

TASK 2

Topical Bibliography: Development of TMDLs for pH-Impaired Waters of New York State (ea jenne, lw vail, wr barchet, hl diefenderfer 8/29/00)

Base Cation Supply

Driscoll CT, JL Schnoor, RD Fuller, RL Valentine and JI Drever. 1987. "The effects of artificial acidification on Aluminum mobilization, mineral weathering and base supply in a Maine watershed (WMP)." In *Peer review summaries*, pp. 369-376. National Acid Precipitation Aquatic Effects Task Group VI, New Orleans, Louisiana.

Fernandez I, L Rustad, M David, K Nadelhoffer and M Mitchell. 1999. "Mineral soil and solution responses to experimental N and S enrichment at the Bear Brook watershed in Maine (BBWM)." *Environmental Monitoring & Assessment* 55:165-185.

Lawrence GB and TG Huntington. 1999. "Soil-Calcium depletion linked to acid rain and forest growth in the eastern United States." WRIR 98-4267, U.S. Geological Survey, Denver, Colorado. Available URL: <http://bqs.usgs.gov/acidrain>

Walse C, C Beier, P Warfvinge, and L Rasmussen. "Modelling "clean rain" treatments in acidified soils—EXMAN project results." *Water, Air, & Soil Pollution* 85:1807-1812.

Changes in Deposition

Lynch JA, JW Grimm, AND VC Bowersox. 1995. "Trends in precipitation chemistry in the United States: A national perspective, 1980-1992." *Atmospheric Environment* 29:1231-1246.

Shannon JD. 1991. "Modeled Sulfur deposition trends since 1990 in North America." In *Air pollution modelling and its application VIII*, eds. H van Dop and DG Steyn, pp. 61-68. NATO 18th NATO/CCMS International Technical Meeting on Air Pollution Modelling and Its Applications, May 13-17, 1990, Vancouver, Canada. Plenum Press, New York.

Shannon JD. 1992. "Regional analysis of S emission-deposition trends in North America from 1979 through 1988." In *Air pollution modelling and its application IX*, eds. H van Dop and G Kallos, pp. 57-64. NATO/Committee on the Challenge of Modern Society 19th Information Transfer Meeting (ITM) on Air Pollution Modelling and Its Application, September 29-October 4, 1991, Crete, Greece. Plenum Press, New York.

Critical Loads (Loading Capacity)

De Vries W. 1993. "Average critical loads for Nitrogen and Sulfur and its use in acidification abatement policy in the Netherlands." *Water, Air, & Soil Pollution* 68:399-434.

De Vries W, GJ Reinds, M Posch, and J Kaemaeri. 1994. "Simulation of soil response to acidic deposition scenarios in Europe." *Water, Air, & Soil Pollution* 78:219-246.

Ellis H and ML Bowman. 1994. "Critical loads and development of acid rain control options." *Journal of Environmental Engineering* 120:273-290.

Forsius M. 1992. *Acidification of lakes in Finland: Regional estimates of lake chemistry and critical loads. Modelling the dynamics of a large sea area*. National Board of Waters and the Environment, Helsinki, Finland.

Holdren GR, TC Strickland, B Rosenbaum, RS Turner, PF Ryan, MK McDowell, GD Bishop, GE Griffith, K Smythe, and PL Ringold. 1993. *Comparison of selected critical loads estimation approaches for assessing the effects of sulfate deposition on lakes in the northeastern United States*. EPA/600/R-93/074, prepared by Mantech Environmental Technology, Inc. and Oak Ridge National Laboratory for the US Environmental Protection Agency Environmental Research Laboratory, Corvallis, Oregon.

Iivonen P, J Kaemaeri, and M Posch. 1993. "Modeling the chemical response of a moderately acidified catchment in southern Finland to decreased Sulfur deposition." *Aqua Fennica* 23:235-249.

Janicki, A, D Wade, H Wilson, D Heimbuch, H Sverdrup, and P Warfvinge. ----. *Maryland critical loads study volume 1: Critical loads assessment for Maryland streams*. CBRM-AD-95-9, prepared by University of Maryland CEES Appalachian Environmental Laboratory, University of Maryland at College Park Department of Agronomy, The Johns Hopkins University, and Versar, Inc. for Maryland Department of Natural Resources, Chesapeake Bay Research and Monitoring Division, Annapolis, Maryland.

Marchetto A, R Mosello, R Psenner, A Barbieri, G Bendetta, D Tait, and GA Tartari. 1994. "Evaluation of the level of acidification and the critical loads for alpine lakes." *Ambio* (Stockholm) 23:150-154.

Metcalf SE and JD Whyatt. 1994. "Modelling future acid deposition: A critical loads approach." *Global Environmental Change* 4:125-139.

