisbury, K.J. Lanfear, and W.A. Battaglin. Ft. Lauderdale, FL, September 22-26.

Colby, J.D., 1992. "Response to: Comment on Topographic Normalization in Rugged Terrain." *Photogrammetric Engineering and Remote Sensing*, Forum, 58(8):1227-1228.

Colby, J.D., 1991. "Topographic Normalization in Rugged Terrain." *Photogrammetric Engineering and Remote Sensing*, 57(5):531-537.

#### *Book Chapters*

Wang, Y., Colby, J.D., and Mulcahy, K.A., 2001. "A New Method for Mapping the Extent of Flooding in the Tar River Basin." In *Facing Our Future: Hurricane Floyd and Recovery in the Coastal Plain*, edited by J.R. Maiolo, J.C. Whitehead, M. McGee, L. King, J. Johnson, and H. Stone. Wilmington, NC: Coastal Carolina Press, pp. 173-180.

Colby, J.D., Kineman, J.J., Hastings, D.H., and Ohrenscha1, M.A., 1990. "Global Change Diskette Project: Global Data Accessible for Decision-Making." In *Earth Observations and Global Change Decision-Making: A National Partnership*, edited by I.W. Ginsberg, and J.A. Angelo. Malabar, FL: Kreiger Publishing Company, pp. 215-217.

#### *Conference Proceedings*

Hamidullah, S., Bishop, M. P. and Colby, J. D., 2000. "Geology and geomorphology of the Tirich Gol Valley, Chitral, and their potential for SRS application." Abs. Vol. 3<sup>rd</sup> S. Asia Geol. Congress, Lahore, Pakistan, p. 126-128.

Colby, J.D., Hodgson, M.E., and Barbour, J.M., 1989. "Normalization of the Topographic Effect Encountered When Analyzing Landsat Thematic Mapper Imagery in Rugged Terrain." In *Proceedings of the ASPRS-ACSM Fall Convention*, Cleveland, OH, September 17-21, pp.48-56.

Kineman, J.J., Hastings, D.A., and Colby, J.D., 1986. "Development of Global Databases for the Environmental Sciences: Discussion and Review." In *Proceedings of the Twentieth International Symposium of Remote Sensing of Environment*, Nairobi, Kenya, December 4-10, pp. 471-482.

#### *Other Publications and Reports*

Colby, J.D., Brown, R., Crepeau, R., Katz, G., Schroeder, K., 2009. "Unit Plan, 2010-2014: Department of Geography and Planning, Appalachian State University.

Watershed Concepts with the Department of Geography and Planning, Appalachian State University, 2006. Response submitted to Geospatial Line of Business Request for Information (RFI#GSV06PD00089), OMB, May 2006, 24 pp.

Colby, J.D., and Bishop, M.P., 2000. "Glacial Geomorphology in the Hindu Kush Mountains of Northern Pakistan: The Application of Remote Sensing and GIS." Summary Report to the International Expedition to the Hindu Kush, Northern Pakistan 1999.

Colby, J.D., Wang, Y., and Mulcahy, K.A., 2000. "Hurricane Floyd Flood Mapping Integrating Landsat 7 TM Satellite Imagery and DEM Data." Quick Response Report #126. Natural Hazards Research Center at the University of Colorado, Boulder. (<http://www.colorado.edu/hazards/qr/qr126/qr126.html>)

Kineman, J.J., Hastings, D.A., Ohrenscha1, M.A., Colby, J., Schoolcraft, D.C., 29 others, 2000. Global Ecosystems Database Project. 2000. Global Ecosystems Database Version II: Database, User's Guide, and Dataset Documentation. US Department of Commerce, National Oceanic and Atmospheric Administration, National Geophysical Data Center, Boulder, Colorado. KGRD 35. Two CDROMs and publication on the World Wide Web

Colby, J.D., Mulcahy, K., and Wang, Y., 1999. "Documenting Flooding Extent due to Hurricane Floyd using Landsat 7 TM Satellite Imagery." Field Report to the Natural Hazards Research Center, University of Colorado, regarding Quick Response Research Grant.

*Published GIS databases to which a significant contribution was made:*

NOAA-EPA Global Ecosystems Database Project, 1992. Global Ecosystems Database Version 1.0 User's Guide, Documentation, Reprints, and Digital Data on CD-ROM. USDOC/NOAA National Geophysical Data Center, Boulder, CO.

WDC-A, 1992. Global Change Database Pilot (Diskette Project for Africa; Database Documentation, Version 1.1. Publication SE-47. World Data Center-A for Solid Earth Geophysics, NOAA National Geophysical Data Center, Boulder, CO.

#### **Presentations**

Fleetwood, M., Tuberty, S., Perry, B., Swinson, B., Beyersdorf, K., Chu, H.M., Davis, B., Jones, W., Lipinski, M., McGlasson, M., Mouro, A., Cox, A., Balcomb, J., Cockerill, K., Colby, J., and Gu, C., 2015. "Effects of Winter Road Salt Application and Episodic High Conductivity Stormwater Pulses on Southern Appalachian Headwater Stream Macroinvertebrates." New River Symposium, Radford, VA, May 19.

Balcomb, J., and Colby, J.D., 2015. "Three Dimensional Modeling of Riparian Vegetation Using Structure-from-Motion." The 18<sup>th</sup> Annual Celebration of Student Research and Creative Endeavors, Appalachian State University, Boone, NC, April 23.

Cooper, C., Cockerill, K., Colby, J.D., and Crepeau, R., 2015. "Social Science Information and Biophysical Modeling: A Review of Integrated Watershed Models in the United States." The 18<sup>th</sup> Annual Celebration of Student Research and Creative Endeavors, Appalachian State University, Boone, NC, April 23.

Tuberty, S., Fleetwood, M., Balcomb, J., Cockerill, K., Colby, J., Gu, C., Perry, B., Swinson, B., Cox, A., Snow, C., Tate, B., Beyersdorf, K., Chu, H.-M., Davis, B., Jones, W., Lipinski, M., McGlasson, M., and Mouro, A., 2015. "Effects of Winter Road Salt Application and Episodic High Conductivity Stormwater Pulses on Southern Appalachian Headwater Stream Macroinvertebrates." Carolinas Society of Environmental Toxicology and Chemistry, Raleigh, NC, March 12-14.

Cooper, C., Colby, J.D., and Cockerill, K., 2015. "Exploring Connections between Communities and Watersheds." 3-Minute Research Competition, Appalachian State University, Boone, NC, January 29.

Heinen, L., Gu, C., Colby, J., Cockerill, K., Tuberty, S., 2014. "Hyporheic exchange and nutrient uptake in an urban Headwater stream: Implications for restoration." EcoStream Conference, Charlotte, NC, November 17-20.

