

Date of Last Up-date: January, 2011

CURRICULUM VITAE

A. BIOGRAPHICAL INFORMATION

1. Personal

Lawrence E. Band

Department of Geography  
University of North Carolina  
Chapel Hill, NC 27599

University telephone: 919-962-3921

2. Degrees

Ph.D., 1983, Geography, University of California, Los Angeles "Measurement and simulation of hillslope development", Supervisor: Dr. A.R. Orme

M.A., 1979, Geography, University of California, Los Angeles  
"Environmental constraints on the development of small, headwater stream networks", Supervisor: Dr. A.R. Orme

B.A., Geography, S.U.N.Y. at Buffalo, 1977

3. Employment

2009 - present	Director, Institute for the Environment, UNC
2002 - 2007	Chair, Department of Geography, UNC
1998 - present	Voit Gilmore Distinguished Professor of Geography Department of Geography University of North Carolina - Chapel Hill
1994 - 1998	Professor, Department of Geography, Graduate Faculty of Forestry, University of Toronto
1989 - 1994	Associate Professor, Department of Geography, University of Toronto
1987 - 1989	Assistant Professor, Department of Geography, University of Toronto
1983 - 1987	Assistant Professor, Department of Geology and Geography, Hunter College and Graduate Faculty
1981 - 1983	Lecturer, Department of Geography and Environmental Studies, San Francisco State University

4. Honors and Awards

1985 Chancellor's Distinguished Service Award, City University of New York

- 1985 NASA-ASEE Summer Faculty Fellowship, Ames Research Center, Moffett Field, California
- 1984 NASA-ASEE Summer Faculty Fellowship, Ames Research Center, Moffett Field, California
- 1994 Dean's Excellence Award, Faculty of Arts and Science, University of Toronto
- 1996 Dean's Excellence Award, Faculty of Arts and Science, University of Toronto

#### 5. Professional Affiliations and Activities

- 1986-1987 NASA Topographic Science Working Group
- 1988 NASA Shuttle Image Radar-C and EOS/SAR Review Panel
- 1986-1989 Consultant to New York City Department of Parks and Recreation on three different projects advising on park resource management, resource inventory, and erosion and runoff control.
- 1990 Consultant to Legal Department, City of Toronto for court cases at Ontario Municipal Board on challenges to ravine designation pursuant to the City of Toronto Ravine Control By-Law
- 1990-1991 NASA Global Topography Mission Working Group
- 1990 NASA Soil Science Steering Group
- 1990 IGBP/IAHS/IHP Working Group on Plant-Water Interactions in Large Scale Hydroecological Modeling
- 1992-1998 Consultant to Ontario Ministry of Natural Resources for Landscape Ecology of Old Growth Forests, regional forest productivity, ecoregionalization.
- 1992-1993 Visiting Scientist, CRC for Catchment Hydrology, CSIRO, Canberra, Australia
- 1994-present Member, AGU Surface Water Hydrology Committee
- 2000-2003 Chair, AGU Surface Water Hydrology Committee
- 1999 Member NASA AO-1 Review Team
- 2000 Hydrology Editor, Encyclopedia Britannica
- 2001 Co-organized and chaired AGU Chapman Conference on Hillslope Hydrology, Bend Oregon
- 2001-2004 Deputy Editor, Surface Water Hydrology, Water Resources Research
- 2002 Consultant, British Columbia Ministry of Forests, Ecoregionalization
- 2002-2004 Chair, Consortium of Universities for the Advancement of Hydrologic Science Committee on Hydrologic Observatories
- 2005 Member, Review Team for the Chesapeake Bay Watershed Model - Phase 4, Chesapeake Bay Foundation
- 2005-2007 Member, National Research Council Committee on Integrated Observations for Hydrologic and Related Sciences
- 2006 Organized and chaired Spring AGU Union Sessions on Urbanization Impacts on the Environment
- 2006 Member, Review Team for the Everglades Land Model, South Florida Water Management District
- 2007-2008 Member, National Research Council Committee on Reducing Stormwater Discharge Contributions to Water Pollution
- 2008 Member, Review Team for the Chesapeake Bay Watershed Model - Phase 5, Chesapeake Bay Foundation
- 2008 Consultant, State of California Environmental Protection Agency, Water Resources Control Board - Water Rights, on

	Policy for Maintaining In Stream Flows in Northern California Coastal Streams
2008-2009	Visiting Scientist, Bureau of Meteorology/CSIRO, Canberra, Australia
2009	Consultant, Environmental Protection Agency, Review of Ecosystem Services Planning Document for Reactive Nitrogen
2009	Consultant, Environmental Protection Agency, Review Team for Environmental Science Division
2009	Board of Directors, Executive Committee, Incoming Board Chair for Consortium of Universities for the Advancement of Hydrologic Science, Inc.
2009-2010	Consultant, Environmental Protection Agency, Review of ecosystem services model
2010	Chair, Board of Directors, Consortium of Universities for the Advancement of Hydrologic Science, Inc.
2011	Past Chair, Board of Directors, CUAHSI
2010-present	Member, North Carolina Committee on Nutrient Sensitive Waters

Member:

Association of American Geographers  
 American Geophysical Union  
 American Association for the Advancement of Science

B. ACADEMIC HISTORY

6. Research Awards

1984 - 1985 NASA-AMES University Consortium, "Algorithm development for efficient interrogation of a distributed land data pilot information system", collaborator, (\$14,985)

1984 - 1985 PSC-CUNY Research Award Program, "Extraction of topographic networks from digital elevation models", principal investigator, (\$4,800)

1985 NASA University Applications Program, "Center for Expertise in Spatial Modeling and its Application to Remote Sensing", co-principal investigator, (\$69,980)

1986 NASA-Ames Research Center, "Automated construction of a spatial framework to integrate remotely sensed data with a distributed, process-based ecosystem model", principal investigator, (\$15,575)

1986 NYC Department of Parks, "Hydrology of Alley Pond Park", principal investigator, (\$4,800)

1984 - 1987 Cold Regions Research and Engineering Laboratory, United States Army Corps of Engineers, "Potential application of SPOT high-resolution digital imagery for military and civil works objectives of the Army Corps of Engineers", principal investigator, (\$74,051)

1986 - 1987 "Estimation of topographic parameters for distributed hydrologic models from digital elevation data", Professional Staff

Congress of the City University of New York, principal investigator,  
(\$6,000)

1986 - 1989 "Extrapolation of process models of evapotranspiration and  
net primary production of coniferous forests to large spatial scales",  
NASA, principal investigator, (\$131,571)

1988 - 1989 "Construction of a watershed information system," University  
of Toronto, Connaught Research Award, (\$10,000)

1990 - 1993 "Inference of soil properties using a GIS for hydroecological  
modelling", NSERC, principal investigator, (\$20,000/yr.)

1990 -1994 "Extrapolation of Ecosystem Processes to Regional Scales:  
Development of RESSys (Regional Ecosystem Simulation System),  
principal investigator, NASA subcontract through University of  
Montana, (US\$279,206)

1990 -1992 "Development of ILIS (Intelligent Landscape Integration System)  
part of SHERI (System for Hierarchical Experts for Resource  
Inventories Program", Canada Centre for Remote Sensing,  
principal investigator, (\$84,455)

1993 -1996 "Boreal Ecosystem-Atmosphere Study: Boreal Forest Carbon and  
Water Budget Simulation: Scaling from Local to Regional  
Extent", Collaborative Research Program, NSERC, co-principal  
investigator, (\$120,000)

1993 -1994 "Dynamic land surface/atmospheric parameterization at different  
spatial scales for the South Platte river drainage," principal  
investigator, NOAA subcontract through Colorado State  
University, (US\$24,100/yr.)

1994 -1997 "Multi-scale evaluation of RHESys over different biomes,"  
principal investigator, NASA subcontract through University of  
Montana, (US\$84,000/yr.)

1995-1998 "An integrated watershed impact assessment system," principal  
investigator, NSERC (\$55,600)

1997-2000 "Impact of social systems on ecology and hydrology in urban-  
rural watersheds: Integration for restoration", NSF/EPA Water  
and Watersheds Program, one of 8 principal investigators,  
(\$999,932)

1997-2004 "Human settlements as ecosystems: Metropolitan Baltimore from  
1790-2100," NSF Long Term Biology, LTER Network, one of 11  
principal investigators, \$4,900,000.

2000-2002 "Modeling land surface nitrogen transformation and transport  
within Piedmont and Coastal Plain watersheds," principal  
investigator, UCAR, \$96,000.

