

Earth System Science and Climate Change Group (ESS & CC) – publications 2001 - 2006

This publication list combines the publications of the following groups:

- Soil Formation and Ecopedology Group (publications 2001 – 2004)
- Earth System Sciences Group (publications 2005 – 2006)
- Alterra Land-Atmosphere Interactions Team (publications 2001 - 2006)

and

- *Publications of new staff members which can not be regarded as scientific output of the merged research groups (printed in italics); not counted in table 3.*

2001

Ph. D. Theses

Dijkstra, F.A. (2001) Effects of tree species on soil properties in a forest of the north-eastern United States
Promotor: Prof.dr.ir. N. van Breemen, co-promotor: Dr. G.E. Likens. - p. 120.

Scientific articles in refereed journals

A - journals

- Berendse, F.; Breemen, N. van; Rydin, H.; Buttler, A.; Heijmans, M.; Hoosbeek, M.R.; Lee, J.A.; Mitchell, E.; Saarinen, T.; Vasander, H.; Wallen, B. (2001) Raised atmospheric CO₂ levels and increased N deposition cause shifts in plant species composition and production in Sphagnum bogs *Global Change Biology* 7, 591 - 598.
- Falge, E., D. Baldocchi, R. Olson, P. Anthoni, M. Aubinet, C. Bernhofer, G. Burba, R. Ceulemans, R. Clement, H. Dolman, A. Granier, P. Gross, T. Grünwald, D. Hollinger, N.O. Jensen, G. Katul, P. Keronen, A. Kowalski, C.T. Lai, B.E. Law, T. Meyers, J. Moncrieff, E.[J.] Moors, J.W. Munger, K. Pilegaard. Ü. Rannik, C. Rebmann, A. Suyker, J. Tenhunen, K. Tu, S. Verma, T. Vesala, K. Wilson & S. Wofsy: Gap filling strategies for long term energy flux data sets. *Agric. Forest Meteorol.* 107: 71-77.
- Falge, E., D. Baldocchi, R. Olson, P. Anthoni, M. Aubinet, C. Bernhofer, G. Burba, R. Ceulemans, R. Clement, H. Dolman, A. Granier, P. Gross, T. Grünwald, D. Hollinger, N.O. Jensen, G. Katul, P. Keronen, A. Kowalski, C.T. Lai, B.E. Law, T. Meyers, J. Moncrieff, E.[J.] Moors, J.W. Munger, K. Pilegaard. Ü. Rannik, C. Rebmann, A. Suyker, J. Tenhunen, K. Tu, S. Verma, T. Vesala, K. Wilson & S. Wofsy: Gap filling strategies for defensible annual sums of net ecosystem exchange. *Agric. Forest Meteorol.* 107: 43-69.
- Heijmans, M.M.P.D.; Berendse, F.; Arp, W.J.; Masselink, A.K.; Klees, H.; Visser, W. de; Breemen, N. van (2001) Effects of elevated carbon dioxide and increased nitrogen deposition on bog vegetation in the Netherlands *Journal of Ecology* 89, 268 – 279
- Hoffland, E, R. Landeweert, Th.W. Kuyper & N. van Breemen (Further) links from rocks to plants *Trends in Ecology & Evolution* 16/10
- Hoosbeek, M.R.; Breemen, N. van; Berendse, F.; Grosvernier, P.; Vasander, H.; Wallen, B. (2001) Limited effect of increased atmospheric CO₂ concentration on ombrotrophic bog vegetation *New Phytologist* 150,459 - 463.
- Hove, L.W.A., van, Bossen, M.E., San Gabino, B.G. and Sgreva, C. (2001). The ability of apoplasmic ascorbate to protect poplar leaves against ambient ozone concentrations: a quantitative approach. Environmental Pollution 114, 371-382.*
- Jarvis, P.G., A.J. Dolman, E.D. Schulze, G. Matteucci, A.S. Kowalski, R. Ceulemans, C. Rebmann, E.J. Moors, A. Granier, P. Gross, N.O. Jensen, K. Pilegaard, A. Lindroth, A. Grelle, C. Bernhofer, T. Grünwald, M. Aubinet, T. Vesala, Ü. Rannik, P. Berbigier, D. Loustau, J. Guðmundson, A. Ibrom, K. Morgenstern, R. Clement, J. Moncrieff, L. Montagnani, S. Minerbi & R. Valentini, 2001. Carbon balance gradient in European forests: should we doubt 'surprising' results?; a reply to Piovesan & Adams. *J. Veg. Sci.* 12, 1: 145-150.
- Jongmans, A.G.; Breemen, N. van; Gradstein, S.R.; Oort, F. van (2001) How liverworts build hanging gardens from volcanic ash in Costa Rica *Catena* 44, 13 - 22.
- Landeweert, R.; Hoffland, E.; Finlay, R.D.; Kuyper, T.W.; Breemen, N. van (2001) Linking plants to rocks : ectomycorrhizal fungi mobilize nutrients from minerals. *Trends in Ecology and Evolution* 16, 5, 248 - 254.
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- Manzi, A.O., Randow, C.V., Oliveira, P.J., Waterloo, M.J., Kruijt, B., Culf, A., Elbers, J.A., Zanchi, F.B., Lelis da Silva, R., Gomes, B.M., Kabat, P, Dias, M.A.F.S., 2001, Measurements of energy, water and carbon