Swinson, B., Cockerill, K., Colby, J., Gu, C., Tuberty, S., 2014. "Motivations, goals, and potential outcomes of a habitat restoration project on the South Fork of the New River." Poster, EcoStream Conference, Charlotte, NC, November 17-20.

Woodard, D., Hogue, S., Hutchins, M., Branham, M., Buckingham, G., Johnson, J., Colby, J. D., Marland, G., Marland, E., 2014. "Uncertainties in Large Point Sources of CO<sub>2</sub> Emissions," 3rd Appalachian Energy Summit, Boone, NC, July 29.

Tuberty, S., Perry, B., Swinson, B., Beyersdorf, K., Chu, H.M., Davis, B., Jones, W., Lipinski, M., McGlasson, M., Mouro, A., Cox, A., Balcomb, J., Cockerill, K., Colby, J., Gu, C., 2014. "Effects of Winter Road Salt Application and Episodic High Conductivity Stormwater Pulses on Southern Appalachian Headwater Stream Macroinvertebrates." Eastern Snow Conference. Boone, NC, June 4-5.

Davis, B., Jones, W., Hining, K., Lipinski, M., McGlasson, M., Tuberty, S., Balcomb, J., Cockerill, K., Colby, J., Gu, C., Swinson, B., 2014. "Pre-remediation Assessment of Water Quality and Stream Habitat in the S. Fork New River: An Examination of Perception, Policy, & Science in Water Resource Management." Carolinas Society of Environmental Toxicology and Chemistry Regional Conference. Clemson, SC, April 24-26.

- Tuberty, S., Balcomb, J., Cockerill, K., Colby, J., Gu, C., Perry, B., Swinson, B., Cox, A., Snow, C., Tate, B., Beyersdorf, K., Chu, H.-M., Davis, B., Jones, W., Lipinski, M., McGlasson, M., and Mouro, A., 2014. "Effects of Winter Road Salt Application and Episodic High Conductivity Stormwater Pulses on Southern Appalachian Headwater Stream Macroinvertebrates." Poster, Carolinas Environmental Toxicology and Chemistry, Clemson, SC, April 24-26.
- Colby J., Swinson B., Gu C., Tuberty S., Cockerill, K., Balcomb J., Carlyle C., 2014. "Analysis of a Water Quality Monitoring Program Database in the Upper South Fork of the New River Watershed." Poster, Association of American Geographers Annual Meeting. Tampa, FL. April 8-12.
- Hutchins, M., Marland, G., Colby, J. D., 2014. "A Comparative Analysis of Fossil Fuel Carbon Dioxide Emission Inventories in the Continental United States." Association of American Geographers Annual Meeting, Tampa, FL, April 8-12.
- Swinson B., Colby J., Cockerill K., Gu C., Tuberty S., 2014. "A View of the River: Links among River Restoration Design, Data, and Public Perception." Association of American Geographers Annual Meeting. Tampa, FL, April 8-12.
- Batchelor, C., Gu, C., Colby, J. D., 2014. "Hyporheic exchange and nutrient uptakes in a forested and urban stream in Southern Appalachians." Geological Society of America Southeastern Section 63rd annual meeting. Blacksburg, VA, April 10-11.
- Cockerill, K., Swinson B., Colby J., Gu C., Tuberty S., 2014. Public perception and a reality check on river condition. Geological Society of America Southeastern Section 63rd annual meeting. Blacksburg, VA, April 10-11.
- Swinson B., Cockerill, K., Colby J., Gu C., Tuberty S., 2014. "To Restore or Not to Restore? An examination of perception, policy, & science in water resource management." Water Resources Research Institute Annual Conference and North Carolina Water Resources Association Symposium. Raleigh, NC, March 19-20.
- Colby, J., Cockerill, K., Gu, C., Tuberty, S., Carlyle, C., and Swinson, B., 2013. "Improving Riparian Conservation: A Socio-Biophysical Modeling Approach in the Headwaters of the New River." The New River Symposium, Radford University, Radford, VA, May 30-31.
- Swinson, B., Colby, J., Coffey, C., Turner, A., Carlyle, C., Gu, C., Tuberty, S., and Cockerill, K., 2013. "Development of a Water Quality Profile for the Upper South Fork of the New River Watershed." The New River Symposium, Radford University, Radford, VA, May 30-31.
- Swinson, B., and Colby, J.D., 2013. "Data Management, Mining, and Analysis of a Water Quality Monitoring Program Database." The 16th Annual Celebration of Student Research and Creative Endeavors, Poster, Appalachian State University, Boone, NC, April 18.
- Pan, C., Kamp, U., McManigal, K., and Colby, J., 2013. "Mapping the unknown: twenty years of glacial change in the Altai Mountains of Mongolia." The University of Montana Graduate Research Conference, Missoula, MT, April 12.
- Bishop, M.P., Colby, J.D., and Filippi, A.M., 2013. "Evaluation of Topographic Normalization Methods for Multispectral Satellite Data," Association of American Geographers Annual Meeting, Los Angeles, CA, April 9-13.
- Colby, J., Coffey, C., Turner, A., Carlyle, C., Gu, C., Cockerill, K., and Tuberty, S., 2012. The Upper South Fork of the New River (USNFR) Watershed Project." Poster, Southeastern Division of the Association of American Geographers Annual Meeting, Asheville, NC, November, 18-20.
- Carlyle, C., and Colby, J.D., 2012. "New Geomorphometric Algorithms for Mapping the Extent of Riparian Areas in Southern Appalachian Headwater Catchments," Poster, Southeastern Division of Association of American Geographers Annual Meeting, Asheville, NC, November, 18-20.