2001-2003 "Hydroecological organization and dynamics in urbanizing  
watersheds," principal investigator, NSF, \$276,307.

- 2001-2002 "Drought impact assessment system," principal investigator, Water Resources Research Institute of North Carolina, \$40,000.
- 2002-2005 "Forested and Agricultural Watershed Nitrogen Attenuation (FAWNA)", co-principal investigator, EPA, \$555,000.
- 2002-2006 "Hydroecology of the Ohio Hills," principal investigator, US Forest Service, \$92,000
- 2003 "Drought vulnerability in the Catawba River Basin," principal investigator, Duke Energy Foundation, \$100,000.
- 2003-2004 "Sources, transport and fate of sediment and nutrients from a redeveloping watershed: Hydrology of the central UNC Campus," principal investigator, Water Resources Research Institute of North Carolina, \$20,000.
- 2004-2011 "Human settlements as ecosystems: Metropolitan Baltimore from 1790-2100," NSF Long Term Biology, LTER Network, one of 13 principal investigators, \$7,200,000.
- 2005-2008 "BC/CNH: Feedbacks Between Complex Ecological and Social Models: Urban Landscape Structure, Nitrogen Flux, Vegetation Management, and Adoption of Design Scenarios," co-principal investigator, \$1,499,000 (UNC portion \$150,000).
- 2005-2006 "Vulnerability of North Carolina watersheds to drought," principal investigator, \$67,000, North Carolina Urban Water Consortium.
- 2006-2007 "Landslide hazard modeling in Western North Carolina," principal investigator, \$74,999, USFS.
- 2007-2009 "Model evaluation of the role of urban tree canopy in runoff production," principal investigator, \$42,500, USFS.
- 2007-2010 "Drought vulnerability of Carolina Watersheds," principal investigator, subcontract from SE, RESA NOAA project.
- 2007-2011 "Exploring the Determinants of Household Environmental Behavior: A Socio-Spatial Analysis of Lawn Care Practices," NSF Human Societal Dynamics - subcontract from Vanderbilt University, UNC principal investigator (UNC portion) \$318,679.
- 2008-2014 "Southern Appalachians on the Edge: Coweeta Long Term Ecological Research Site," NSF Long Term Biology, LTER Network, one of 20 principal investigators, \$7,200,000, UNC portion, \$350,000.
- 2009-2012 "ULTRA-Ex: Collaborative Research: Reconciling Human land Natural Systems for the Equitable Provision of Ecosystem Services in the Triangle of North Carolina," NSF, principal investigator, \$92,903.

## C. SCHOLARLY AND PROFESSIONAL WORK

### 7. Refereed Publications

a. Journal Articles

1. L.E. Band, O.E. Elfes, J.T. Hayes, L.O. Mearns, P.A. O'Rourke, B.J. Stevenson, W.H. Terjung and P.E. Todhunter, 1981), "Application of a photosynthesis model to an agricultural region of varied climates: California", *Agricultural Meteorology*, vol. 24, 1981, pp. 201-217.
2. L.E. Band, "Field parameterization of an empirical sheetwash equation", *Catena*, vol. 12, no. 4, 1985, pp. 282-290.
3. L.E. Band, "Topographic partition of watersheds with digital elevation models", *Water Resources Research*, vol. 22, no. 1, 1986, pp. 15-24.
4. L.E. Band, "Lateral migration of stream channels", *Catena*, Supplement 10, 1987, p. 99-110.
5. L.E. Band and E.F. Wood, "Strategies for large scale, distributed hydrologic modeling", *Applied Mathematics and Computation*, 1988, v.27, p.23- 37.
6. E.F. Wood, M. Sivapalan, K. Beven and L.E. Band, "Effects of spatial variability and scale with implications to hydrologic modeling," *Journal of Hydrology*, 1988, v.102, p.29-47.
7. L.E. Band, "A terrain based, watershed information system", *Hydrological Processes*, 1989, v.3, p.151-162.
8. L.E. Band, "Scale dependence of hillslope complexity," *Geographical Analysis*, 1989, v.21, p.279-293.
9. S.W. Running, R.R. Nemani, D.L. Peterson, L.E. Band, D.F. Potts and L.L. Pierce, "Mapping regional forest evapotranspiration and photosynthesis by coupling satellite data with ecosystems simulation," *Ecology*, 1989, v.70, p.1090-1101.
10. L.E. Band, "Automating topographic and ecounit extraction from mountainous, forested area," *Artificial Intelligence in Natural Resources*, 1989, v.3, p.1-11.
11. L.E. Band, "Dynamic soil catenas and hillslope evolution," *Catena*, 1990, Suppl. 17, p.167-176.
12. R.L. Lammers and L.E. Band, "Automating object description of drainage basin", *Computers in Geoscience*, 1990, v.16, n.6, p.787-810.
13. L.E. Band, "Distributed parameterization of complex terrain," *Surveys in Geophysics*, 1991, v.12, p.249-270.
14. L.E. Band, D.L. Peterson, S.W. Running, J.C. Coughlan, R. Lammers, J.Dungan and R.R. Nemani, "Ecosystem processes at the watershed level: Basis for distributed simulation," *Ecological Modeling*, 1991, v.56, p.171-196.
15. Mackay, D.S., V.B. Robinson and L.E. Band. Classification of higher order topographic objects on digital terrain data. *Computers, Environment and Urban Systems*, 1992, v.16, p.473-496.

16. D.S. Mackay, V.B. Robinson and L.E. Band, 1992. An integrated knowledge-based system for managing spatiotemporal ecological simulations. *AI Applications*, v.7(1), p.29-36.
17. L.E. Band, P. Patterson, R.R. Nemani and S.W. Running, "Forest ecosystem processes at the watershed scale: 2. Adding hillslope hydrology." *Agricultural and Forest Meteorology*, 1993, v.63, p.93-126.
18. Scuderi, L.A., C. Barker-Schaff, K.U. Orth and L.E. Band, 1993. Alpine treeline growth variability: simulation using an ecosystem process model. *Arctic and Alpine Research*, v.25, p.175-182.
19. Band, L.E. 1993. Effect of land surface representation on forest water and carbon budgets. *Journal of Hydrology*, v.150, p.749-772.
20. Nemani, R.R., L. Pierce, L.E. Band, S.W. Running, 1993. Forest ecosystem processes at the watershed scale: Sensitivity to remotely sensed leaf area index observations. *International Journal of Remote Sensing*, v.14, p.2519-2534.
21. Zhu, A. and L.E. Band 1994. Knowledge-based approach to data integration for soil mapping, *Canadian Journal of Remote Sensing*, v.20, p.408-417.
22. Band, L.E., R. Vertessey and R.B. Lammers, 1995. The effect of different terrain representation schemes and resolution on simulated watershed processes. *Zeitschrift fur Geomorphologie, Suppl-Bd. 101*, p.187-199.
23. Band, L.E. and I.D. Moore, 1995. Scale: Landscape attributes and GIS. *Hydrological Processes*, v.9, p.401-422.
24. A. Perera, J. Baker, L.E. Band and D. Baldwin. 1995. A strategic framework to eco-regionalization in Ontario. *Journal of Environmental Monitoring and Assessment*, v.39, p.85-96.
25. Band, L.E., D.S. Mackay and I.F. Creed, R. Semkin and D. Jeffries 1996. Ecosystem processes at the watershed scale: Sensitivity to potential climate change. *Limnology and Oceanography*, v.41, p.928-938.
26. I.F. Creed, L.E. Band, N.W. Foster, I.K. Morrison, J.A. Nicolson, R.S. Semkin and D.S. Jeffries, 1996. Regulation of nitrate-N release from temperate forests: A test of the N flushing hypothesis. *Water Resources Research.*, v.32, p.3337-3354.
27. S.Frolking, M.L. Goulden, S.C. Wofsy, S-M Fan, D.J. Sutton, J.W. Munger, A.M. Bazzaz, B.C. Daube, P.M. Crill, J.D.. Aber, L.E. Band, X. Wang, K. Savage, T. Moore and R.C. Harriss 1996. Modeling temporal variability in the carbon balance of a spruce/moss boreal forest. *Global Change Biology*, v.2, p343-366.
28. Zhu, A. and L.E. Band 1996. Inference of soil properties under fuzzy logic. *Ecological Modelling*, v.90, p.123-145.