dioxide fluxes over tropical forest and pasture in South-west Amazonia, *J. Geophys. Res.*, Special issue LBA

- Muggler, C.C.; Loef, J.J. van; Buurman, P.; Doesburg, J.D.J. van (2001) Mineralogical and (sub)microscopic aspects of iron oxides in polygenetic oxisols from Minas Gerais, Brazil *Geoderma* 100, 147 - 171.
- Nierop, K.G.J.; Lagen, B. van; Buurman, P. (2001) Composition of plant tissues and soil organic matter in the first stages of a vegetation succession *Geoderma* 100, 1 - 24.
- Oost, W.A., G.J. Komen, C.M.J. Jacobs, C. van Oort and H. Bonekamp, 2001: Indications for a wave dependent Charnock parameter from measurements during ASGAMAGE. *Geophys. Res. Lett.*, 28 , 2795-2797.
- Roscoe, R.; Buurman, P.; Velthorst, E.J.; Vasconcellos, C.A. (2001) Soil organic matter dynamics in density and particle size fractions as revealed by the ¹³C/¹²C isotopic ratio in a Cerrado's oxisol, *Geoderma* 104, 185 - 202.
- Schreuder, Maarten D.J., van Hove, Lambertus W.A. and Brewer, Carol A. (2001). Ozone exposure affects leaf wettability and tree water balance. New Phytologist 152, 443-454.*
- Steen, R.J.C.A., J. van der Vaart, M. Hiep, B. van Hattum, W.P. Cofino, U.A.Th. Brinkman, Gross fluxes and estuarine behaviour of pesticides in the Scheldt Estuary (1995-1997), Environmental Pollution 115, 65-79.*
- Wattel-Koekkoek, E.J.W.; Genuchten, P.P.L. van; Buurman, P.; Lagen, B. van (2001) Amount and composition of clay-associated soil organic matter in a range of kaolinitic and smectitic soils *Geoderma* 99, p. 27 - 49.