- Davis, M., Colby, J.D., and Dobson, J.G., 2012. "Flood Modeling Accuracy and the Influence of Digital Terrain Model Resolutions Derived from Airborne LiDAR and USGS Elevation Data for the Swannanoa River in North Carolina." AWRA Annual Water Resources Conference, Jacksonville, FL, November 12-15.
- Carlyle, C., and Colby, J.D., 2012. "Introduction of a New Geomorphometric Parameter Based on Topographic Cross-sectional Amplitude for Delineating the Extent of Riparian Areas in Headwater Catchments." Poster, Geological Society of America Annual Meeting, Charlotte, NC, November 4-7.
- Carlyle, C., and Colby, J.D., 2012. "Geomorphometry in ArcGIS: Implementing Complex Geomorphometric Algorithms in ArcGIS." North Carolina ArcGIS Users Group Annual Conference, Wilmington, NC, October 24-26.
- Pan, C., Kamp, U., McManigal, K., and Colby, J., 2012. "Inventory of Mongolian glaciers for the global land ice measurements from space (GLIMS) program: methodology development." UM Alumni Association's House of Delegate and Board Members, Poster, Missoula, MT, September 20-21.
- Pan, C., Kamp, U., McManigal, K., and Colby, J., 2012. "Inventory of Mongolian glaciers for the global land ice measurements from space (GLIMS) program: methodology development." Intermountain GIS Conference, Poster, Kalispell, MT, April 16-20.
- Pan, C., Kamp, U., McManigal, K., and Colby, J., 2012. "Inventory of Mongolian glaciers for the global land ice measurements from space (GLIMS) program: methodology development." The University of Montana Graduate Research Conference, Poster, Missoula, MT, April 14.
- Colby, J.D., Davis, M., Dobson, J.G., and White, K., 2012. "Flood Modeling Accuracy and the Resolution of Airborne LIDAR based Digital Terrain Models in a Mountain Environment." International LIDAR Mapping Forum, Poster, Denver, CO, January 23-25.
- Turner, A. B., Colby, J.D., Csontos, R.M., and Batten, M., 2012. "Developing a More Robust Urban Flood Model by Combining Airborne, Mobile, and Terrestrial LIDAR Data." International LIDAR Mapping Forum, Denver, CO, January 23-25.
- Davis, M., and Colby, J.D. 2011. "The Influence of LIDAR generated Digital Terrain Model Resolution on Flood Modeling Accuracy on the Swannanoa River." North Carolina Association of Floodplain Managers - Fall Floodplain Institute, Boone, NC, October, 12-14.
- Turner, A. B., and Colby, J.D., 2011. "Generating a high Resolution Urban Flood Model through the Integration of Airborne, Mobile, and Terrestrial LiDAR Data," North Carolina Association of Floodplain Managers - Fall Floodplain Institute, Boone, NC, October 12-14.
- Coffey, C.L. and Colby, J.D., 2011. "The Effects of Impervious Surfaces and Forests on Water Quality in a Southern Appalachian Headwater Catchment: A Geospatial Modeling Approach." North Carolina Graduate Education Day, State Capital Building, Poster, Raleigh, NC, May 25.
- Colby, J.D., Davis, M., Dobson, J.G., and White, K., 2011. "Digital Terrain Model Evaluation for Flood Modeling in a Mountain Environment," Association of American Geographers Annual Meeting, Seattle, WA, April 12-16.
- Bishop, M.P., and Colby, J.D., 2011. "Characterizing Multi-Scale Topographic Variation For Understanding Alpine Glacier Fluctuations in the Himalaya." Association of American Geographers Annual Meeting, Seattle, WA, April 12-16.
- Davis, M., and Colby, J.D., 2011. "Influence of LIDAR Generated Digital Terrain Model Resolution on Flood Modeling Accuracy in a Mountain Environment." The 14th Annual Celebration of Student Research and Creative Endeavors, Appalachian State University, Boone, NC, April 14.

- Gray, C.M., Katz, G., and Colby, J.D., 2010, "Factors Influencing Restoration Success of Arid Region Abandoned Agricultural Fields," Southeastern Association of American Geographers Annual Meeting, Birmingham, AL, November 21-23.
- Coffey, C.L. and Colby, J.D., 2010. "Optimal Drainage Pattern Delineation and Evaluation of the Terrain Data Model." 41st Annual Binghamton Geomorphology Symposium: Geospatial Technologies and Geomorphological Mapping, Poster, Columbia, SC, October, 15-17.
- Coffey, C.L. and Colby, J.D., 2010. "Examining the Relationship between Land Cover and Water Quality in the Headwaters of the Upper South Fork of the New River in Watauga County." Presentation to the Appalachian State University Board of Trustees, Boone, NC, September 23.
- Edwards, L., Badurek, C. A., Colby, J. D., 2010. "Assessment of RLCM for Creating High Resolution LULC Data for Monitoring Rural-Exurban Change." Association of American Geographers Annual Meeting, Washington, DC, April 14-18.
- Colby, J.D., Badurek, C.A., and Edwards, L.A., 2009. Application of NASA EOS Data to Research and Education in Mountain-focused Geographic Information Science. Poster, Association of American Geographers Annual Meeting, Las Vegas, NV, March 22-27.
- Montz, B.E., Friend, D.A., Suchan, T., Colby, J.D., Young, J., Lawrence, P.L., 2009. Preparing Masters Students for Careers Outside the University, Panel Session. Association of American Geographers Annual Meeting, Las Vegas, NV, March 22-27.
- Edwards, L.A., Colby, J.D., and Badurek, C.A., 2009. "Leveraging the Open Source Rapid Land Cover Mapper Application to Efficiently Create and Update High Resolution Land Cover Data." North Carolina Geographic Information Systems Conference, Raleigh, NC, February 19-20.
- Bryant, A. and Colby, J.D., 2007. "Mitigating the Effects of Differential Illumination in Multispectral Satellite Imagery in the Appalachian Mountains." Southeastern Division of the Association of American Geographers Annual Meeting, Charleston, SC, November 18-20.
- Colby, J.D., 2007. "Precipitation to Flood Extent Visualization: End to End Modeling to Improve Flood Forecasting." Federal NC Congressional Staff Trip to Appalachian State University, Boone, NC, August 13-14.
- Badurek, C. and Colby, J.D., 2007. "Application of NASA EOS Data to Research and Education in Mountain-focused Geographic Information Science." GeoBrain Project Team Meeting, Greenbelt, MD., May 17-18.
- Colby, J.D., and Dobson, J.G., 2007. "Flood Modeling in the Coastal Plains and Mountains: An Analysis of Terrain Resolution." Association of American Geographers Annual Meeting, San Francisco, CA, April 17-21.
- Badurek, C.A., Colby, J.D., and Hunter, L.A., 2007. "Towards Expert Systems to Support Viticulture in Western North Carolina." Association of American Geographers Annual Meeting, San Francisco, CA, April 17-21.
- Colby, J.D., and Dobson, J.G., 2006. "Flood Modeling in the Coastal Plains and Mountains." American Water Resource Association Spring Specialty Conference, GIS and Water Resources IV, Houston, TX, May 8-10.
- Dobson, J.G., and Colby, J.D., 2005. "Problems Associated with Data Acquisition for Flood Modeling in Mountain Environments." Association of American Geographers Annual Meeting, Denver, CO, April 5-9.



