

TABLE OF CONTENTS

P. BRIMBLECOMBE / Preface	1-2
S. HELLSTEN, U. DRAGOSITS, C. J. PLACE, T. H. MISSELBROOK, Y. S. TANG and M. A. SUTTON / Modelling Seasonal Dynamics from Temporal Variation in Agricultural Practices in the UK Ammonia Emission Inventory	3-13
CAMILLA ANDERSSON and JOAKIM LANGNER / Inter-annual Variations of Ozone and Nitrogen Dioxide Over Europe During 1958-2003 Simulated with a Regional CTM	15-23
WENCHE AAS, JAN SCHAUG and JAN ERIK HANSEN / Field Intercomparison of Main Components in Air in EMEP	25-31
BARBARA WALNA, IWONA KURZYCA and JERZY SIEPAK / Variations in the Fluoride Level in Precipitation in a Region of Human Impact	33-40
DAVID FOWLER, ROGNVALD SMITH, JENNIFER MULLER, JOHN NEIL CAPE, MARK SUTTON, JAN WILLEM ERISMAN and HILDE FAGERLI / Long Term Trends in Sulphur and Nitrogen Deposition in Europe and the Cause of Non- linearities	41-47
PIERRE SICARD, PATRICE CODDEVILLE, STÉPHANE SAUVAGE and JEAN-CLAUDE GALLOO / Trends in Chemical Composition of Wet-only Precipitation at Rural French Monitoring Stations Over the 1990-2003 Period	49-58
CHRISTOPHER M. B. LEHMANN, VAN C. BOWERSOX, ROBERT S. LARSON and SUSAN M. LARSON / Monitoring Long-term Trends in Sulfate and Ammonium in US Precipitation: Results from the National Atmospheric Deposition Program / National Trends Network	59-66
IZUMI NOGUCHI, KENTARO HAYASHI, MASAHIDE AKAWA, TSUYOSHI OHIZUMI, YUKIYA MINAMI, MORITSUGU KITAMURA, AKIRA TAKAHASHI, HIROSHI TANIMOTO, KAZUHIDE MATSUDA and HIROSHI HARA / Temporal Trends of Non-sea Salt Sulfate and Nitrate in Wet Deposition in Japan	67-75
E. TERAUDA and O. NIKODEMUS / Sulphate and Nitrate in Precipitation and Soil Water in Pine Forests in Latvia	77-84
MARCOS A. DOS SANTOS, CYNTHIA F. ILLANES, ADALGIZA FORNARO and JAIRO J. PEDROTTI / Acid Rain in Downtown São Paulo City, Brazil	85-92
STEPHEN A. NORTON / Atmospheric Metal Pollutants-Archives, Methods, and History	93-98
BRIDGET A. EMMETT / Nitrogen Saturation of Terrestrial Ecosystems: Some Recent Findings and Their Implications for Our Conceptual Framework	99-109
B. J. HAWORTH, M. R. ASHMORE and A. D. HEADLEY / Effects of Nitrogen Deposition on Bryophyte Species Composition of Calcareous Grasslands	111-117