Nellemann C and T Frogner. 1994. "Spatial patterns of spruce defoliation: Relation to acid deposition, critical loads, and natural growth conditions in Norway." *Ambio* (Stockholm) 23:255-259.

Posch M, J Kaemaeri, M Forsius, A Henriksen, and A Wilander. 1997. "Exceedance of critical loads for lakes in Finland, Norway, and Sweden: Reduction requirements acidifying Nitrogen and Sulfur deposition." *Environmental Management* 21:291-304.

Sverdrup H and W de Vries. 1994. "Calculating critical loads for acidity with the simple mass balance method." *Water, Air, & Soil Pollution* 72:143-162.

Emissions and Air Transport

Brook JR, PJ Samson, and S Sillman. 1994. "A meteorology-based approach to detecting the relationship between changes in SO₂ emission rates and precipitation concentrations of sulfate." *Journal of Applied Meteorology* 33:1050-1066.

Bullock OR. 1994. "A computationally efficient method for the characterization of sub-grid-scale precipitation variability for Sulfur wet removal estimates." *Atmospheric Environment* 28:555-556.

Cheng L, RP Angle, E Peake, and HS Sandhu. 1995. "Effective acidity modeling to establish acidic deposition objectives and manage emissions." *Atmospheric Environment* 9:383-392.

Shannon JD. 1997. "Scales of Sulfur concentrations and deposition from the perspective of the receptor." *Atmospheric Environment* 31:3933-3939.

Shannon JD. 1998. "Modeling air pollution in the tracking and analysis framework (TAF)." *In Proceedings of the American Meteorological Society and Air & Waste Management Association 10th joint conference on the applications of air pollution meteorology*, pp.158-62. January 11-16, 1998, Phoenix, Arizona. American Meteorological Society, Boston, Massachusetts.

Shannon JD and DA Hanson. 1997. "Trends in visibility, PM-2.5, and deposition expected from the Acid Rain Provisions of the 1990 Clean Air Act Amendments." *In Proceedings of the international specialty conference on visual air quality, aerosols, and global radiation balance*. September 9-12, 1997, Bartlett, New Hampshire. ANL/ER/CP-92701, Argonne National Laboratory, Argonne, Illinois.

Shannon JD and EC Trexler. 1995. "Climatological variability in regional air pollution." *In Proceedings of the 6th international meeting on statistical climatology*. June 19-23, 1995, Galway, Ireland. ANL/ER/CP-86469, Argonne National Laboratory, Argonne, Illinois.

Shannon JD, and DL Sisterson. 1992. "Estimation of S and NO_x-N deposition budgets for the United States and Canada." *Water, Air and Soil Pollution* 63:211-235.

Models: Acid Rain Effects

Beier C, H Hultberg, F Moldan, and RF Wright. "Magic applied to roof experiments to evaluate the rate of reversibility of acidification following experimentally reduced acid deposition." *Water, Air and Soil Pollution* 85:1745-1751.

Cook RB, KA Rose, AL Brenkert, and PF Ryan. 1992. "Systematic comparison of ILWAS, MAGIC, and ETD watershed acidification models: 3. ANC mass balance budgets." *Environmental Pollution* 77:235-242.

Cosby BJ, SA Norton, and JS Kahl. 1996. "Using a paired-catchment manipulation experiment to evaluate a catchment-scale biogeochemical model." *Science of the Total Environment* 183:49-66.

Forsius M. 1992. *Acidification of lakes in Finland: Regional estimates of lake chemistry and critical loads. Modelling the dynamics of a large sea area.* National Board of Waters and the Environment, Helsinki, Finland.

Hession WC, DE Storm, CT Haan, KH Reckhow, and MD Smolen. 1996. "Risk analysis of total maximum daily loads in an uncertain environment using EUTROMOD." *Lake and Reservoir Management* 12:331-347.

Iivonen P, J Kaemaeri, and M Posch. 1993. "Modeling the chemical response of a moderately acidified catchment in southern Finland to decreased Sulfur deposition." *Aqua Fennica* 23:235-249.

Janicki, A, D Wade, H Wilson, D Heimbuch, H Sverdrup, and P Warfvinge. ----. *Maryland critical loads study volume 1: Critical loads assessment for Maryland streams.* CBRM-AD-95-9, prepared by University of Maryland CEES Appalachian Environmental Laboratory, University of Maryland at College Park Department of Agronomy, The Johns Hopkins University, and Versar, Inc. for Maryland Department of Natural Resources, Chesapeake Bay Research and Monitoring Division, Annapolis, Maryland.