B – journals

- Conte, P.; Piccolo, A.; Lagen, B. van; Buurman, P.; Hemminga, M.A. (2001) Effect of residual ashes on cpmas-13 nmr spectra of humic substances from volcanic soils *Fresenius Environmental Bulletin* 10 (2001) 4, 368 - 374.
- Dijkstra, F.A.; Geibe, C.; Holmstrom, S.; Lundstrom, U.S.; Breemen, N. van (2001) The effect of organic acids on base cation leaching from the forest floor under six North American tree species *European Journal of Soil Biology* 52, 205 - 214.
- Groeneveld, R.A., A.F. Bouwman, S. Kruitwagen and E.C. van Ierland (2001). Land cover changes as a result of environmental restrictions on nitrate leaching in dairy farming. Environmental Monitoring and Assessment 6:101-109.*
- Lorenz, C.M., Gilbert, A.J. and Cofino, W.P. (2001). Environmental auditing: indicators for transboundary river management. Environmental Management, 28, 115-129*
- Miglietta, F.; Hoosbeek, M.R.; Foot, J.; Gigon, F.; Hassinen, A.; Heijmans, M.; Peressotti, A.; Saarinen, T.; Breemen, N. van; Wallen, B. (2001) Spatial and temporal performance of the miniface (free air CO₂ enrichment) system on bog ecosystems in northern and central Europe *Environmental Monitoring and Assessment* 66, 107 - 127.
- Nabuurs, G.J., Dolman, A.J., Verkaik, E., Kuikman, P.J., van Diepen, C.A., Whitmore, A.P., Daamen, W.P., Oenema, O., Kabat, P. and Mohren, G.M.J., 2001. Article 3.3 and 3.4 of the Kyoto Protocol: consequences for industrialized countries' commitment, the monitoring needs, and possible side effects. *Environmental Science and Policy* 3: 123-134

C – journals

- Buurman, P.; Paper, T.; Reijneveld, J.A.; Jong, F. de; Gelder, E. van (2001) Laser-diffraction and pipette-method grain size of Dutch sediments: correlations for fine fractions of marine, fluvial, and loess samples *Geologie en Mijnbouw* 80, 2, 49 - 57.
- Denier van der Gon, H.A.; Bodegom, P.M. van; Wassman, R.; Lantin, R.S.; Metra-Corton, T.M. (2001) Sulfate-containing amendments to reduce methane emissions from rice fields: mechanisms, effectiveness and costs *Mitigation and Adaptation Strategies for Global Change* 6, 71 - 89.
- Pontevedra-Pombal, X.; Martinez-Cortizas, A.; Garcia-Rodeja, E.; Buurman, P.; Lagen, B. van (2001) Composicion y transformacion de la materia organica en un histosol de la serra do xistral (norte de galicia) mediante cpmas ¹³c-nmr *Edafologia* 8, 67 - 79.

Scientific articles in other journals

Hoosbeek, M. (2001) Understanding humic substances: advanced methods, properties and applications by E.A. Ghabbour and G. Davies (eds) *Soil Science* 166, 12, 950 - 951.

Lightfoot, C., Ramirez, R., Groot, A., Noble, R., Shao, F., Kisauzi, D. & I. Bekalo (2001). *Learning Our Way Ahead: Navigating institutional change and agricultural decentralisation. Gatekeeper Series, no 98. IIED: London.*

Refereed book chapters

A – publishers

Vellinga, P., E. Mills, G. Berz, L. Bouwer, S. Huq, L.A. Kozak, J. Palutikof, B. Schanzenbacher, C. Benson, J. Bruce, G. Frerks, P. Huyck, P. Kovacs, X. Olsthoorn, A. Pears, S. Shida, and A. Dlugolecki (2001): *Insurance and Other Financial Services. In: Impacts, Adaptation, and Vulnerability. Contribution of Working Group II to the Third Assessment Report of the Intergovernmental Panel on Climate Change. [Eds. McCarthy, J.J., O.F. Canziani, N.A. Leary, D.J. Dokken, and K.S. White]. Cambridge University Press, Cambridge UK, 417-450.*

Wickland, D.E., M. Keller, C. Nobre and P. Kabat, 2001. Large Scale Biosphere-Atmosphere Experiment in Amazonia (LBA). *Encyclopedia of Global Environmental Change*, J. Wiley and Sons, UK

B – publishers

Mitchell, E.A.D.; Gilbert, D.; Butler, A.; Grosvernier, P.; Albinsson, C.; Rydin, H.; Heijmans, M.M.P.D.; Hoosbeek, M.R.; Greenup, A.; Foot, J.; Saarinen, T.; Vasander, H. (2001) Can testate amoebae (protozoa) and other micro-organisms help to overcome biogeographic bias in large scale global change research? In: *Global Change and Protected Areas / G. Visconti et al.. - Netherlands : Kluwer Academic Publishers*, p. 301 - 310.