- Colby, J.D., and Dobson, J.G., 2005. "Modeling Flooding Extent in the Coastal Plains and Mountains of North Carolina." Association of American Geographers Annual Meeting, Poster, Denver, CO, April 5-9.
- Dobson, J.G., and Colby, J.D., 2005. "The Use of GIS in Modeling Flood Extent along the Watauga River in Western North Carolina." North Carolina 2005 GIS Conference, Poster, Winston-Salem, NC, March 3-4.
- Colby, J.D., and Bishop, M.P., 2004. "Anisotropic Reflectance Correction in Mountain Environments: A Review." Association of American Geographers Annual Meeting, Philadelphia, PA, March 14-19.
- Colby, J.D., 2002. "Applications of GIScience in Environmental Modeling." Department of Geology and Geography, West Virginia University, Morgantown, WV, April 22.
- Bishop, M.P., and Colby, J.D., 2002. "Computer Simulations of Multi-Scale Topographic Effects on Satellite Sensor Response." Association of American Geographers Annual Meeting, Los Angeles, CA, March 19-23.
- Colby, J.D., 2002. "GIScience Applications in Environmental Geography." Department of Geography, Texas State University, San Marcos, TX, February 25.
- Colby, J.D., Mulcahy, K.A., and Wang, Y., 2001. "Modeling Flooding Extent from Hurricane Floyd in the Coastal Plains of North Carolina." Of People, Place, and Progress: Extended Recovery on the Coastal Plain, East Carolina University, Greenville, NC, May 23-25.
- Bishop, M.P., Colby, J.D., and Hamidullah, S., 2000. "Remote Sensing Science and Technology for Landscape Assessment in the Hindu Kush." Linnean Society, London, November 23.
- Hamidullah, S., Bishop, M. P. and Colby, J. D., 2000. "Geology and geomorphology of the Tirich Gol Valley, Chitral, and their potential for SRS application." 3<sup>rd</sup> S. Asia Geol. Congress, Lahore, Pakistan, Sept. 23-26.
- Wang, Y., Colby, J.D., and Mulcahy, K.A., 2000. "Mapping Flood Extent in the Tar River Basin within Pitt County of North Carolina by River Gauge and Topographic Data." In the Aftermath of Hurricane Floyd: Impact in the Coastal Plain, East Carolina University, Greenville, NC, May 24-26.
- Wang, Y., Colby, J.D., and Mulcahy, K., 2000. "Mapping Flood Extent in a Coastal Floodplain by Landsat TM and DEM Data." 6<sup>th</sup> Marine Remote Sensing Conference, Poster, Charleston, SC, May 1-3.
- Colby, J.D., Wang, Y., and Mulcahy, K.A., 2000. "Geographic Information Science Flood Mapping." Coastal Resource Management Program Faculty Dinner, East Carolina University, Greenville, NC, April 10.
- Colby, J.D., and Bishop, M.P., 2000. "Evaluation of Automated Anisotropic Reflectance Correction of Satellite Imagery in Mountain Environments." Association of American Geographers Annual Meeting, Pittsburgh, PA, April 4-8.
- Colby, J.D., Wang, Y., and Mulcahy, K.A., 2000. "Hurricane Floyd: Flood Mapping and Modeling." Department of Geography and Geology Seminar, University of Nebraska at Omaha, Omaha, NE, March 24.
- Colby, J.D., 2000. "Geographic Information Science: Applications in Environmental Modeling." Department of Biology Seminar, East Carolina University, Greenville, NC, February 29.

- Bishop, M.P., Colby, J.D., Olsenholler, J., Cacioppo, S.B., and Shroder Jr., J.F., 1999. "Anisotropic Reflectance Correction of Satellite Imagery in Mountain Environments." International Pecora Symposium, Poster, Denver, CO, December 6-10.
- Colby, J.D., 1999. "Geographic Information Science." International Expedition to the Hindu Kush, Northern Pakistan. Chitral, Pakistan, July 21.
- Colby, J.D., Bishop, M.P., and Shroder Jr., J.F., 1998. "Anisotropic Reflectance Correction of SPOT Multispectral Imagery for Extreme Topographic Relief." Association of American Geographers Annual Meeting, Boston, MA, March 25-29.
- Colby, J.D., 1997. "Topographic Normalization and Land Cover Classification in Costa Rica." Association of American Geographers Annual Meeting, Fort Worth, TX, April 9-13.
- Colby, J.D., 1996. "Physical Characterization of the Navarro Watershed in Costa Rica for Hydrologic Simulation." AWRA Symposium on GIS and Water Resources, Ft Lauderdale, FL, September 22-26.
- Colby, J.D., 1996. "Resolution, Fractals and the Simulated Hydrologic Response of a Costa Rican Watershed." Association of the American Geographers Annual Meeting, Charlotte, NC, April 9-13.
- Colby, J.D., 1994. "Derivation of Hydrologic Response Units in a Tropical Environment." Association of American Geographers Annual Meeting, San Francisco, California, March 29-April 2.
- Colby, J.D., 1991. "African Diskette Project of the Global Change Database Program." Association of the American Geographers Annual Meeting, Miami, FL, April 13-17.
- Barbour, J.M., and Colby, J.D., 1990. "Development of a Geographic Information Database to Study the Distribution of Fennel on Santa Cruz Island, California." Association of American Geographers Annual Meeting, Toronto, Canada, April 19-22.
- Colby, J.D., Kineman, J.J., Hastings, D.H., and Ohrenschall, M.A., 1990. "Global Change Database Project." Poster, Association of American Geographers Annual Meeting, Toronto, Canada, April 19-22.
- Kineman, J.J., Colby, J.D., Ohrenschall, M.A., and Hastings, D.H., 1990. "Access to Global Environmental Data and Analysis Tools: The First Data Product for the International Geosphere-Biosphere Program." ASPRS-ACSM Annual Convention, Denver, CO, March 18-23.
- Colby, J.D., Hodgson, M.E., and Barbour, J.M., 1989. "Normalization of the Topographic Effect Encountered When Analyzing Landsat Thematic Mapper Imagery in Rugged Terrain." ASPRS-ACSM Fall Convention, Cleveland, OH, September 17-21.

## **Grants**

### *External Funded*

High Country Wine Growers Association

- PI – Appalachian High Country AVA Project, 2014, \$10,000.

U.S. National Park Service

- Senior Personnel - Develop a GIS Model to Predict Information Critical for Development of Big South Fork National River and Recreation Area's Climbing Management Plan, 2011, with Dr. G. Walker, Dr. M. Madritch, and Dr. C. Liutkus, \$51,000.

Renaissance Computing Institute at UNCA Engagement Site

- PI - Flood and Watershed Modeling for the Swannanoa Watershed, 2009, \$1000.00

U.S. National Park Service – Blue Ridge Parkway

- Co-PI – Development of a Google Earth Mapping Application for National Park Service Projects, 2008, with Mr. A. Rex, \$800.00.

NASA EOS Higher Education Alliance

- PI - Application of NASA EOS Data to Research and Education in Mountain-Focused Geographic Information Science, 2006, with Dr. C. Badurek, \$20,000.

Dwight D. Eisenhower Professional Development Program and the North Carolina Geographic Alliance

- Co-PI - Monitoring the Environment Institute, 2000, with Dr. P. Gares and Dr. S. Lecce, \$37,000.

Natural Hazards Research and Applications Information Center, University of Colorado at Boulder

- PI - Documenting Flooding Extent due to Hurricane Floyd using Landsat 7 TM Satellite Imagery, 1999, with Dr. K. Mulcahy and Dr. Y. Wang, \$1400.