30. D.S. Mackay and L.E. Band 1997. Forest ecosystem processes at the watershed scale: Dynamic coupling of distributed hydrology and canopy growth. *Hydrological Processes*, v.11, p.1197-1217.
31. A. Zhu, L.E. Band, R. Vertessy and B. Dutton, 1997. Soil property derivation using a soil land inference model (SoLIM). *Soil Science Society America Journal*, v.61(2), p.523-533.
32. Price, A.G., K.Dunham, T.Carleton, L.Band 1997. Variability of water fluxes through the black spruce (*Picea mariana*) canopy and feather moss (*Pleurozium schreberi*) carpet in the boreal forest of Northern Manitoba. *Jour. Hydrology*, v.196, p.310-333.
33. Mackay, D.S. and L.E. Band 1998. Topographic partitioning of watersheds with lakes and other flat areas on digital elevation models. *Water Resources Research*, v.34(4), p.897-901.
34. Creed, I.C. and L.E. Band 1998. Exploring functional similarity in the export of nitrate-N from forested catchments: A mechanistic modeling approach. *Water Resources Research*, v.34(11), p.3079-3093.
35. Creed, I.C. and L.E. Band 1998. Export of nitrogen from catchments within a temperate forest: Evidence for a unifying mechanism regulated by variable source area dynamics. *Water Resources Research*, v.34(11), p.3105-3120.
36. J.S. Baron, M.D. Hartman, T.G.F. Kittel, L.E. Band, D.S. Ojima, R.B. Lammers, 1998. Effects of land cover, water redistribution and temperature on ecosystem processes in the South Platte Basin. *Ecological Applications*, v.8, p.1037-1051.
37. Hartman, M., R.B. Lammers, J. Baron, D. Cline, L. Band, C.Tague 1999. Simulations of snow distribution and hydrology in a mountain basin. *Water Resources Research*, v.35, p.1587-1604.
38. T.X. Zhu, L.E. Band, R.A. Vertessy 1999. Continuous modelling of intermittent stormflows on a semi-arid agricultural catchment. *Journal of Hydrology*, v.226, p.11-29.
39. S.E. Brun and L.E. Band 2000. Simulating runoff behavior in an urbanizing watershed. *Computers, Environment and Urban Systems*, v.24, p.5-22.
40. Walko, R.L., L.E. Band, J. Baron, T.G.F. Kittel, R. Lammers, T.J. Lee, R.A. Pielke, Sr., C. Taylor, C. Tague, C.J. Tremback, P.L. Vidale 2000. Coupled atmosphere-biophysics-hydrology models for environmental modeling. *Journal Applied Meteorology*, v39, p.931-944.
41. J.S Baron, M.D. Hartman, L.E. Band and R.B. Lammers 2000. Sensitivity of a high-elevation Rocky Mountain watershed to altered climate and CO2. *Water Resources Research*, v.36, p.89-100.
42. L.E. Band, C.L. Tague, S.E. Brun, D.E. Tenenbaum, R.A. Fernandes 2000. Modeling watersheds as spatial object hierarchies: Structure and dynamics. *Transactions in Geographic Information Systems*, v.4, p.181-196.



43. L.E. Band, C.L. Tague, P. Groffman and K. Belt, 2001. Forest ecosystem processes at the watershed scale: Hydrological and ecological controls of nitrogen export. *Hydrological Processes*, v.15, p.2013-2028.
44. C.L. Tague and L.E. Band, 2001. Simulating the impacts of road construction and forest harvesting on hydrologic response. *Earth Surface Processes and Landforms*, v26, p.135-151.
45. C.L. Tague and L.E. Band, 2001. Evaluating explicit and implicit routing for watershed, hydroecological models of forest hydrology at the small catchment scale. *Hydrological Processes*, v.15, p.1415-1439.
46. Wing, S., S. Friedman and L. Band 2002. The potential influence of flooding on confined animal feeding operations in eastern North Carolina. *Environmental Health Perspectives*, v.110, p.387-391.
47. Groffman, P.M., N.J. Boulware, W.C. Zipperer, R.V. Pouyat, L.E. Band, M.F. Colosimo 2002. Soil nitrogen cycle processes in urban riparian zones. *Environmental Sciences and Technology*, v.36, p.4547-4552.
48. Creed, I. F., C. G. Trick, L. E. Band, I. K. Morrison 2002. Characterizing the Spatial Pattern of Soil Carbon and Nitrogen Pools in the Turkey Lakes Watershed: A Comparison of Regression Techniques. *Water, Air, & Soil Pollution*, v.2, p.81-102.
49. Mackay, D.S., S. Samanta, R.R. Nemani, and L.E. Band. 2003. Multi-objective parameter estimation for simulating canopy transpiration in forested watersheds. *Journal of Hydrology* v.277, 230-247.
50. Groffman, P.M., D.J. Bain, L.E. Band, K.T. Belt, G.S. Brush, J.M. Grove, R.V. Pouyat, I.C. Yesilonis, W.C. Zipperer, 2003. Down by the riverside: Urban riparian ecology. *Front Ecol Environ*, 1(6), 315-321.
51. Tague, C.L., L.E. Band, 2004. RHESys: Regional Hydro-Ecologic Simulation System—An Object-Oriented Approach to Spatially Distributed Modeling of Carbon, Water, and Nutrient Cycling. *Earth Interactions* 2004 8: 1-42.
52. Law, N.L., L.E. Band, J.M. Grove, 2004. Nitrogen input from residential lawn care practices in suburban watersheds in Baltimore County, MD. *Journal of Environmental Management*, 47(5), 737-755.
53. Groffman, P.M., N.L. Law, K.T. Belt, L.E. Band and G.T. Fisher. 2004. Nitrogen fluxes and retention in urban watershed ecosystems. *Ecosystems*, v.7, p.393-403.
54. Song, C. and L.E. Band, 2004. MVP: A Model to Simulate the Spatial Patterns of Photosynthetically Active Radiation Under Discrete Forest Canopies. *Canadian Journal of Forest Research*, v.34, p.1192-1203.
55. Kaushal, S.S., P.M. Groffman, G.E. Likens, K.T. Belt, W.P. Stack, V.R. Kelly, L.E. Band, G.T. Fisher 2005. Increased salinization of fresh water in the northeastern United States. *Proceedings of the National Academy of Science*, 102, 13517-13520.

56. D.L. Tenenbaum, L.E. Band, C.L. Tague, S. Kenworthy, 2005. Analysis of soil moisture patterns in forested and suburban catchments using high resolution photogrammetric and LIDAR digital elevation datasets. *Hydrological Processes*, 20, 219-240.
57. D.E. Tenenbaum, M.L. Cadenasso, L.E. Band and S.T.A. Pickett, 2006. Using Transects to Sample Digital Orthophotography of Urbanizing Catchments to Provide Landscape Position Descriptions. *GIScience & Remote Sensing*, 2006, **43**, No. 4, p. 1-29.
58. Groffman, P. M., R.V. Pouyat, M.L. Cadenasso, W.C. Zipperer, K. Szlavecz, I.D. Yesilonis, L.E. Band, G.S. Brush 2006. Land use context and natural soil controls on plant community composition and soil nitrogen and carbon dynamics in urban and rural forests. *Forest Ecology and Management* 236, 177-192.
59. Emily S. Bernhardt, Lawrence E. Band, Christopher J. Walsh, and Philip E. Berke, 2008. Understanding, managing, and minimizing urban impacts on surface water nitrogen loading. *Annals of the New York Academy of Science*, v. 1134, 61-96.
60. Mary L. Cadenasso, S.T.A.Pickett, L.E. Band, G.S. Brush, M.F. Galvin, P.M. Groffman, J.M. Grove, G. Hagar, V. Marshall, B. McGrath, J. O'Neil-Dunne, B. Stack, and A. Troy, 2008. Exchanges across land-water-scape boundaries in urban systems: Strategies for reducing nitrate pollution, *Annals of the New York Academy of Science*, v. 1134, 213-232.
61. Shields, C., L.E. Band, N. Law, P. Groffman, S. Kaushal, K. Savvas, G. Fisher, K. Belt, 2008. Streamflow Distribution of Non-Point Source Nitrogen Export from Urban-Rural Catchments in the Chesapeake Bay Watershed. *Water Resources Research*, 44, W09416, doi:10.1029/2007WR006360.
62. Pickett, S.T.A., M.L. Cadenasso, J.M. Grove, P.M. Groffman, L.E. Band, C.G. Boone, W.R. Burch Jr., C.S.B. Grimmond, J.Hom, J.C. Jenkins, N.L. Law, C.H. Nilon, R.V. Pouyat, K. Szlavecz, P.S. Warren, M.A. Wilson, 2008. Beyond Urban Legends: An Emerging Framework of Urban Ecology, as Illustrated by the Baltimore Ecosystem Study. *Bioscience*, v.58. p.139-150.
63. S.S. Kaushal, P.M. Groffman, L.E. Band, C.A. Shields, R.P. Morgan, M.A. Palmer, K.N. Eshleman, K.T. Belt, C.M. Swan, S.E.G. Findlay, G.T. Fisher, 2008. Interaction between urbanization and climate variability amplifies watershed nitrate export in Maryland, USA. *Env. Sci. & Tech.*, 10.1021.
64. Fuhrman, C.M., C.E. Konrad, L.E. Band 2008. Climatological perspectives on the rainfall characteristics associated with landslides in western North Carolina. *Physical Geography*, 29(4), p.289-305.
65. Hwang T, Kang S, Kim J, Kim Y, Lee D, Band L (2008) Evaluating drought effect on MODIS Gross Primary Production (GPP) with an eco-hydrological model in the mountainous forest, East Asia. *Global Change Biology*, 14, 1037-1056.
66. Groffman, P.M., C.O. Williams, R.V. Pouyat, L.E. Band, I.D. Yesilonis, 2009. Nitrate leaching and nitrous oxide flux in urban forests and grasslands. *Journal of Environmental Management*, 38(5), 1846-1860.