C – publishers

van den Hurk, B.J.J.M., A.J. Dolman, A.A.M. Holtslag, R. Ronda, R.W.A. Hutjes, 2001. The land-component in the climate system. In: Berdowski, J. (eds) *The Climate System, NOP Synthesis book*, Swets and Zeitlinger.

Hutjes, R.W.A., A.J. Dolman, G.J. Nabuurs, M.J. Schelhaas, H.W. Ter Maat, P. Kabat, E. Moors & J. Huygen, R. Haarsma, R. Ronda & M. Schaeffer, J.D. Opsteegh, R. Leemans, L. Bouwman, G. Busch, B. Eickhout, E. Kreileman, M. Schaeffer, B. Strengers & B. de Vries, A. Verhagen, L. Vleeshouwers, W.J. Corre, R.E.E. Jongschaap, G. Kruseman, E. van Ierland, A.A.M. Holtslag, R. Ronda, F. Willemsen, C. Dorland, R.S.J. van Tol (2001) *Land Use, Climate and Biogeochemical Cycles: Feedbacks and Options for Emission Reduction, Final Report NRP project 958254. RIVM NOP rapport nr 410 200 107*

Non - refereed book chapters

Lightfoot, C., Noble, R., Ramirez, R., Groot, A., Fernandez, M., Shao, F., Muro, G., Okeballo, S. & A. Mugenyi. *A Learning Approach to Community Agroecosystem Management. In: Flora, C. (2001). Interactions between Agroecosystems and Rural Communities. CRC Press: Boca Raton.*

Proceedings

Kruijt, B.; Dolman, A.J.; Lloyd, J.; Ehleringer, J.; Raupach, M.; Finnigan, J. (2001) Assessing the regional carbon balance using boundary-layer budget CO₂ flux methods - overview of a workshop in Gubbio, Italy, October 2000 In: 6th international carbon dioxide conference; extended abstracts. Sendai (Japan), Organizing Committee of Sixth International Carbon Dioxide Conference, Vol. 1, pp. 281-284

Kruijt, B.; Moors, E.; Dolman, H.; Nobre, A.; Manzi, A.; Kabat, P.; Malhi, Y. (2001) What are direct CO₂ flux measurements telling us about the magnitude and long-term sustainability of terrestrial carbon sinks? In: 6th international carbon dioxide conference; extended abstracts. Sendai (Japan), Organizing Committee of Sixth International Carbon Dioxide Conference, Vol. 1, pp. 369-372

Lloyd, J.; Bird, M.I.; Veenendaal, E.M.; Kruijt, B. (2001) Should phosphorus availability be constraining moist tropical forest responses to increasing CO₂ concentrations? In: E.D. Schulze, M. Heimann, S. Harrison, E. Holland, J. Lloyd, I.C. Prentice & D. Schimel (eds.), *Global biogeochemical cycles in the climate system*. San Diego CA (USA) etc. Academic Press, pp. 95-114

Ubbels, A.; Verhallen, J.M. (2001). Collaborative planning in integrated water resources management: the use of decisions support tools. In: *Integrated Water Resources Management : Davis, 2000. / Miguel A. Marino et al. - Wallingford : IAHS Press, 2001 (IAHS Publication ; 272). p. 37 - 43.*

Ubbels, A.; Verhallen, J.M. (2001). The use of role-playing in integrated water management. In: *Regional Management of Water Resources : Sixth Scientific Assembly of the International Association of Hydrological Sciences (IAHS), Maastricht, 18 to 27 July 2001 / A.H. Schumann, M.C. Acreman, R. Davis, M.A. Marino, D. Rosbjerg, Xia Jun. - Wallingford : IAHS Press (IAHS Publication ; 268), p. 191 - 197.*