*Internal Funded*

Appalachian State University

- PI – AppAqua Research Cluster, Sponsored by the Research Institute for Environment, Energy, and Economics, Appalachian State University, 2015, with Dr. K. Cockerill, Dr. C. Gu., Dr. Derek Martin, and Dr. S. Tuberty, \$1200.00.
- PI – AppAqua Research Cluster, Sponsored by the College of Arts and Sciences, 2015, with Dr. K. Cockerill, Dr. C. Gu., Dr. Derek Martin, and Dr. S. Tuberty, \$3145.20.
- PI – AppAqua Research Cluster, Supplemental Funding, Sponsored by the Research Institute for Environment, Energy, and Economics, Appalachian State University, 2013, with Dr. K. Cockerill, Dr. C. Gu, and Dr. S. Tuberty, \$3100.
- PI - The Upper South Fork of the New River Watershed Project, Graduate Research Associate Mentoring (GRAM) Program, Sponsored by the Cratis D. Williams Graduate School, Appalachian State University, 2013, with Dr. C. GU, \$22,000.
- PI – Improving Water Conservation in Headwater Streams through Socio-biophysical Analysis, CONCERT Faculty Grant Program, Sponsored by the Research Institute for Environment, Energy, and Economics, Appalachian State University, 2013, with Dr. K. Cockerill, Dr. C. Gu, and Dr. S. Tuberty, \$4500.
- PI - AppAqua Research Cluster, Sponsored by the College of Arts and Sciences, Appalachian State University, 2013, with Dr. K. Cockerill, Dr. C. Gu, and Dr. S. Tuberty, \$7914.
- PI - Improving Water Conservation in Headwater Streams Through Socio-Biophysical Analysis, Big Idea Proposal, Sponsored by the Cratis D. Williams Graduate School, Appalachian State University, 2012, with Dr. K. Cockerill, Dr. C. Gu, and Dr. S. Tuberty, \$1500.
- PI - Water Quality and Land Cover Relationships in the New River Basin, Sponsored by University Research Council, Appalachian State University, 2011, \$4,992.
- Co-PI - Geography and Ecology Advanced Research (GEAR) Laboratory, Sponsored by College of Arts and Sciences, Appalachian State University, 2010, with Dr. C. Badurek, and Dr. S. Segal, \$40,000.
- Co-PI - Arid Region agricultural legacies: restoration of abandoned farmland, San Pedro River, Arizona, Graduate Research Associate Mentoring (GRAM) Program, Sponsored by the Cratis D. Williams Graduate School, Appalachian State University, 2009, with Dr. G. Katz, \$20,000.00.
- PI - GIScience Research Lab , Sponsored by the College of Arts and Sciences, Appalachian State University, 2008, with Dr. C. Badurek, \$15,000.
- Supplemental Travel Fund, Dean’s Office College of Arts and Sciences, 2005, \$300.00
- Office of Graduate Studies and Research, 2005, funding for travel \$300.00
- Department of Geography and Planning’s Undergraduate Assistantship program, 2004, \$1029.00
- Supplemental Travel Fund, Dean’s Office College of Arts and Sciences, 2004, to support an outside speaker, \$700.00
- Supplemental Travel Fund, Dean’s Office College of Arts and Sciences, 2004, \$300.00
- Office of Graduate Studies and Research, 2004, funding for travel \$300.00

*Internal*

Funded

East Carolina University

- ESRI Site License, 2000. On behalf of the GIS and Mapping User’s Group coordinated University wide GIS resource/needs assessment, developed proposal requesting university site license, and facilitated negotiations \$125,000 (over 5 yrs).
- College of Arts and Sciences & Graduate Program, 1999, funding for travel to Pakistan, \$2700.
- College of Arts and Sciences & Graduate Program, 1998, funding to attend two University Consortium Geographic Information Science (UCGIS) conferences as the elected AAG delegate, \$1050.
- College of Arts and Sciences, Faculty Research Travel Award, 1998-1999, \$400.

- ECU Center for Science, Mathematics, and Technology Education, 1998, funded for Introduction to GIS, GPS, and Spreadsheets Workshop (for K-12 teachers), \$4500.

#### *Graduate Research*

Approved

Organization of American States

- PRA Fellowship, 1993

University of Colorado

- Ibero - Latin American Studies Center Grant, 1993.
- Spaceship Earth Research Fellowship, Department of Geography, 1992.

#### *Internal*

Submitted and Currently Under Review

- PI – AppAqua Research Cluster, Sponsored by the Research Institute for Environment, Energy, and Economics, Appalachian State University, 2015, with Dr. K. Cockerill, Dr. C. Gu., Dr. Derek Martin, and Dr. S. Tuberty, \$3576.00.

#### *External*

Submitted and Currently Under Review

National Science Foundation

- Investigator – The Time and Space Value of Environmental Impacts 2015, with Dr. G. Marland, Dr. E. Marland, Dr. T. Kowalczyk, and Dr. Kevin Shirley, \$312,273.72

#### *External not Funded*

National Science Foundation

- Collaborator – MRI: Acquisition of a spectroradiometer to enhance research and training in biological sciences, 2015, with Dr. Michael Madritch, Dr. Jessica Mitchell, Dr. Lynn Siefferman, Dr. Zack Murrell, and Dr. Chris Thaxton, 95, 937.

NASA

- Co-PI - The Location and Uncertainty of Anthropogenic CO<sup>2</sup> Emissions, 2014, with Dr. G. Marland, Dr. and Dr. E. Marland, \$467,375.

National Science Foundation

- Co-PI - INDP: Collaborative Research: Transforming Earth Science Education through GeoBrain CI-based Cyberlearning Approach 2012, with Dr. L. Di, M. Deng, Dr. W. Han, Dr. W. Ding., Dr. W. Luo, Dr. F. Qiu, and Dr. C. Badurek, through George Mason University \$894,879. (2<sup>nd</sup> - re-submission)

National Science Foundation

- Senior Personnel – REU Site: Appalachian Interdisciplinary Research Experience in Environmental Science (AIREES) Program 2012, with Dr. C. Thaxton, Dr. B. Sive, Dr. S. Cohen, Dr. B. Taubman, Dr. S. Tuberty, Dr. C. Babyak, Dr. J. Sherman, Dr. B. Anderson, Dr. C. Gu, Dr. H. Neufeld, Dr. B. Perry, Dr. B. Conrad, Dr. T. Coffey, Dr. S. Marshall, Dr. M. Spond, Dr. S. Van de Gevel, Dr. J. Thomley, and Dr. A. Utter, \$57,381.66.

National Science Foundation

- PI - Sustaining high water quality by applying socio-biophysical analysis to optimizing riparian conservation in Southern Appalachian headwater streams, 2011, with Dr. K. Cockerill, Dr. C. Gu, and Dr. S. Tuberty, \$123, 634.