67. Hales, T. C., C. R. Ford, T. Hwang, J. M. Vose, and L. E. Band (2009), Topographic and ecologic controls on root reinforcement, *J. Geophys. Res.*, 114, F03013, doi:10.1029/2008JF001168.
68. Hwang, T., L. Band, and T. C. Hales (2009), Ecosystem processes at the watershed scale: Extending optimality theory from plot to catchment, *Water Resour. Res.*, 45, W11425, doi:10.1029/2009WR007775.
69. Claessens, L., C. Tague, L. Band, P. Groffman and S. Kenworthy. 2009. Hydro-ecological linkages in urbanizing watersheds: An empirical assessment of in-stream nitrate loss and evidence of saturation kinetics. *Journal of Geophysical Research - Biogeosciences. Res.*, 114, G04016, doi:10.1029/2009JG001017.
70. Song, C., G. Katul, R. Oren, L. E. Band, C. L. Tague, P. C. Stoy, and H. R. McCarthy (2009), Energy, water, and carbon fluxes in a loblolly pine stand: Results from uniform and gappy canopy models with comparisons to eddy flux data, *J. Geophys. Res.*, 114, G04021, doi:10.1029/2009JG000951.
71. Mackay, D.S. and L.E. Band 2010. Integrated ecohydrologic research and hydroinformatics. *Journal of contemporary water research & education*, Issue 142, p. 1-8.
72. Smith, M., M. Cadenasso, W. Zhou, M. Grove, L.E. Band 2010. Evaluation of the NLCD for hydrologic applications in urban and suburban Baltimore, Maryland. *Journal of the American Water Resources Association (JAWRA)* 1-14. DOI: 10.1111 / j.1752-1688. 2009.00412.x.
73. Hwang, T., C. Song, J.M. Vose, L.E. Band 2011. Topography-mediated controls on local vegetation phenology estimated from MODIS vegetation index. *Landscape Ecology*, in press.
74. Band, L.E., T. Hwang, T.C. Hales, 2011. Ecosystem processes at the watershed scale: Mapping and modelling ecohydrological controls of landslides. *Geomorphology*, in press.

b. Books and/or Chapters in Books

1. L.E. Band, "Simulation of hillslope development and the magnitude and frequency of overland flow erosion", in M.J. Woldenberg (ed.), *Models in Geomorphology*, p.191-211. George Allen and Unwin, 1985.
2. L.E. Band, "Extraction of channel networks and topographic parameters from digital elevation data." Chapter 2, p.13-42 in M.J. Kirkby K. Beven (ed.), *Channel Network Hydrology*, John Wiley, 1993.
3. I.D. Moore, A.K. Turner, J.P. Wilson, S.K. Jenson, L.E. Band, "GIS and land surface-subsurface modeling," Chapter 19, p.196-230 in M.F.Goodchild,

B.O. Parks, L.T. Steyaert (ed.), *Environmental Modeling with GIS*, Oxford University Press, 1993.

4. R.R. Nemani, S.W. Running, L.E. Band, D.L. Peterson, "Regional hydroecological simulation system: An illustration of the integration of ecosystem models in a GIS", Chapter 28, p.296-304 in M.F. Goodchild, B.O. Parks, L.T. Steyaert (ed.), *Environmental Modeling with GIS*, Oxford University Press, 1993.

5. D.S. Mackay, V.B. Robinson and L.E. Band, "On a knowledge-based approach to the management of geographic information systems for simulation of forested ecosystems," in W.K. Michener, J. Brunt (ed.), *Environmental Information Management and Analysis*, p.511-534, Taylor and Francis, 1994.

6. R.B. Lammers Band, L.E. Band C. Tague 1997. Scaling water and carbon budgets to regional extents: Simulation approach. P.295-317 in, *SEB Seminar Series --- Scaling Up*, P. Van Gardingen, ed., Cambridge University Press, Cambridge.

7. L.E. Band 1999. Spatial Hydrography and Landforms. Chapter 37 (p.527-542) in GIS: Management Issues and Applications, ed. P. Longley, M. Goodchild, D. Maguire and D. Rhind, John Wiley & Sons.

8. D. Baldwin, J. Desloges and L.E. Band 2000. Physical Geography of Ontario. Ch.3 (p.12-29) in Ecology of a Managed Terrestrial Landscape: Patterns and Processes of Forests in Ontario, ed. A.H. Perera, D.L. Euler, I.D. Thompson, University of British Columbia Press.

9. L.E. Band 2000. Forest ecosystem productivity in Ontario. Ch.9 (p.163-178) in Ecology of a Managed Terrestrial Landscape: Patterns and Processes of Forests in Ontario, ed. A.H. Perera, D.L. Euler, I.D. Thompson, University of British Columbia Press.

10. L.E. Band and C. Tague 2005. Feedbacks and Coupling between Water, Carbon and Nutrient Cycling at the Hillslope Scale. Ch. 4.10, in Axel Bronstert, Jesus Carrera, Pavel Kabat, Sabine Lütke-meier (Eds), *Coupled Models for the Hydrological Cycle - Integrating Atmosphere, Biosphere, and Pedosphere*. Springer-Verlag, 2005.

11. Band, L.E., M. Cadenasso, S. Grimmond, M. Grove, S.T. Pickett, 2005. Heterogeneity in Urban Ecosystems: Pattern and Process. Ch.13 in, Lovett, G.M., C.G. Jones, M.G. Turner, and K.C. Weathers, editors. *Ecosystem Function in Heterogeneous Landscapes*. Springer-Verlag, NY.

12. Tague, C.L., L.E. Band and J. Franklin, 2006. *Terrestrial Ecosystems*. In, *Encyclopedia of Hydrological Sciences*, John Wiley & Sons, Chichester.

13. Pouyat, R. V., K. T. Belt, D. E. Pataki, P. M. Groffman, J. Hom, and L. E. Band. 2007. Urban land-use change effects on biogeochemical cycles. pp. 45-58. In: P. Canadell, D. Pataki and L. Pitelka (eds.). *Terrestrial Ecosystems in a Changing World*. The IGBP Series, Springer-Verlag, Berlin-Heidelberg-New York.

14. National Research Council, Committee on Integrated Observations for Hydrologic and Related Sciences, Water Science Technology Board 2008.

"Integrating multiscale observations of U.S. waters." National Academies Press, 181p.