Jenkins A, RC Ferrier, and BJ Cosby. 1997. "A dynamic model for assessing the impact of coupled Sulfur and Nitrogen deposition scenarios on surface water acidification." *Journal of Hydrology* (Amsterdam) 192:17-32.

Lam DCL, KJ Puckett, I Wong, MD Moran, G Fenech, DS Jeffries, MP Olson, DM Whelpdale, D McNicol, YKG Mariam, and CK Minns. "An integrated acid rain assessment model for Canada: From source emission to ecological impact." *Water Quality Research Journal of Canada* 33:1-17.

Metcalf SE and JD Whyatt. 1994. "Modelling future acid deposition: A critical loads approach." *Global Environmental Change* 4:125-139.

Mitchell MJ, CT Driscoll, JH Porter, DJ Raynal, D Schaefer, and EH White. 1994. "The Adirondack manipulation and modeling project (AMMP): Design and preliminary results." *Forest Ecology and Management* 68:87-100.

Neal C, A Avila, and F Roda. 1995. "Modeling the long-term impacts of atmospheric pollution deposition and repeated forestry cycles on stream water chemistry for a Holm oak forest in northeastern Spain." *Journal of Hydrology* (Amsterdam) 168:51-71.

Rose KA, RB Cook, AL Brenkert, RH Gardner, and JP Hettelingh. 1991. "Systematic comparison of ILWAS, MAGIC, and ETD watershed acidification models: 1. Mapping among model inputs and deterministic results." *Water Resources Research* 27:2577-2603.

Rose KA, AL Brenkert, RB Cook, RH Gardner, and JP Hettelingh. 1991. "Systematic comparison of ILWAS, MAGIC, and ETD watershed acidification models: 2. Monte Carlo analysis under regional variability." *Water Resources Research* 27:2591-2603.

Sinha R, MJ Small, PF Ryan, TJ Sullivan, and BJ Cosby. 1998. "Reduced-form modeling of surface water and soil chemistry for the tracking and analysis framework." *Water, Air, & Soil Pollution* 105:617-642.

Small MJ, BJ Cosby, RJ Marnicio, and M Henrion. 1995. "Joint application of an empirical and mechanistic model for regional lake acidification." *Environmental Monitoring and Assessment* 35:113-136.

Small MJ and MC Sutton. 1986. "A direct distribution model for regional aquatic acidification." *Water Resources Research* 22:1749-1758.

Small MJ, MC Sutton, and MW Milke. 1988. "Parametric distributions of regional lake chemistry: Fitted and derived." *Environmental Science and Technology* 22:196-204.

Sogn TA. 1993. "A test of chemical equilibrium equations and assumptions commonly used in soil-oriented charge balance models for soil and freshwater acidification." *Ecological Modelling* 70:221-238.

Sverdrup H and W de Vries. 1994. "Calculating critical loads for acidity with the simple mass balance method." *Water, Air, & Soil Pollution* 72:143-162.

Walse C, C Beier, P Warfvinge, and L Rasmussen. "Modelling "clean rain" treatments in acidified soils—EXMAN project results." *Water, Air, & Soil Pollution* 85:1807-1812.

Models: Nitrogen Effects & Saturation

Aber JD, WH McDowell, KJ Nadelhoffer, A Magill, G Bernston, M Kamakea, SG McNulty, W Currie, L Rustad, and I Fernandez. 1998. "Nitrogen saturation in temperate forest ecosystems: Hypotheses revisited." *BioScience* 48:921-934.

De Vries W. 1993. "Average critical loads for Nitrogen and Sulfur and its use in acidification abatement policy in the Netherlands." *Water, Air, & Soil Pollution* 68:399-434.

Fernandez IJ, JA Simmons, and RD Briggs. In Review. "Indices of forest floor Nitrogen status along a regional climate gradient in Maine, USA." *Ecological Management*.

Kahl JS, SA Norton, IJ Fernandez, KJ Nadelhoffer, CT Driscoll, and JD Aber. 1993. "Experimental inducement of Nitrogen saturation at the watershed scale." *Environmental Science and Technology* 27:565-568.

Kahl J, S Norton, I Fernandez, L Rustad, and M Handley. In Press. "Nitrogen and Sulfur input-output budgets in the experimental and reference watersheds, Bear Brook watershed in Maine (BBWM)." *Environmental Monitoring and Assessment*.

Mitchell, MJ, CT Driscoll, JS Kahl, GE Likens, PS Murdoch, and L Pardo. 1996. "Climatic control of nitrate loss from forested watersheds in the northeastern United States." *Environmental Science and Technology* 30:2609-2612.

Mitchell MJ, DJ Raynal, and CT Driscoll. 1996. "Biogeochemistry of a forested watershed in the central Adirondack Mountains: Temporal changes and mass balances." *Water, Air, & Soil Pollution* 88:355-369.