National Science Foundation

- Co-PI – Collaborative Research: Balancing Water Needs in Changing Mountain Landscapes – the Southern Appalachian Headwaters Project, 2011, with Dr. A. Barros, Dr. W. Holman, Dr. W. Li, Dr. M. Medina, Dr. L. Perry, Dr. H. Neufeld, Dr. J. Whitehead, Dr. D. Genereux, Dr. R. Morse, and Dr. C. Boyle, through Duke University \$5,041,740.

UNC Water Resources Research Institute

- Co-PI – Effects of Stream Restoration on Stream Hydrology and Water Quality in a Mountainous Urban Watershed, 2011, with Dr. C. Gu, Dr. W. Anderson, and Dr. E. Ryan, \$46,800.

National Science Foundation

- Co-PI - CI-TEAM Implementation Project: Innovative Multi-Disciplinary Earth Science Education through GeoBrain, 2011, with Dr. L. Di, M. Deng, Dr. W. Han, Dr. W. Ding., Dr. W. Luo, Dr. F. Qiu, and Dr. C. Badurek, through George Mason University \$894,879. (re-submission)

U.S. Federal Government

- Co-PI – North Carolina Poultry Economic, Energy, and Environmental Promotion and Sustainability, 2009, with Dr. S. Tuberty and others, \$1,200,000.

National Science Foundation

- Co-PI – CI-TEAM Implementation Project: A GEOSS Higher Education Portal, 2007, with Dr. L. Di, Dr. C. Badurek, Dr. Y. Bai, Dr. K. Borne, P. Burgess, M. Deng, Dr. J. Du, Dr. R. Ford, H. Gong, Dr., W. Luo, Dr. A. Prakash, Dr. F. Qui, and Dr. R. Yang, through George Mason University \$993,157.

National Oceanic and Atmospheric Administration / National Weather Service

- PI – Precipitation to Flood Extent Visualization: End-to-End Modeling in the Swannanoa Watershed, 2006, with Dr. D. Miller, Mr. J. Dobson, Dr. C. Badurek, Mr. J. Fox, and Dr. M. Mayfield, \$250,000. (full proposal requested after competitive review of 8 page pre-proposals)

North Carolina Wine and Grape Council

- Co-PI – Vineyard Data Management Using a Site-Specific Expert System (VINESPEX), 2006 with Dr. R. Russel, Dr. C. Badurek, and Dr. G. Holder, \$15,000.

National Aeronautics and Space Administration

- Co-PI - Human Impacts on Coastal Wetlands: Current Distribution, Global Status, and Future Prospects, 2003, with Dr. B. Christian, Dr. M. Brinson, Dr. C. Elvidge, and Mr. S. Geraud, \$600,382.

National Aeronautics and Space Administration

- Co-PI – Modeling and Comparing the Extent of Flooding along Coastal Plain Rivers in North Carolina by Using Datasets from ASTER and Other Sensors/Sources, 2003, with Dr. Y. Wang, \$299,842.

National Aeronautics and Space Administration

- Co-PI - Modeling the Extent of Flooding along Coastal Plain Rivers in North Carolina: Hurricane Floyd and Beyond, 2002, with Dr. Y. Wang, Dr. P. Gares, and Dr. S. Lecce, \$ 617,319.

National Science Foundation

- Co-PI – A Topographic Solar Radiation Transfer Model for Anisotropic Reflectance Correction of Satellite Imagery, 2002, with Dr. M. Bishop

National Science Foundation

- Co-PI - A Spectral Solar Anisotropic Reflectance Correction Model for Satellite Imagery, 2001, with Dr. M. Bishop, and Dr. J. Shroder, \$215,000.

National Science Foundation

- Co-PI - GIScience Undergraduate Certificate Program, 2000, with Dr. K. Mulcahy, Dr. R. Mitchelson, and Dr. Y. Wang, \$151, 356.

National Science Foundation

- Co-PI - Investigations of the Response of Coastal Systems to Sea Level Rise, 1998, with Dr. Y. Wang, Dr. P. Gares, and Dr. M. Brinson, \$1,885,695.

Greene County, North Carolina

- Co-PI - A Proposal to Develop an Integrated Digital Cadastral Database System for Greene County, North Carolina, 2001, with Dr. Y. Wang, and Mr. S. Wade, \$284,950.

### **Graduate Student Advising**

*Appalachian State University*

Christopher Ely, in progress, thesis (advisor)

Levi Rose, in progress, thesis (advisor)

Samuel Kovach, in progress, Department of Biology, thesis, (committee member)

Brian Bickford, in progress, GIScience Concentration (advisor)

Kaitlin Finan, in progress, Applying GIS to Local Government: Applications for utilities, stormwater, and custom tools in the Town of Mooresville, North Carolina, GIScience Concentration, (advisor).

Joe Rudolph, in progress, GIScience Concentration, (advisor).

James Balcomb, 2015. Structure-from-Motion based Vegetation Modeling and Shade Estimation, thesis (advisor)

Courtney Cooper, 2015. Human Systems in Watershed Modeling: A Literature Review of Integrated Watershed Models in the United States, thesis (co-advisor)

Monica Davis, 2015. Flood Modeling and the Influence of Digital Terrain Models: A Case Study of the Swannanoa River in North Carolina, thesis, (advisor)

Chris Jackson-Jordan, 2015. GIS on the Colorado Plateau: My Experience at the Grand Canyon Trust, GIScience Concentration (committee member)

Mandy Terkhorn, 2015. GIS Data Processing: Capturing Urban and Rural Road Networks in North Carolina, GIScience Concentration (advisor)

Michael Flanagan, 2014. Bohannon Huston: Geospatial Analyst Internship, GIScience Concentration (advisor)

Kaitlan Havens, 2014. GIS Technician Internship at AMEC, GIScience Concentration (advisor)

Biance Temple, 2014. GeoComputation for an American Viticultural Area (AVA), GIScience Concentration (advisor)

Maya Hutchins, 2014. The Finer Things in Life: Comparing High Resolution Fossil Fuel Carbon Dioxide Emissions Inventories, thesis, (co-advisor)

Bobbie Jo Swinson, 2014. To Restore or Not to Restore? Assessing Pre- Project Conditions of a Habitat Restoration Project on the New River, North Carolina, thesis (advisor)

Cameron Carlyle, 2013. The Influence of Impervious Surface Location on Water Quality in the Headwaters of the Southern Appalachian Mountains, thesis, (advisor)

Jonathan Welker, 2013, Identification of Point Sources of Carbon Emissions using Atmospheric and Multispectral Imagery, GIScience Concentration, (co-advisor)

Caleb Pan, 2013, Department of Geography, University of Montana, Inventory of Mongolian Glaciers for the Global Land Ice Measurements from Space Program, thesis (committee member)

Tim Federal, 2012. A Modeling Approach to Invasive Species Data Management, GIScience Concentration, GIScience Concentration (advisor)