15. National Research Council, Committee on Reducing Stormwater Discharge Contributions to Water Pollution, Water Science Technology Board 2008. "Urban Stormwater Management in the United States" National Academies Press, 513p.

c. Technical Reports

1. L.E. Band, 1993. "Development of a preliminary landscape ecological model for the management of mixedwood forests in central Ontario," Ontario Forest Research Institute Technical Report, Forest Fragmentation and Biodiversity Project, Rept. no.7, 19p.
2. L.E. Band, 1994. "Development of a landscape ecological model for management of Ontario forests: Phase 2 - Extension over an east/west gradient through the province," Ontario Forest Research Institute Technical Report, Forest Fragmentation and Biodiversity Project, Rept. no.17, 40p.
3. Chen, J. M. J. Cihlar, L. Band, R. Desjardins, W. Gao, S. Goward, Z. Li, A. Royer, 1996. VEGETATION/SPOT for Northern Applications: First Progress Report to International VEGETATION Users Committee, Toulouse, France. 27 pages.
4. Chen, J. M. J. Cihlar, L. Band, R. Desjardins, W. Gao, S. Goward, Z. Li, A. Royer, 1997. VEGETATION/SPOT for Northern Applications: Second Progress Report to International VEGETATION Users Committee, Toulouse, France. 10 pages
5. L.E. Band, F. Csillag, A.J. Perera, J. Baker, 1999 "Deriving an eco-regional framework for Ontario" Ontario Forest Research Institute Technical Report, Forest Fragmentation and Biodiversity Project, Forest Research Report No. 149, 30p.
6. Chen, J. M. J. Cihlar, L. Band, R. Desjardins, W. Gao, S. Goward, Z. Li, A. Royer, 1998. VEGETATION/SPOT for Northern Applications: Final Pre-launch Report to International VEGETATION Users Committee, Toulouse, France. 38 pages.
7. L.E. Band, F. Ogden J. Butler, D. Goodrich, R. Hooper, D. Kane, B. Lyons, D. McKnight, N. Miller, M. Williams, K. Potter, B. Scanlon, R. Pielke, K. Reckhow, 2002. Hydrologic Observatories. CUAHSI Technical Report Number 4, August 2002, Washington D.C.  
([http://www.cuahsi.org/publications/cuahsi\\_tech\\_rpt\\_4.pdf](http://www.cuahsi.org/publications/cuahsi_tech_rpt_4.pdf))
8. Reckhow, K., L. Band, C. Duffy, et al 2004. Designing hydrologic observatories: A paper prototype of the Neuse Watershed. A report to the Consortium of Universities for the Advancement of Hydrologic Sciences, Inc. CUAHSI Technical Report Number 6, December, 2004, Washington, D.C.

## 8. Non-Refereed Publications

1. L.E. Band "On the development of characteristic slope profiles", in Modeling and Simulation, Proceedings of the Pittsburgh Conference, vol. 15, 1984, pp. 13-17.
2. L.E. Band "Extraction of topographic networks from digital elevation models", Proceedings of the XVI International Symposium of Remote Sensing of Environment, 1984.
3. L.E. Band and V.B. Robinson, "Information-theoretic analysis of the cis- trans link problem in stream networks", Modeling and Simulation, Proceedings of the Pittsburgh Conference, vol. 15, 1984.
4. (with H.L. McKim et al), "Potential applications of SPOT data for sediment pattern detection in Chesapeake Bay", Proceedings of the First Annual SPOT Symposium, Scottsdale, Arizona, 1984.
5. L.E. Band "Development of a distributed-components database for hydrologic simulation", Modeling and Simulation, Proceedings of the Sixteenth Pittsburgh Symposium on Modeling and Simulation, vol. 16, part 4, 1985, pp. 325-330.
6. L.E. Band "Digital elevation models and hydrologic information systems", in Advanced Technology for Monitoring and Processing Global Environmental Information, Proceedings of the International Conference of the Remote Sensing Society and the Center for Earth Resources Management. London, England, 1985, pp. 201-207.
7. L.E. Band, H.L. McKim, C. Merry, "Syntactic pattern recognition of pollutant plumes", Proceedings of the Fifth Army Corps of Engineers Remote Sensing Conference, Ann Arbor, Michigan, 1985, p.137-148.
8. L.E. Band and V.B. Robinson, "Automated construction of a hydrologic information system from digital elevation data", forthcoming in Proceedings of the Workshop on Geographical Information Systems for Environmental Protection, Environmental Research Center, University of Nevada, Las Vegas, 1986, p.99-112.
9. L.E. Band "Analysis and representation of drainage basin structure with digital elevation data", in Proceedings of the Second International Conference on Spatial Data Handling, Seattle, Washington, 1986, pp. 437-450.
10. L.E. Band, R.R. Nemani, S. Running, J. Coughlan, D. Peterson, J. Dungan, "Spatial modelling of forest watershed processes", Proceedings of ISPRS Midterm Symposium on Global Monitoring, 1990, Victoria, British Columbia, p.293-302.
11. S.W. Running, J.C. Coughlan, D.L. Peterson, L.E. Band, "Mapping regional forest evapotranspiration and photosynthesis by coupling satellite data with ecosystem simulation," IGARSS 90, 1990, p.265-268.
12. L.E. Band, L.Y. Fu, "Development of a GIS to aid in spatial modeling and management of soil erosion on the Loess Plateau," Proceedings of the

Second International Workshop on Geographical Information Systems, Beijing, 1990, p.548.

13. D.S. Mackay, V.B. Robinson, L.E. Band, "An object-oriented system for the organization and representation of terrain knowledge for forested ecosystems. GIS/LIS91, Atlanta, Georgia, 1991.

14. L.E. Band, L.Y. Fu, "Structure and operation of SEMGIS: Soil erosion management geographic information system," Proceedings of the International Conference on Application of Geographical Information Systems to Soil Erosion Management, Taiyuan, 1992, p.31-42.

15. Baron, J., R. Pielke, B. Partion, L. Band, S. Running, 1994. Dynamic land surface/atmospheric parameterization at different spatial scales in the Colorado Rocky Mountains. pp.34-36 in: P.H. Gleick, A. Rango and K. Cooley, eds. Proceedings of a workshop on the use of hydrological models evaluating the impacts of climate change in snowmelt water supply basins. Santa Fe, NM, April 1993, Pacific Institute for Studies in Development, Environment and Security. Oakland, CA 94612.

16. Fernandes, R.A, J.R. Miller and L.E. Band, 1996 "Comparison of Linear Least Squares Unmixing Methods and Gaussian Maximum Likelihood Classification." Proceedings 25<sup>th</sup> IEEE Geosci. Rem. Sens. Meeting, Lincoln, Nebraska, p.420-422.

17. Fernandes, R.A., H.P. White, D.R. Peddle, J.R. Miller and L.E. Band 1996. The reflectance of *Pleurozium schreberi* as a function of water status and its implications on understory reflectance variations for BOREAS sites. Proceedings 25<sup>th</sup> IEEE Geosci. Rem. Sens. Meeting, Lincoln, Nebraska, p.212-214.

18. J.S. Baron, D.S. Ojima, M.D. Hartman, T.G.F. Kittle, R.B. Lammers, L.E. Band and R.A. Pielke 1996. The influence of spatial patterns of landcover and use on hydrological and ecosystem dynamics at the mountain plains interface in the Central United States. P.50-53 in Proceedings of the IGBP/BAHC-LUCC Joint inter-core projects symposium on interactions between the hydrological cycle and land use/cover. Kyoto, Japan.

19. Watson, F.G.R., Vertessy, R.A., & Band, L.E. (1996) Distributed parameterization of a large scale water balance model for an Australian forested region. HydroGIS 96: Application of Geographic Information Systems in Hydrology and Water Resources Management (Proc. of the Vienna Conf. April 1996), IAHS Publication No 235, pp 157-166.

20. Watson, F.G.R., Vertessy, R.A., Grayson, R.B., Band, L.E., & McMahon, T.A. (1997) Macaque: Regional scale modelling of water yield from forested basins. Water, Journal Australian Water & Wastewater Assoc., 24:9.

21. J.S. Baron, D.S. Ojima, M.D. Hartman, T.G.F. Kittle, R.B. Lammers, L.E. Band and R.A. Pielke 1997. The influence of land cover and temperature change on hydrological and ecosystem dynamics in the South Platte River Basin. Proceedings of the American Water Resources Association Meetings: Water resources education, training and practice: Opportunities for the next century, p.279-286.

22. Chen, J. M., J. Cihlar, L. Band, R. Desjardins, W. Gao, S. Goward, Z. Li, A. Royer, 1997. VEGETATION/SPOT for Northern Applications: Preliminary Results. Proceedings of 19<sup>th</sup> Canadian Symposium on Remote Sensing. CDROM (6 pages). Ottawa.

23. L.E. Band 1998. Ecosystem processes at the watershed scale: Scaling from stand to region. P.40-46 in Elements of Change, ed. S.J. Hassol and J. Katzenberger, Aspen Global Change Institute.