Sogn TA. 1994. "Application of the MAGIC model to lysimeters with cambic arenosol, Nordmoen, Norway." *Ecological Modelling* 71:1-16.

Sogn TA and G Abrahamsen. 1997. "Simulating effects of S and N deposition on soil water chemistry by the nutrient cycling model NuCM." *Ecological Modelling* 99:101-111.

Sullivan TJ, JM Eilers, BJ Cosby, and KB Vache. 1997. "Increasing role of Nitrogen in the acidification of surface waters in the Adirondack Mountains, New York." *Water, Air, & Soil Pollution* 95:313-336.

Recovery

Alewell C, M Bredemeier, E Matzner, and K Blanck. 1997. "Soil solution response to experimentally reduced acid deposition in a forest ecosystem." *Journal of Environmental Quality* 26:658-665.

Beier C, H Hultberg, F Moldan, and RF Wright. "Magic applied to roof experiments to evaluate the rate of reversibility of acidification following experimentally reduced acid deposition." *Water, Air and Soil Pollution* 85:1745-1751.

Bishop KH and H Hultberg. 1995. "Reversing acidification in a forest ecosystem: The Gaardsjoen covered catchment." *Ambio* (Stockholm) 24:85-91.

Driscoll CT, GE Likens, and MR Church. 1998. "Recovery of surface waters in the northeastern U.S. from decreases in atmospheric deposition of Sulfur." *Water, Air, & Soil Pollution* 105:319-329.

Jeffries DS, SE Doka, ML Mallory, F Norouzian, A Storey, and I Wong. 1998. "Aquatic effects of acidic deposition in Canada: Present and predicted future situation." *Journal of Water Science* 11:129-143.

Walse C, C Beier, P Warfvinge, and L Rasmussen. "Modelling "clean rain" treatments in acidified soils—EXMAN project results." *Water, Air, & Soil Pollution* 85:1807-1812.

Uncertainties

Beier C, H Hultberg, F Moldan, and RF Wright. "Magic applied to roof experiments to evaluate the rate of reversibility of acidification following experimentally reduced acid deposition." *Water, Air and Soil Pollution* 85:1745-1751.

Boudot JP, D Merlet, J Rouiller, and O Maitat. 1994. "Validation of an operational procedure for Aluminum speciation in soil solutions and surface waters." *Science of the Total Environment* 158:237-252.

Brook JR, PJ Samson, and S Sillman. 1994. "A meteorology-based approach to detecting the relationship between changes in SO₂ emission rates and precipitation concentrations of sulfate." *Journal of Applied Meteorology* 33:1050-1066.

Bullock OR. 1994. "A computationally efficient method for the characterization of sub-grid-scale precipitation variability for Sulfur wet removal estimates." *Atmospheric Environment* 28:555-556.

Huntington TG. 1996. "Predicting watershed acidification under alternate rainfall conditions." *Water Air & Soil Pollution* 90:429-450.

Mulder J, and A Stein. 1994. "The solubility of Aluminum in acidic forest soils: Long-term changes due to acid deposition." *Geochimica et Cosmochimica Acta* (Netherlands) 58:85-94.

Neal C. 1995. "Aluminium speciation variations in an acidic upland stream draining the Hafren spruce forest, Plynlimon, Mid-Wales." *Journal of Hydrology* (Amsterdam) 164:39-51.

Oreskes N, K Shrader-Frechette, and K Belitz. 1994. "Verification, validation, and confirmation of numerical models in the earth sciences." *Science* 263:641-646.

Prenzei J. 1994. "Sulfate sorption in soils under acid deposition: Comparison of two modeling approaches." *Journal of Environmental Quality* 23:188-194.

Shannon JD and EC Trexler. 1995. "Climatological variability in regional air pollution." *In Proceedings of the 6th international meeting on statistical climatology*. June 19-23, 1995, Galway, Ireland. ANL/ER/CP-86469, Argonne National Laboratory, Argonne, Illinois.

Sullivan TJ, DF Charles, JA Bernert, B McMartin, KB Vache, and J Zehr. 1999. "Relationship between landscape characteristics, history, and lakewater acidification in the Adirondack Mountains, New York." *Water, Air, & Soil Pollution* 112:407-427.

Sullivan TJ, B McMartin, and DF Charles. 1996. "Re-examination of the role of landscape change in the acidification of lakes in the Adirondack Mountains, New York." *Science of the Total Environment* 183:231-248.

Wilby RL. 1994. "Exceptional weather in the Midlands, UK, during 1988-1990 results in the rapid acidification of an upland stream." *Environmental Pollution* 86:15-19.