Robert McCorkindale, 2012, Green Mountain College, Big South Fork National River & Recreation Area Rock Climbing Management Plan: A GIS Predictive Model Development for Sensitive Vegetation, Professional Project, thesis (committee member)

Ashleigh Turner, 2012, A Comprehensive Introduction to Flood Modeling and the Post-Processing of Mobile and Terrestrial LiDAR Data, GIScience Concentration, (advisor)

Joe Otto, 2012, Department of History, Subject to Overflow: The History of Drainage Districts in Jasper County, Iowa, thesis (committee member)

Christopher Coffey, 2011, Effects of Impervious Surfaces and Forests on Water Quality in a Southern Appalachian Headwater Catchment: A Geospatial Modeling Approach, thesis, (advisor)

Carla Edwards, 2011, Factors Influencing Restoration Success of Abandoned Agricultural Fields on the Lower San Pedro River Terraces, Southeastern Arizona, (committee member)

David French, 2011, Department of Technology and Environmental Design, thesis, (committee member)

Chip Hayden, 2011, Boundary Surveying, GPS Field Data Collection, and GIS Mapping for Elk Knob State Park, GIScience Concentration, (advisor)

Kristin Erath, 2010, GPS Data Collection, Database Management, and Mapping Cultural Resources on the Blue Ridge Parkway, Asheville, NC, internship, (committee member)

Edwards, Lloyd, 2010. GIScience Concentration, (co-advisor)

James Scott, 2010, internship, (committee member)

Gabriel Upchurch, 2010, A Spatial Approach to Data Management: A season as a cartographic technician with Inyo National Forest, GIScience Concentration, (advisor)

Lauren Hunter, 2008, Integrating GIS and Geosensors to Support Sustainable Agriculture in a North Carolina Mountain Vineyard, thesis, (committee member)

Annie Bryant, 2007. Mitigating the Effects of Differential Illumination in Multispectral Satellite Imagery in the Appalachian Mountains, thesis (advisor)

Ian Snyder. 2007. internship (committee member)

Matt Sufficool, 2007, internship (committee member)

Will Brown, 2006. Use and Potential of Geographic Information Systems in Local Planning, internship (advisor).

Andi Cochran, 2006. Managing Natural Resources: One Day at a Time, internship, (committee member)

Greg Dobson, 2006. Flood Modeling in a Mountain Environment: A Case Study on the Watauga River in Western North Carolina, thesis (advisor).

Matthew Levi, 2006. GIS Internship with the Town of West Jefferson, NC, internship (committee member).

Timothy Sheldon, 2005. Crime Analysis and Mapping in the Asheville Police Department Asheville, North Carolina, internship (committee member).

Chris Degrassi, 2004. Mass Balance Measurements of the Glaciers of the Cordillera Real (Bolivia): A Remote Sensing Approach, thesis (committee member).

Will Draper, 2004. Wild-land Fire Risk and Hazard Severity Mapping on the Wind River Indian Reservation, Wyoming, internship (committee member).

Dana Nibby, 2004. Developing a Web-Based Geographic Information System for the Department of Health and Human Services, internship (committee member).

#### *East Carolina University*

Sandy Morrison, 2004 (Department of Biology), A Method to Broadly Assess Watershed and Riparian Condition as They Potentially Effect Stream Nutrient Export, thesis (committee member).

Tao Zheng, 2003, Using JERS-1 and DEM Data to Detect Temporal Change of Inundation Extent of Floodplains of North Carolina, thesis (committee member).

Stephen White, 2002. Utilizing DEMs Derived from LIDAR Data to Analyze Topography: A Case Study of North Carolina Barrier Islands, thesis (committee member).

Jon Sellars (Department of Biology), 2001. Habitat Assessment and Restoration Methodologies for Seabeach Amaranth (*Amaranthus pumilus* Rafinesque, Amaranthaceae), thesis (committee member).

Lee Padrick, 2000. Appropriate Setbacks for Intensive Livestock Operations in Northeastern North Carolina, thesis (co-advisor).

Gina White, 2000. Land Use Changes in Gazankulu, South Africa: Integrating Space Shuttle Photography and Field Research, thesis (co-advisor).

Jason Woolard, 1999. Volumetric Change Detection of Coastal Dunes Using Airborne LIDAR, Cape Hatteras National Seashore, North Carolina, thesis (advisor).

Brian Andrews, 1998. GIS Analysis of Volumetric Change in Coastal Dunes: Coquina Beach, North Carolina, thesis (co-advisor).

Karen Capiella, 1998. Nitrogen, Phosphorous, and Sediment Exports from Headwater Streams in a Coastal Plain Agricultural Catchment, North Carolina, thesis (committee member).

Heather Golden, 1998. Spatial and Temporal Variability of Historic Alluvial Sedimentation on Lower Coastal Plain, North Carolina, thesis (committee member).

Gil Robbins, 1998. Implementation and Evolution of a Multipurpose GIS in a Rural County: The Case of Beaufort County, North Carolina, research paper (committee member).

#### **Additional Graduate Student Awards**

- Maya Hutchins, Invited Presentation for Women's History Month, College of Arts and Sciences 2014
- Bobbie Swinson, Invited Presentation for Women's History Month, College of Arts and Sciences 2014
- Cameron Carlyle, Herbert Stout Awards for Innovative Student Papers, NCGIS Conference 2013.
- Christopher Coffey, Invited Presentation to the North Carolina State Legislators, 1<sup>st</sup> North Carolina Graduate Education Day 2011
- Christopher Coffey, Invited Presentation to the ASU Board of Trustees (one of 1<sup>st</sup> three graduates ever invited to present their research to the Board of Trustees) 2010
- Anne Bryant, Herbert Stout Awards for Innovative Student Papers, NCGIS Conference 2007.
- Jessica Brannock, Herbert Stout Awards for Innovative Student Papers, NCGIS Conference 2007.
- J. Greg Dobson, Herbert Stout Awards for Innovative Student Papers, NCGIS Conference 2005.
- J. Greg Dobson, Joyce V. Lawrence (Athena) Award 2004.

#### **Undergraduate Advising**

##### *Theses*

Chase Batchelor, 2013, Hyporheic Exchange and Nutrient Uptake in a Forested and Urban Stream, Honors Thesis, Department of Geology (2<sup>nd</sup> reader).

Jonathan Welker, 2012, Backward Air Trajectories Associated with Snowfall Events in the Southern Appalachian Mountains: 2006 to 2011, Honors Thesis (2<sup>nd</sup> reader).

*Internship Supervision (GIS Concentration)* - internships consisted of 400 hours with public and private organizations culminating in a professional internship report (25+)

#### **Service**

##### *Scholarly Reviews*

Peer-Reviewed Articles, and Book Chapters

*Applied Geography, Geomorphology, International Journal of Geographical Information Science, International Journal of Remote Sensing, IEEE Transactions on GeoScience and Remote Sensing, Photogrammetric Engineering and Remote Sensing, Physical Geography, Handbook of Remote Sensing, Water*

Peer-Reviewer, Conference Proceedings

Grant Proposal Reviewer (National Science Foundation)

Paid Textbook Reviews

Lo, C.P. and Yeung, A., *Concepts and Techniques of Geographic Information Systems*.  
Bozeman, MT: Prentice Hall.