24. L.E. Band, M. Moss, F. Ogden 2003. The CUAHSI plan for a network of hydrologic observatories. P. 19-23 in, Renard, Kenneth G., McElroy, Stephen A., Gburek, William J., Canfield, H. Evan and Scott, Russell L., eds. 2003. First Interagency Conference on Research in the Watersheds, October 27-30, 2003. U.S. Department of Agriculture, Agricultural Research Service.

#### 10. Papers Presented at Professional Meetings

L.E. Band "Steady and unsteady hillslope profiles", Proceedings of the Pacific Coast Geographers, Annual Meetings, Reno, 1980.

L.E. Band "Time-independence of hillslope forms", Proceedings of the American Association of Geographers, Annual Meetings, Los Angeles, 1981.

L.E. Band and V.B. Robinson, "On the orderedness of the cis-trans link problem in stream links", Poster Session at the AAAS Meetings in N.Y.C., 1984.

L.E. Band "Dynamics of stream junctions", Paper given at the Detroit Meetings of the American Association of Geographers, 1985.

W. Renwick and L.E. Band, "The concept of equilibrium in geomorphic systems", Paper given at the First International Geomorphology Meetings, University of Manchester, Manchester, England, 1985.

L.E. Band "Simulation of lateral stream migration", Paper given at the Minneapolis Meetings of the American Association of Geographers, 1986.

L.E. Band and E.F. Wood, "Computer graphics for distributed hydrologic modeling", Transactions, American Geophysical Union, vol. 67, no. 16, 1986, p. 278.

E.F. Wood, M. Sivapalan, L.E. Band, "The GUH: Is it an appropriate large-scale model? Transactions, American Geophysical Union, v.68, no.44, 1987, p. 1276.

L.E. Band "Distributed hydrologic simulation of variable source area at the watershed scale," Paper given at the Portland Meetings of the American Association of Geographers, 1987.

L.E. Band "Optimal partition of watersheds for hydrologic simulation," Paper given at the Phoenix Meetings of the American Association of Geographers, 1988.



L.E. Band "Digital terrain analysis for drainage basin structure and simulation," Paper given at the Spring Meetings of the American Geophysical Union, 1988.

L.E. Band "Distributed simulation of watershed ecosystem processes," Paper given at the Toronto Meetings of the American Association of Geographers, 1990.

L.E. Band "Distributed simulation of watershed carbon and water budgets," Paper given at the IGBP-BAHC meetings, Canberra, Australia, December, 1991.

L.E. Band "Effect of land surface representation on surface carbon and water budgets," Paper given at the Spring Meetings of the American Geophysical Union, 1992.

A. Zhu and L.E. Band "Fuzzy inference of spatial soil properties," Paper given at 1992 meetings of the Ecological Society of American, Honolulu.

L.E. Band, R. Vertessey and R. Lammers "Distributed watershed processes using different terrain representation schemes." Paper given at the Third International Geomorphology Conference, August, 1993, Hamilton, Ontario.

J. Baron, L.E. Band, S.W. Running, D.W. Cline 1993. The effects of snow distribution on the hydrologic simulation of a high elevation Rocky Mountain watershed using Regional HydroEcological Simulation System, RHESys. Invited paper given at the Fall Meetings of the American Geophysical Union, EOS, v.74, no.43, p.237.

Band, L.E., R. Nemani, A. Perara 1994. Multiple scale simulations of forest water and carbon flux in Ontario. Poster given at the Fall Meetings of the American Geophysical Union, EOS, v.75, no.44, p.216.

R.B. Lammers, L.E. Band, C. Tague 1994. Scale effects of hydro-ecological simulations over variable landscape. Poster given at the Fall Meetings of the American Geophysical Union, EOS, v.75, no.44, p.218.

R.L. Walko, R.A. Pielke, L.E. Band, R. Lammers, C. Tague, J. Baron, T. Kittel 1994. Coupled ecosystem models for simulating the transport of groundwater. Invited paper given at the Fall Meetings of the American Geophysical Union, EOS, v.74, no.44, p.227.

L.E. Band 1994. A spatial framework for the parameterization and diagnosis of distributed simulation of watershed processes. Invited paper given at the Spring Meetings of the American Geophysical Union.

Lammers, R.B. and L.E. Band (1994) The Effects of Scale on a Regional Hydro-Ecological Model over Mountainous Terrain. Paper presented at the Association of American Geographers Annual Meeting, San Francisco, March 30th, 1994.

Band, L.E., R.B. Lammers and C. Tague (1994) Scaling Water and Carbon Budgets to Regional Extents: Simulation Approach. Paper presented at the scaling workshop in Swansea, Wales, April, 1994.

D.S Mackay and L.E. Band 1994. Extraction and representation of watershed structure including lakes and wetlands from digital terrain and remote sensing information. Invited paper given at the Spring Meetings of the American Geophysical Union.

Lammers, R.B., L.E. Band, R.G. Kremer and J.S. Baron (1995) Scaling Behaviour of Variables in a Hydro-Ecological Model over Heterogeneous Topography Paper presented at the American Geophysical Union Spring Meeting, Baltimore. May 31, 1995.

Band, L.E., R.B. Lammers and A. Perera (1995) Extrapolation of Simulated Forest Productivity and Hydrology over the Province of Ontario. Paper presented at the 7th International Conference on Geomatics June 14, 1995, Ottawa, Ontario.

Band, L.E., F. Csillag and I.F. Creed 1995. Application of RHESys to a northern hardwood experimental watershed. Hubbard Brook Ecosystem Study: Annual Cooperators Meeting, July 6-7, West Thornton, NH.

Creed, I.F., L.E. Band, I.K. Morrison, J.A. Nicolson, D.S. Jeffries, R.S. Semkin 1995. Topographic controls on the nitrogen content of discharge waters from catchments in the Turkey Lakes Watershed. American Geophysical Union. May 30-June 2, Baltimore, MD.

Creed, I.F., L.E. Band, J.A. Nicolson and N.W. Foster, 1995. Natural variation in biogeochemical fluxes from small catchments in an old-growth sugar maple forest. American Geophysical Union Meeting, December 11-15, San Francisco, CA.

L.E. Band 1995. Simulation of ecosystem processes at the watershed scale. Ecological Society of America Meeting, Jul 31-Aug 3, Snowbird, Utah.

Creed, I.F. and L.E. Band 1995. Topographic controls of nitrogen discharge from forested catchments. Ecological Society of America Meeting, Jul 31- Aug 3, Snowbird, Utah.

Creed, I.F. and L.E. Band 1996. Predicting nutrient flows from land to lakes: Topography is the key. Canadian Society of Limnology Meeting. Jan 4-6, Montreal, Quebec.

L.E. Band and I.F. Creed 1996. Effect of spatial organization of runoff-generating areas on water and nutrient fluxes in headwater catchments. AGU Fall Meetings, December 1996, San Francisco, CA.

Bonney, L., C.G. Trick, I.F. Creed and L.E. Band 1996. Spatial variability of dissolved organic carbon in soils of a forested catchment. Canadian Society of Limnology Meeting, Jan 4-6, Montreal, Quebec.

Fernandes, R.A., X. Wang and L.E. Band 1997. Scaling evapotranspiration in boreal ecosystems: The effect of uncertainties in remotely sensed parameters. AGU Spring Meeting, May 1997, Baltimore, MD.

Wang, X., R. Fernandes and L.E. Band 1997. Hydro-ecological simulation of boreal ecosystems: Scaling up from local to regional extent. AGU Spring Meeting, May 1997, Baltimore, MD.

Creed, I.F. and L.E. Band 1997. Export of Nitrate-N from catchments in a temperate forest: Role of organized versus disorganized N source areas. AGU Fall Meeting, San Francisco, CA.

Fernandes, R. and L.E. Band 1997. Estimating surface moisture status in Boreal peatlands using top of canopy mid-infrared reflectance. AGU Fall Meetings, San Francisco, CA.

Band, L.E. 1998. Linking hydroecological and socioeconomic form and process in a dynamic patch model for an urbanizing gradient in Baltimore. Ecological Society of America Annual Meeting, August 1998, Baltimore, MD.

Tague, C.L. and L.E. Band 1998. Using a composite index of landscape drainage in scaling distributed hydro-ecological modeling applications. AGU Spring Meetings, Boston, MA.

Tague, C.L. and L.E. Band 1998. Modeling the combined effects of forest roads and harvest on seasonal high and low flows in mountainous catchments. AGU Fall Meetings, San Francisco, CA.