- KENTARO HAYASHI, MICHIO KOMADA and AKIRA MIYATA / Atmospheric Deposition of Reactive Nitrogen on Turf Grassland in Central Japan: Comparison of the Contribution of Wet and Dry Deposition 119–129
- MASAHIRO YAMAGUCHI, MAKOTO WATANABE, NAOKI MATSUO, JUNICHI NABA, RYO FUNADA, MOTOHIRO FUKAMI, HIDEYUKI MATSUMURA, YOSHIHISA KOHNO and TAKESHI IZUTA / Effects of Nitrogen Supply on the Sensitivity to O₃ of Growth and Photosynthesis of Japanese Beech (*Fagus crenata*) Seedlings 131–136
- ULF SIKSTRÖM / Stem Growth of *Picea Abies* in South Western Sweden in the 10 Years Following Liming and Addition of PK and N 137–142
- ALLAN G. SANGSTER, LEWIS LING, FRÉDÉRIC GÉRARD and MARTIN J. HODSON / X-ray Microanalysis of Needles from Douglas Fir Growing in Environments of Contrasting Acidity 143–149
- BOHAN LIAO, ZHAOHUI GUO, QINGRU ZENG, ANNE PROBST and JEAN-LUC PROBST / Effects of Acid Rain on Competitive Releases of Cd, Cu, and Zn from Two Natural Soils and Two Contaminated Soils in Hunan, China 151–161
- HARALD SVERDRUP, SALIM BELYAZID, BENGT NIHLGÅRD and LARS ERICSON / Modelling Change in Ground Vegetation Response to Acid and Nitrogen Pollution, Climate Change and Forest Management at in Sweden 1500–2100 A.D. 163–179
- ATSUYUKI SORIMACHI and KAZUHIKO SAKAMOTO / Laboratory Measurement of Dry Deposition of Ozone onto Northern Chinese Soil Samples 181–186
- MILOŠ ZAPLETAL and PETR CHROUST / Ozone Deposition to a Coniferous and Deciduous Forest in the Czech Republic 187–200
- CECILIA AKSELSSON, OLLE WESTLING, HARALD SVERDRUP, JOHAN HOLMQVIST, GUNNAR THELIN, EVA UGGLA and GUNNAR MALM / Impact of Harvest Intensity on Long-Term Base Cation Budgets in Swedish Forest Soils 201–210
- WENDELIN WEIS, ROLAND BAIER, CHRISTIAN HUBER and AXEL GÖTTLEIN / Long Term Effects of Acid Irrigation at the Höglwald on Seepage Water Chemistry and Nutrient Cycling 211–223
- JOHAN BERGHOLM, HOOSHANG MAJDI and TRYGGVE PERSSON / Nitrogen Budget of a Spruce Forest Ecosystem After Six-year Addition of Ammonium Sulphate in Southwest Sweden 225–234
- J. C. NÓVOA-MUÑOZ and E. GARCÍA-RODEJA GAYOSO / Modification of Soil Solid Aluminium Phases During an Extreme Experimental Acidification of A Horizons of Forest Soils from Southwest Europe 235–239
- JOHAN TIDBLAD, VLADIMIR KUCERA, FARID SAMIE, SURENDRA N. DAS, CHALOTHORN BHAMORNSUT, LEONG CHOW PENG, KING LUNG SO, ZHAO DAWEI, LE THI HONG LIEN, HANS SCHOLLENBERGER, CHOZI V. LUNGU and DAVID SIMBI / Exposure Programme on Atmospheric Corrosion Effects of Acidifying Pollutants in Tropical and Subtropical Climates 241–247