Lo, Gersmehl, Miller and Mitchell, *Elements of Geography*. Dubuque, IA: WCB/McGraw-Hill.  
(Chapters 2,3 & 4)

Dent, B. D., 1996. *Cartography Thematic Map Design*, 5<sup>th</sup> ed., Dubuque, IA: WCB/McGraw-Hill.

Book Proposal Review:

Spatial Analysis in Biogeography and Ecology, Kluwer Academic Publishers (1999)

*University*

Appalachian State University

Sustainability Council, Natural Environment Sub-Committee, Spring 2013-Present

Summer Reading Program, 2009

Water Resources Planning Committee, Fall 2007-Spring 2009

Task Force for an Institute for Environment, Energy, and Economics, Spring 2006-Spring 2007

Sub-committee for writing the Institute proposal for the UNC System

Attended meeting with Senator Richard Burr representing the ASEG, Fall 2005

Participated in collaboration meeting between ASU and the Blue Ridge Parkway, Fall 2006

Participated in research collaboration meeting between ASU and UNCA faculty, Spring 2005

Research and cartographic support for presentation by Dr. Stan Aeschleman, Provost, Spring 2005

100 Scholars Award Selection Committee, 2004.

East Carolina University

ESRI geographic information systems (GIS) software university site license: developed successful proposal  
and facilitated negotiations with ESRI, Spring 2000-01.

Coastal Resource Management Ph.D. Program, Library Committee, Fall 1998 - Spring 1999.

East Carolina University Technology Fair, Fall 1996, 1997

*College*

Appalachian State University

Donald W. Sink Family Outstanding Scholar Award, Fall 2015

Search Committee -Environmental Science/Geography faculty position, Fall 2013-Spring 2014

Advisory Committee for the Environmental Science Program, Fall 2008-Present

Jimmy Smith Outstanding Service Award Selection Committee, Fall 2006-2007

*Department*

Appalachian State University

Graduate Committee, Fall 2003-Spring 2013, Fall 2015-Present

Promotion and Tenure Committee, Fall 2014 - Present

Peer Teaching Evaluations, Fall 2003 - Present

Director of the GIS Certificate Program, Fall 2006-Present

Graduate Program Director, Fall 2013-Fall 2015

Search Committee for GIScience Faculty (Chair), Fall 2014-Spring 2015

Post Tenure Review Committee (Chair), Fall 2014-Spring 2015

Post Tenure Review Committee, Spring 2005, Spring 2009, Fall 2012-Spring 2014

Department Personnel Committee, Fall 2004-Spring 2007, Fall 2009-Spring 2012, Alternate Fall 2012

Chair Search Committee (Chair) Spring 2010-Spring 2011

Chair Search Committee, Spring 2009-Spring 2010

Strategic Planning Committee (Chair) Spring 2008-Fall 2009

Strategic Planning Committee, Fall 2005-Fall 2007

Search Committee for GIScience Lab Supervisor, Spring 2009

Search Committee for GIScience Lab Supervisor (Chair), Fall 2007-Spring 2008

Committee to revise the General Education White Paper for Geography and Planning, Fall 2006-2007



Computer Committee (Chair), Fall 2005-Spring 2008  
Computer Committee, Fall 2003-Spring 2004  
Search Committee for GIScience Faculty (Chair), Spring 2005-Summer 2005  
Graduate Student Exam Committee, Fall 2004-Spring 2005  
Map Library Committee, Fall 2003-Spring 2007.

#### East Carolina University

Curriculum Committee, Fall 2001 – Spring 2003.  
Co-director Spatial Analysis Lab, Fall 2000 – Spring 2003.  
Undergraduate Committee, Fall 2000 – Spring 2001.  
Peer Teaching Evaluation, Spring 2000 – Spring 2003.  
Coordinated proposal contribution for a Center for Coastal Studies in Manteo, NC, Summer 2000.  
GIS Day Coordinator, Fall 1999, Fall 2000.  
Graduate Committee, Spring 1997 – Spring 2003.  
System Administration Support, Spatial Data Analysis Laboratory, Fall 1996 - Fall 2000.  
Library Representative, Spring 1998 – Spring 2003.  
Search Committee for Department Chair Position, Fall 1997- Spring 1999.  
Search Committee for two Physical Geography Positions, Fall 1997 - Spring 1998.  
Equipment Committee, Fall 1997- Spring 1998.  
Computer Committee, Fall 1996 - Spring 1998.  
Social Committee, Fall 1996 - Spring 1998.  
Van Committee, Fall 1996 - Spring 1998.

#### *National*

Session Chair, Imagining the Blue Ridge Parkway for the 21<sup>st</sup> Century: History, Scenery, Conservation and Community, Boone, NC, April 24, 2010.  
Secretary/Treasurer, GIS Specialty Group, Association of American Geographers, 1998-2000.  
Association of American Geographers/GIS Specialty Group Delegate (elected), University Consortium Geographic Information Science (UCGIS), 1998-1999.  
Session Chair, Association of American Geographers Annual Meeting, Fort Worth, TX, April 1-5, 1997.

#### *State and Regional*

Steering Committee: “Improving Responses to Regional Storm Events,” National Environmental Modeling and Analysis Center (NEMAC) Workshop 20 May 2005, Asheville, NC  
Monitoring the Environment Workshop for 7-12 teachers, sponsored by the Dwight D. Eisenhower Professional Development Program and the North Carolina Geographic Alliance, June 2001.  
Steering Committee, 2001 North Carolina GIS Conference.  
Steering Committee, 1999 North Carolina GIS Conference.  
Exhibitor, State of North Carolina Teacher Day 1998, *Enhancing Environmental Education with Technology*, Spring 1998.  
North Carolina Arc/Info Users Group Workshop, Fall 1997.  
Learning in the Geographic Data Analysis Computer Lab Workshop, The Southeast Regional Technology and Teaching Conference, 1997.

#### *Community*

Presentations regarding remote sensing during Geography in Action Workshop for Watauga County H.S. students, 20 October 2006.  
Introduction to GIS, GPS, and Spreadsheets Workshop (for K-12 teachers), sponsored by the ECU Center for Science, Mathematics, and Technology Education, July 1998.  
Presentation to Satellite, Computer, and Mapping students - Ligon Middle School, Fall 1998  
Planning and execution of GIS workshops for 2 early release days for Pitt County High School teachers, Fall 1997 - Spring 1998.

#### **Professional Memberships**

American Association of Geographers  
Southeastern Division of the Association of American Geographers  
North Carolina Geographical Society  
American Geophysical Union