- Verhallen, J.M.; Leentvaar, J.; Broseliske, G. (2001). Consequences of the European Union water framework directive for information management in interstate river basins In: Integrated Water Resources Management: Davis, 2000. / Miguel A. Marino et al. - Wallingford : IAHS Press, 2001 (IAHS Publication ; 272), p. 31 - 35.
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- Verhallen, J.M.; Dijk, H.W.J. van; Densen, W.L.T. (2001). Administrative capacity to perceive long-term trends in water quality. Consequences for transboundary river management. In: Monitoring Tailor-Made III : International Workshop on Information for Sustainable Water Management, Nunspeet, The Netherlands, September 2000 / Jos G. Timmerman, Wim G. Cofino, Rainer E. Enderlein, Walter Jülich, Peter Literathy, Jean Marie Martin, Phil Ross, Niels Thyssen, R. Kerry Turner, Robert C. Ward. - Lelystad : RIZA , p. 209 - 217.
- Scientific reports**
- Breemen, N. van; Denier van der Gon, H.; Veldkamp, T.; Verburg, P.; Bodegom, P. van; Goudriaan, J.; Leffelaar, P.; Stams, F.; Houweling, S.; Lelieveld, J.; Slanina, S.; Zhang, Y. (2001) Upscaling and downscaling of regional methane sources - rice agriculture as a case study. Bilthoven, the Netherlands : RIVM, 2001. - (Global Change ; 410 200 070), p. 133.
- Correljé, A.F., Klostermann, J., Slingerland, S., 2001: Household Energy and Water Consumption and Waste Generation: Dutch Case Study. National Case Study to the OECD Programme on Sustainable Consumption. Working Paper Erasmus centre for Sustainable development and Management, Erasmus University Rotterdam (OECD Internal Working Document 2001)
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- Hootsmans, R.M. A.F. Bouwman; R. Leemans and G.J.J. Kreileman (2001) *Modelling land degradation in IMAGE 2. Report 481508009*, National Institute for Public Health and the Environment, Bilthoven, The Netherlands, 33 pp.
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- Su, Z. and C. Jacobs (eds). *ENVISAT – Actual Evaporation*. BCRS Beleidscommissie Remote Sensing, USP-2 report 01-05, July 2001.
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- Werners, S.E. (2001) Selection of a coastal defence strategy: impacts, values and their assessment, Chapter 9 in *COASTAL DEFENCE GUIDELINES: A guide for coping with erosion in the broader perspective of Integrated Coastal Zone Management*, Coastal Zone Management Centre, the Hague, the Netherlands, July 2001

Woerd, H. van der; Bergsma, A.; Denier van der Gon, H.; Janssen, L.; Leeuwen, H. van; Verhoeven, R.; Valkengoed, E. van; Wal, J.T. van der (2001) Upscaling methane emissions from wetland rice fields: BCRS, (USP-2 ; 01-26), USP-2 project 4.2/AP-09 - p. 73.

Professional publications and products (incl. patents)

Kruijt, B.; Dolman, A.J.; Lloyd, J.; Ehleringer, J.; Raupach, M.; Finnigan, J. (2001) Assessing the regional carbon balance: towards an integrated, multiple constraint approach *Change (2001)*, 56: 9-12

Schrevel, A., Jaspers A.M.J., (2001) Optimum size of water users groups for water management in controlled drainage in Egypt (DRI), 2001

2002

Ph. D. Theses

Alcântara, F.A., de (2002). Conversion of cerrado into riparian forest impacting soil attributes; Co-promotor: Dr Ir P. Buurman

Kros, J. (2002) Evaluation of biogeochemical models at local and regional scale; Promotor: Prof. Dr. Ir. N. van Breemen, co-promotors: Dr. Ir. W. de Vries; Dr. Ir. M.R. Hoosbeek.- p. 284.

Pulleman, M. (2002). Interactions between soil organic matter dynamics and soil structure as affected by farm management. Promotors: Prof.dr.ir. J. Bouma and Prof.dr.ir. N. van Breemen, co-promotor: Dr.ir. J.C.Y. Marinissen. - p. 147.