- VLADIMIR KUCERA, JOHAN TIDBLAD, KATERINA KREISLOVA, DAGMAR KNOTKOVA, MARKUS FALLER, DANIEL REISS, ROLF SNETHLAGE, TIM YATES, JAN HENRIKSEN, MANFRED SCHREINER, MICHAEL MELCHER, MARTIN FERM, ROGER-ALEXANDRE LEFÈVRE and JOANNA KOBUS / UN/ECE ICP Materials Dose-response Functions for the Multi-pollutant Situation 249–258
- T. YAMADA, T. INOUE, H. FUKUHARA, O. NAKAHARA, T. IZUTA, R. SUDA, M. TAKAHASHI, H. SASE, A. TAKAHASHI, H. KOBAYASHI, T. OHIZUMI and T. HAKAMATA / Long-term Trends in Surface Water Quality of Five Lakes in Japan 259–266
- MARY BETH ADAMS, JAMES N. KOCHENDERFER and PAMELA J. EDWARDS / The Fernow Watershed Acidification Study: Ecosystem Acidification, Nitrogen Saturation and Base Cation Leaching 267–273
- ANDREAS MEYBOHM and KAI-UWE ULRICH / Response of Drinking-water Reservoir Ecosystems to Decreased Acidic Atmospheric Deposition in SE Germany: Signs of Biological Recovery 275–284
- BJØRN MEJDELL LARSEN, ODD TERJE SANDLUND, HANS MACK BERGER and TRYGVE HESTHAGEN / Invasives, Introductions and Acidification: The Dynamics of a Stressed River Fish Community 285–291
- ARNE FJELLHEIM, ÅSMUND TYSSE and VILHELM BJERKNES / Fish Stomachs as a Biomonitoring Tool in Studies of Invertebrate Recovery 293–300
- SHAUN A. WATMOUGH, JULIAN AHERNE, M. CATHERINE EIMERS and PETER J. DILLON / Acidification at Plastic Lake, Ontario: Has 20 Years Made a Difference? 301–306
- DAVID MONCOULON, ANNE PROBST and LIISA MARTINSON / Modeling Acidification Recovery on Threatened Ecosystems: Application to the Evaluation of the Gothenburg Protocol in France 307–316
- W. KELLER, N. D. YAN and J. M. GUNN J. HENE BERRY / Recovery of Acidified Lakes: Lessons From Sudbury, Ontario, Canada 317–322
- RICHARD K. JOHNSON, WILLEM GOEDKOOP, JENS FÖLSTER and ANDERS WILANDER / Relationships Between Macroinvertebrate Assemblages of Stony Littoral Habitats and Water Chemistry Variables Indicative of Acid-stress 323–330
- JENS FÖLSTER, CECILIA ANDRÉN, KEVIN BISHOP, ISHI BUFFAM, NEIL CORY, WILLEM GOEDKOOP, KERSTIN HOLMGREN, RICHARD JOHNSON, HJALMAR LAUDON and ANDERS WILANDER / A Novel Environmental Quality Criterion for Acidification in Swedish Lakes – An Application of Studies on the Relationship Between Biota and Water Chemistry 331–338

- TRYGVE HESTHAGEN, BJØRN WALSENG, LEIF ROGER KARLSEN and ROY M. LANGÅKER / Effects of Liming on the Aquatic Fauna in a Norwegian Watershed: Why Do Crustaceans and Fish Respond Differently? 339–345
- OLLE WESTLING and THERESE ZETTERBERG / Recovery of Acidified Streams in Forests Treated by Total Catchment Liming 347–356
- KEN YAMASHITA, FUMIKO ITO, KEIGO KAMEDA, TRACEY HOLLOWAY and MATTHEW P. JOHNSTON / Cost-effectiveness Analysis of Reducing the Emission of Nitrogen Oxides in Asia 357–369
- J. SLOOTWEG, J.-P. HETTELINGH, M. POSCH, G. SCHÜTZE, T. SPRANGER, W. DE VRIES, G. J. REINDS, M. VAN 'T ZELFDE, S. DUTCHAK, and I. ILYIN / European Critical Loads of Cadmium, Lead and Mercury and their Exceedances 371–377
- J.-P. HETTELINGH, M. POSCH, J. SLOOTWEG, G. J. REINDS, T. SPRANGER and L. TARRASON / Critical Loads and Dynamic Modelling to Assess European Areas at Risk of Acidification and Eutrophication 379–384
- MATTIAS ALVETEG and LIISA MARTINSON / On the Calculation and Interpretation of Target Load Functions 385–390
- LIZ HEYWOOD, RICHARD SKEFFINGTON, PAUL WHITEHEAD and BRIAN REYNOLDS / Comparison of Critical Load Exceedance and Its Uncertainty Based on National and Site-specific Data 391–397
- RICHARD A. WADSWORTH and JANE R. HALL / Setting Site Specific Critical Loads: An Approach using Endorsement Theory and Dempster–Shafer 399–405
- MALCOLM S. CRESSER / Why Critical Loads of Acidity and N for Soils Should be Based on Pollutant Effective Concentrations Rather Than Deposition Fluxes 407–412
- JANE HALL, JACKIE ULLYETT, RICHARD WADSWORTH and BRIAN REYNOLDS / The Applicability of National Critical Loads Data in Assessing Designated Sites 413–419