Groffman, P.E., M.K. Crawford and L.E. Band 1999. Riparian ecosystem function in urban watersheds. Paper given at Spring Meetings of the American Geophysical Union, Boston, June 1999.

L.E. Band 1999. Integrating hydroecological and socioeconomic processes in urbanizing watersheds. Paper given at Spring Meetings of the American Geophysical Union, Boston, June 1999.

N.L. Law and L.E. Band 1999. Spatial interactions of societal and biophysical attributes of urbanizing watersheds. Paper given at Spring Meetings of the American Geophysical Union, Boston, June 1999.

L.E. Band 1999. Urban flowpath alteration: Feedback to biogeochemical cycles. Paper given at the Meetings of the Ecological Society of America, Spokane, WA, August, 1999.

L.E. Band 1999. Hydrologic interactions and adjustments of soil-plant systems in catchments. Paper given at Fall Meetings of the American Geophysical Union, San Francisco, December 1999.

L.E. Band, C. Tague and P. Groffman 2000. Integrated modeling and monitoring of urbanizing watersheds. Paper given at the Annual Meeting of the American Association of Geographers, Pittsburgh, March 2000.

D. Tenenbaum and L.E. Band 2000. Developing the RHESSys/Arc-View Integrated Modeling Environment for use in Urban Watersheds. Paper given at the Annual Meeting of the American Association of Geographers, Pittsburgh, March 2000.

L.E. Band. Hydroecology of Urban Watersheds: The Baltimore LTER. Paper given at the Annual Meeting of the American Association of Geographers, Los Angeles, CA., March 2002.

N. Law, L.E. Band 2002. Lawns: One piece of the nutrient puzzle in urban watersheds. Paper given at the Spring Meetings of the American Geophysical Union, Washington, May 2002.

Band, L E, Tague, C, Kenworthy, S, Law, N, 2002. Coupling water, carbon and nitrogen cycling with variable source area dynamics in forested and urban catchments. Paper given at the Spring Meetings of the American Geophysical Union, Washington, May 2002.

Band, L.E. 2004. Geomorphic controls of catchment scale linkages between hydrologic and nitrogen cycling: Paper given at Fall Meetings of the American Geophysical Union, San Francisco, December 2004.

Band, L.E. 2005. Integrated modeling of carbon, water and nutrient cycling at the watershed scale: Paper given at the Association of American Geographers Meetings, Denver, April 2005.

M J. Small, L. Band, and T. Hwang 2005. Using RHESSys eco-hydrological model to examine the affect of riparian buffer zone width and placement on nitrogen loading in the Coweeta LTER. Poster presentation at Mid-Atlantic Ecological Society of America Meetings, Baltimore, March 2005.

Band, L E, C. Tague, P. Groffman, S. Kaushal, S. Kenworthy 2005. Coupling of Hydrologic and Ecosystem Nutrient Cycling in Forest and Suburban Catchments. Paper given at the Fall Meetings of the American Geophysical Union, San Francisco.

Band, LE, 2006. Drought vulnerability in North Carolina: Low flow response to expected climate and land use change in water supply watersheds. Annual Meetings of the Association of American Geographers, Chicago.

Band, L.E., Shin, S., Hwang, T., 2006. Integrated climate and geomorphic controls on space-time variability in coupled canopy and soil water and carbon cycling in an experimental watershed Annual Meeting of the European Geophysical Union, Vienna.

Shin, S., L.E. Band, 2006. Emergent Properties and Dominant Processes with Temporal Scales: Application of Nonlinear System Identification Method for Rainfall-Runoff Modeling Paper given at the Spring Meetings of the American Geophysical Union, Baltimore.

Shields, C., L.E. Band, P.S. Groffman, G. Fisher and S. Kaushal 2006. Temporal distribution of nitrogen loading: an urban-rural gradient? Paper given at the Spring Meetings of the American Geophysical Union, Baltimore.

Hwang, T., D. Shin, and L.E. Band 2006. Signals Of Hydrologic Responses To Climatic Changes And External Disturbances. Poster given at the Spring Meetings of the American Geophysical Union, Baltimore.

Hwang, T, T. Hales and L. Band 2007. Long-term ecohydrologic pattern optimization at the hillslope scale. Poster given at the Fall Meeting of the American Geophysical Union, San Francisco.

L Band, T. Hwang, TC Hales, P Groffman, R. Pouyat 2007. Transient coupling of water, carbon and nutrient cycling patterns over hillslope gradients: Co-evolution in different landscapes. Paper given at the Fall Meeting of the American Geophysical Union, San Francisco.

TC Hales, T. Hwang, L. Band, J. Vose 2007. Long term adjustment of canopy root depth and strength: Implications for catchment hydrology and slope stability. Poster given at the Fall Meeting of the American Geophysical Meeting, San Francisco.

Y. Kim, L.E. Band and D. Shin 2008. The influence of land cover change on the water budget. Paper given at the Spring 2008 Meetings of the American Geophysical Meeting, Fort Lauderdale, Florida.

Band, L.E., T.C. Hales, T. Hwang, C. Ford, J. Vose 2009. Landslide hazard in the southern Appalachians: Hydrological and ecological controls. Southern Appalachian Man and Biosphere (SAMAB) symposium.

L. Band, T. Hwang, T. Randolph 2010. Climate, geomorphic and species controls on transient canopy development and soil water, carbon and nutrient cycling following disturbance. Association of American Geographers Annual Meeting, Washington, D.C. April, 2010

T. Hwang, C. Song, L. Band 2010. A catchment-scale simulation of a distributed ecohydrological model with assimilating global satellite products by downscaling techniques. Association of American Geographers Annual Meeting, Washington, D.C. April, 2010.

## 11. Invited Lectures

"Numerical simulation of hillslope form", Department of Geology and Geophysics, University of California, Berkeley, 1982.

"Simulation modeling of hillslope form with reference to time-independent properties", Department of Geography, Universite de Montreal, 1983.

"Stream networks, digital elevation models and geographic information systems", Department of Geography, Rutgers University, 1984.

"Hydrologic information systems and topographic networks", NASA-Ames Research Center, 1984.

"Digital terrain models: implications for drainage basin research", Department of Geography, S.U.N.Y. at Albany, 1985.

"Mesure et simulation des versants", 53e Congres de l'Association Canadienne-Francaise pour l'Avancement des Sciences, Chicoutimi, Quebec, 1985.

"Numerical simulation of lateral stream migration", IGU Workshop on Theoretical Geomorphology, Aachen, West Germany, 1986.

L.E. Band and V.B. Robinson, "Automated construction of a hydrologic information system from digital elevation data", Workshop on Geographical Information Systems for Environmental Protection, January 22-23, Environmental Research Center, University of Nevada, Las Vegas, 1986.

L.E. Band and E.F. Wood, "Computer graphics for distributed hydrologic modeling", Spring Meetings of the American Geophysical Union, Baltimore, 1986.

L.E. Band "Current examples of water and soil dynamics", NSF Workshop on Super-computers in Landscape Ecology, September 14-17, Pingree Park, Colorado, 1986.

L.E. Band "Digital terrain analysis and variable source area simulation", SUNY at Buffalo, 1986.

Plenary talk on Integrated Watershed Simulation. Given to the American Society of Limnology and Oceanography, October, 1994, Leesburg, Va.

Alternative methods of climate change impact assessment. Given to the Climate Adaptation Group, AES, Burlington, ONT, March, 1995.

Scaling issues in forest water and carbon budgets. Gordon Conference on Forest Hydrogeochemistry, NH, August, 1995.

Nitrate flushing in northern hardwood watersheds. Institute for Ecosystem Studies, Millbrook, NY, November, 1995.

Nitrate export from forested catchments. Workshop on Chesapeake Bay Watershed Nitrogen Cycling. University of Maryland, Frostberg, June 1997.

Integrating biophysical and socioeconomic processes in an urbanizing watershed model, University of Delaware, November, 1998.

Simulation modeling of integrated biophysical and socioeconomic processes in the Baltimore Ecosystem Study, Annual Trewartha Lecture: University of Wisconsin, April, 1999.

Hydrological and ecological controls on catchment nitrogen export, Lamont-Doherty Geological Observatory, Columbia University, April 2000.

Modeling flowpath impacts on nitrogen export in urbanizing watersheds, University of Maryland, Baltimore County, April, 2000.

Monitoring and modeling of watersheds along an urbanizing gradient: The Baltimore LTER, Department of Geography and Environmental Engineering, The Johns Hopkins University, March, 2001.