Roscoe, R. (2002) Soil organic matter dynamics in a cerrado oxisol. Promotor: Prof.dr.ir. N. van Breemen, co-promotor(en): Dr.ir. P. Buurman. - p. 157.

Wattel-Koekkoek, E.J.W. (2002) Clay-associated organic matter in kaolinitic and smectitic soils. Promotor: Prof.dr.ir. N. van Breemen, co-promotor: Dr.ir. P. Buurman - p. 120.

Scientific articles in refereed journals

A – journals

R. C. S. Alvalá, R. Gielow, H. R. da Rocha, H. C. Freitas, J. M. Lopes, A. O. Manzi, C. von Randow, M. A. F. S. Dias, O. M. R. Cabral, M. J. Waterloo, 2002. Intra diurnal and seasonal variability of soil temperature, heat flux, soil moisture content, and thermal properties under forest and pasture in Rondonia. *Journal of Geophysical Research*, 107 (D20), doi:10.1029/2001JD000599.

Andreae, M. O. . S. S. de Almeida, P. Artaxo, C. Brandão, F. E. Carswell, P. Ciccioli, A. Culf, J. L. Esteves, J. Gash, J. Grace, P. Kabat, J. Lelieveld, Y. Malhi, A. O. Manzi, F. X. Meixner, A. Nobre, C. Nobre, M. A. de Lourdes Ruivo, M. A. Silva-Dias, P. Stefani, R. Valentini, J. von Jouanne, e M. Waterloo, Biogeochemical cycling of carbon, water, energy, trace gases and aerosols in Amazonia: The LBA-EUSTACH experiments. *J. Geophys. Res.*, 107, D20, 8066 - 8091, doi:10.1029/2001JD0005 24

Araújo, A.C.; Nobre, A.D.; Kruijt, B.; Elbers, J.A.; Dallarosa, R.; Stefani, P.; Randow, C. von; Manzi, A.O.; Culf, A.D.; Gash, J.H.C.; Valentini, R.; Kabat, P. (2002) Comparative measurements of carbon dioxide fluxes from two nearby towers in a central Amazonian rainforest: the Manaus LBA site *Journal of Geophysical Research* 107 (D20). - p. 8090.

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Bodegom, P.M. van; Verburg, P.H.; Denier van der Gon, H.A.C. (2002) Upscaling methane emissions from rice paddies: problems and possibilities *Global Biogeochemical Cycles* 16, 2, 1.

Bouwman, A.F., L.J.M. Boumans and N.H. Batjes (2002) Emissions of N₂O and NO from fertilized fields: Summary of available measurement data. Global Biogeochemical Cycles 16(4), 1058, doi:10.1029/2001GB001811.

Bouwman, A.F., L.J.M. Boumans and N.H. Batjes (2002) Estimation of global NH₃ volatilization loss from synthetic fertilizers and animal manure applied to arable lands and grasslands. Global Biogeochemical Cycles 16(2), 1024, doi:10.1029/2000GB001389.

Bouwman, A.F., L.J.M. Boumans and N.H. Batjes (2002) Modelling global annual N₂O and NO emissions from fertilized fields. Global Biogeochemical Cycles 16(4), 1080, doi:10.1029/2001GB001812.

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Breemen, N. van (2002) Natural organic tendency *Nature* 415, 381 - 382.

- Breemen, N. van; Boyer, E.W.; Goodale, C.L.; Jaworski, N.A.; Paustian, K.; Seitzinger, S.P.; Lajtha, K.; Mayer, B.; Dam, D. van; Howarth, R.W.; Nadelhoffer, K.J.; Eve, M.; Billen, G. (2002) Where did all the nitrogen go? Fate of nitrogen inputs to large watersheds in the northeastern U.S.A. *Biogeochemistry* 57/58, 267 - 293.
- Breemen, N. van (2002) Replies on: Nitrogen cycle. What governs nitrogen loss from forest soils? by T. Addiscot & P. Brookes *Nature* 418, 604.
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