

Contents

Introduction	1
R.-S. Massad and B. Loubet	

Part I Review Documents

Advances in Understanding, Models and Parameterizations of Biosphere-Atmosphere Ammonia Exchange	11
C.R. Flechard, R.-S. Massad, B. Loubet, E. Personne, D. Simpson, J.O. Bash, E.J. Cooter, E. Nemitz and M.A. Sutton	

Modelling Atmosphere-Biosphere Exchange of Ozone and Nitrogen Oxides	85
L. Ganzeveld, C. Ammann and B. Loubet	

Bidirectional Exchange of Volatile Organic Compounds	107
A. Guenther	

Surface/Atmosphere Exchange of Atmospheric Acids and Aerosols, Including the Effect and Model Treatment of Chemical Interactions	115
E. Nemitz	

Part II Synthesis According to Compounds

Modelling the Air-Surface Exchange of Ammonia from the Field to Global Scale	153
J.O. Bash, C. Flechard, M. Adon, P. Cellier, J.L. Drouet, S. Genermont, B. Grosz, L. Horvath, R.-S. Massad, M.A. Sutton, M.R. Theobald and R. Wichink Kruit	

O₃ and NO_x Exchange	163
B. Loubet, C. Ammann, J.F. Castell, L. Emberson, L. Ganzeveld, A.S. Kowalski, P. Laville, L. Merbold, E. Personne, P. Stella, J.-P. Tuovinen and A. Tuzet	
Bi-directional Exchange of Volatile Organic Compounds	169
R. Forkel, A. Guenther, K. Ashworth, C. Bedos, C. Delon, J. Lathiere, S. Noe, E. Potier, J. Rinne, O. Tchepel and L. Zhang	
Aerosol and Acid Gases	181
D. Simpson, E. Nemitz, J. Burkhardt, D. Famulari, M. Kasik, B. Loubet, I. Rumsey, J. Walker, T. Weidinger and V. Wolff	
 Part III Synthesis According to Model Component	
Gaseous Stomatal Exchange and Relation to Ecosystem Functioning . . .	191
E. Personne, L. Emberson, L. Balezientiene, J.-F. Castell, A. Kowlaski, A. Tuzet and V. Wolff	
Impact of Leaf Surface and In-canopy Air Chemistry on the Ecosystem/Atmosphere Exchange of Atmospheric Pollutants	199
J. Lathière, L. Zhang, M. Adon, K. Ashworth, J. Burkhardt, C. Flechard, R. Forkel, A. Guenther, J. Walker, E. Nemitz, E. Potier and I. Rumsey	
Soil and Litter Exchange of Reactive Trace Gases	207
R.-S. Massad, M.A. Sutton, J.O. Bash, C. Bedos, A. Carrara, P. Cellier, C. Delon, D. Famulari, S. Genermont, L. Horvath and L. Merbold	
In-Canopy Turbulence—State of the Art and Potential Improvements . . .	215
M. Theobald, B. Loubet, C. Ammann, L. Branislava, B. Chojnicki, L. Ganzeveld, B. Grosz, M. Kaasik, S. Noe, J. Olejnik, J. Rinne, M. Shapkalijevski, D. Simpson, O. Tchepel, J.-P. Tuovinen, T. Weidinger and R. Wichink Kruit	
A Common Conceptual Modelling Framework for Reactive Trace Gases and Volatile Aerosols Atmosphere-Biosphere Exchange in Chemical Transport Models	225
R.-S. Massad and B. Loubet	

Review and Integration of Biosphere-Atmosphere
Modelling of Reactive Trace Gases and Volatile Aerosols

Massad, R.S.; Loubet, B. (Eds.)

2015, IX, 235 p. 26 illus., 18 illus. in color., Hardcover

ISBN: 978-94-017-7284-6