Integrated modeling of urbanizing ecosystems, CRC for Catchment Hydrology, Canberra, Australia, August, 2001.

Ecosystem approaches to urbanizing watersheds, Keynote Presentation at the Metropolitan Water Managers Council, Baltimore, MD., November, 2001.

Ecosystem approaches to urban watersheds: Annual EDWARD J. TAAFFE COLLOQUIUM SERIES Speaker, Ohio State University, February, 2002.

Coupling water, carbon and nitrogen cycling with variable source area dynamics in forested and urbanizing catchments. LTER Science Meeting, Sevilleta Long Term Ecological Research Site, New Mexico, April, 2002

Integrated watershed simulation of linked water, carbon and nitrogen cycling: Frontiers in Geoscience Lecture, Los Alamos National Laboratory, May 2002.

Hydroecology of urban ecosystems: Spring Meetings of the AGU, May, 2002, Washington.

Use of MODIS to quantify ecosystem drought impacts: Annual Meetings of the AAG, February 2003, New Orleans.

Integrated water, carbon and nutrient cycling in urban watersheds. Distinguished Visitor Series, Department of Geography, University of Maryland, March 2003.

Invited lecture at 10th Cary Conference on Ecosystem Heterogeneity, Millbrook, NY, April 2003: Heterogeneity in urban ecosystems.

Invited Plenary Lecture: Transdisciplinary approaches to urban ecosystems: Hydroecology in the 'burbs. International Association of Landscape Ecology, March 30-April 2, 2004, Las Vegas, Nevada.

The Baltimore Ecosystem Study: Lessons for Hydrologic Observatories. Invited lecture, Oregon State University, May 2005.

Invited Lecture: Integrated water, carbon and nutrient cycling in the 'burbs. University of Buffalo, October 2005.

Invited Lecture: A tale of three catchments: Coupling water and nitrogen cycling in the Baltimore Ecosystem Study, January 2006. University of South Carolina.

Invited Plenary: Water, carbon, nitrogen cycling linked to distributed hydrologic models within mixed land use catchments. Paper given at the workshop on Modelling the nitrogen cascade in European landscapes. Rennes, France, 12-13 November 2007

Invited Lecture: The Catena Concept Revisited: Spatial Optimization of Ecohydrologic Form and Function , 2008, Department of Environmental Science, University of Virginia

Invited plenary: The Catena Concept Revisited: Spatial Optimization of Ecohydrologic Form and Function, 2009. European Geoscience Union Annual Meeting, Vienna.

Invited plenary: Forests, green infrastructure and ecosystem services along the urban-rural gradient, 2<sup>nd</sup> International Conference on Forest Ecohydrology, Raleigh, NC, October 2009.

Invited Lecture: Forest Ecosystem Processes at the Watershed Scale: Optimization of Landscape Level Coupled Water, Carbon and Nutrient Cycling, 2009. School of Engineering, Harlemane Lecture, Penn State University

Invited plenary: L.E. Band 2010. Forest Ecosystem Processes at the Watershed Scale: Ecosystem services, feedback and evolution in developing mountainous catchments, European Geoscience Union Meetings, Vienna, May 2010.

#### D. LIST OF COURSES

##### University of North Carolina

GEOG 10 - Introduction to Physical Geography  
GEOG 141/441 - Watershed Systems  
GEOG 140/440 - Earth Surface Processes  
GEOG 192/591 - Applications in Watershed GIS  
GEOG 210/810 - Advanced Physical Geography - Biogeoscience  
GEOG 308/811 - Graduate Seminar in Physical Geography

##### University of Toronto

GGR 205F - The Soils That Support Us  
GGR 206S - Introduction to Hydrology  
GGR 301F - Quantitative and Environmental Geomorphology  
GGR 373F - Geographic Information Processing  
GGR 461S/1911S - Remote Sensing of Environment  
GGR 462S/1914 - Geographic Information Systems

##### Primary Graduate Student Supervision

###### Masters

Richard Lammers	MSc.	Completed 1990.
D. Scott Mackay	MSc.	Completed 1990.
Pitman Patterson	MSc.	Completed 1990.
Christina Tague	MSc.	Completed 1994.
David Baldwin	MSc.	Completed 1997
Anastasia Svirejeva	Msc.	Completed 1997
Sandy Maunz	Msc.	Completed 2002
Catherine Shields	MA	Completed 2007
Tamara Mittman	MA	Completed 2009
Katerina Savvas	MA	Continuing

###### Doctoral

Axing Zhu	Phd.	Completed 1994 - Professor, Univ Wisconsin
Richard Lammers	Phd.	Completed 1998 - Res. Assoc, U.New Hampshire
Irena Creed	Phd.	Completed 1998 - Assoc. Professor, University of Western Ontario
Richard Fernandes	Phd.	Completed 1999 - Res. Scientist, Canada Centre for Remote Sensing, Ottawa.
Christina Tague	Phd.	Completed 1999 - Assist. Professor, Bren School of the Environment, U. Cal. Santa Barbara
Tongzhin Zhu	Phd.	Completed 1998 - Assoc. Professor, University of Minnesota, Duluth
Scott Mackay	Phd.	Completed 1997 - Professor, Univ Buffalo
Neely Law	Phd.	Completed 2003 - Center Watershed Protection
David Tenenbaum	Phd.	Completed 2004 - Asst Prof, Univ. Mass. Boston
Laura Jackson	Phd.	Completed 2005 - Environ Protection Agency
Daehyok Shin	Phd.	Completed 2005 - Senior Hydrologist, Water Division, Australian Bureau of Meteorology
Monica Lipscomb	Phd.	Completed 2010
Taehee Hwang	Phd.	Completed 2010
Tony Randolph	Phd.	Continuing



Yuri Kim                      Phd. Continuing  
Jon Duncan                    Phd. Continuing

#### Post-Doctoral Fellows

Dr. Ramakrishna Nemani, Forest Ecology, Meteorology and Remote Sensing  
1990-1991.  
Dr. Soren Brun, University of Toronto, Physical Geography, 1998-1999.  
Dr. Christina Tague, University of Toronto, Physical Geography, 1999.  
Dr. Chris Kees, UNC, Environmental Sciences and Engineering, 2001-2002.  
Dr. Steve Kenworthy, Johns Hopkins University, Geography, 2001-2002.  
Dr. Daehyok Shin, UNC Chapel Hill, Geography, 2006-2008.  
Dr. Shuxia Wu, 2009-2010

#### E. UNIVERSITY ADMINISTRATIVE POSITIONS AND OTHER UNIVERSITY SERVICE

Science Curriculum Renewal, Hunter College, CUNY, 1985-1986  
Graduate Coordinator - Dept. of Geography, University of Toronto, 1994-1998  
Member, Arts & Sciences Promotion Committee, University of Toronto, 1995-1998  
Member, School of Grad. Studies, U. Toronto, Div. II Degree Comm. 1994-1996  
Member, U. Toronto, University Research Advisory Board 1995-1998  
Member, Faculty Steering Committee, Carolina Environment Program 1998-2007  
Member, Executive Committee, Carolina Environment Program 1999-2007  
Chair, Arts and Science Ad Hoc committee on Distance Learning 2006  
Chair, Arts and Science Ad Hoc Committee on Development of the Curriculum in  
Ecology and Environment, 2007-2008  
Chair, UNC Department of Geography, UNC 2002 - 2007.  
Director, Carolina Institute for the Environment 2009-  
Faculty Advisory Board, Friday Center  
Faculty Advisory Board, Morehead Planetarium and Science Center  
Faculty Advisory Board, Global Research Institute  
Member, Academic Planning Committee

#### F. OTHER RELEVANT INFORMATION

Reviewer, Journal of Geology, Water Resources Research, Catena, Annals of the  
American Association of Geographers, Photogrammetric Engineering and Remote  
Sensing, IEEE Transactions on Remote Sensing and Geosciences, Artificial  
Intelligence in Natural Resources, Hydrological Processes, Quaternary Research,  
Computers in Geoscience, Soil Technology, Geographical Analysis, Journal of  
Hydrology, International Journal of Geographic Information Systems, Computers  
Environment and Urban Systems, Earth Surface Processes, Journal Vegetation  
Science, Transactions in GIS.

Reviewer, National Aeronautics and Space Administration, Branches of Global  
Biology and Hydrology, Solid Earth Science, grant proposals, National Science  
Foundation, grant proposals, NSERC, grant proposals, NERC, grant proposals,  
NOAA, grant proposals, Environmental Protection Agency, Australian Research  
Council.