

**Curriculum vitae**  
**Reinhart J.M. CEULEMANS**

Contact information

Research Group of Plant and Vegetation Ecology  
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Personal data

- Place and date of birth: Wilrijk (Antwerp) 15 Jan. 1954
- Nationality: Belgian

Education

- M.Sc. (licentiaat) degree, Botany, July 1976. University of Antwerpen, UIA, Wilrijk.
- Ph.D. degree, Biological Science, March 1980. University of Antwerpen, UIA, Wilrijk.
- Post-graduate degree, Terrestrial Ecology, November 1984. University of Antwerpen, UIA, Wilrijk.
- Higher Education Teaching Degree (Aggregaat Hoger Onderwijs/Habilitation), 1990, University of Antwerpen, UIA, Wilrijk.

Professional Experience

- 1976-1986: Research Assistant and Research Associate, University of Antwerpen, Belgium.
- 1987-1988: Visiting Professor, University of Washington, Seattle, USA.
- 1988-1989: Research Scientist, Government Poplar Research Station, Geraardsbergen, Belgium and Visiting Professor, University of Paris, France.
- 1990- present : Research Director (until 1999) and full-time Professor, University of Antwerpen, UIA, Belgium.
- Since 2001: also Vice-Chairman of the Department of Biology, UA

#### Other functions, activities and positions

- Visiting scientist and consultant, Rubber Research Institute of Malaysia (1979, 1980)
- Consultant to the Water Research Commission of South Africa, 1986
- Scientific expert and consultant to the European Commission, Fourth and Fifth Framework Programmes, 1995-1999
- NATO Research Fellow at the University of Washington, Seattle, USA, 1987-1988
- Consultant to the United Nations, FAO in China (1996)
- Member of the Scientific Advisory Board of the Office National des Forêts (ONF), France
- Member of the Belgian National Committee IGBP Global Change
- Member of the Scientific commissions B4 and Biologie Végétale, Fund for Scientific Research – Flanders and the Fonds National de Recherche Scientifique
- Scientific Adviser to the International Foundation for Science, Sweden
- Expert étranger and membre du comité d'évaluation for INRA, France
- Member of the Steering Group of the Core Model Programme, Forest Commission, United Kingdom
- Regular reviewer for NSF, USA and for the Department of Energy, USA
- Several functions and commission member of working groups at the University of Antwerpen (UA)

#### Scientific journals

- Editor of Tree Physiology
- Member Editorial Advisory Board Forest Ecology and Management
- Member Editorial Review Board Plant, Cell and Environment
- Member Editorial Review Board Annals of Forest Science
- Regular reviewer for over 40 scientific journals

#### Awards, Honours, and Grants

- Scientific Achievement Award of the International Union of Forestry Research Organisations, 1990.
- Fulbright Hays Grantee, University of Washington, USA, 1987-1988

#### Current professional and club memberships

- International Union of Forestry Research Organisations (past vice-chairman of IUFRO Working Group S.2.01.12)
- Belgian Biomass Association (Vice-President 1993-1995)
- Flemish Biomass Platform
- Society for Experimental Biology
- U.S. Poplar Council
- Belgian Association of Plant Physiology and Federation of European Societies of Plant Physiology (FESPP)
- International Canopy Network

- Active participant and member of the Management Committee of several COST-actions (E9, E21, E28, Cost-614)

#### Research projects

- Contractor / principal investigator of more than 14 European funded research projects in the Environment and Climate Change subprogramme, Fourth and Fifth Framework programmes
- Coordinator NATO research project (1990-1992)
- Principal investigator or coordinator of various research projects for the Flemish and Federal governments or Science Policy Offices
- Principal investigator of various bilateral exchange programmes between Belgium/Flanders and Beijing (China), Brighton (UK), Seattle (USA), Paris-Orsay (France) and others
- Contractor of various research projects and research funding of the University of Antwerpen
- Contractor of various research projects of the Province of Antwerpen
- Principal investigator or coordinator of various projects of the Fund for Scientific Research-Flanders.

#### Teaching

- Courses: Ecology, General Ecology, Plant Ecology, Plant Ecophysiology, Bioenergy and Environment
- Programmes: Bachelor (Applied Biological Sciences), Master (Biology, Environment) and Post-graduate (Environmental Sciences)
- Currently supervisor/promotor of 7 M.Sc. and 8 Ph.D. theses
- Supervisor of 4 completed Ph.D. theses

#### Publications

- Over 125 publications in national and international journals with peer review board on plant ecophysiology, global climatic change and biomass for energy topics
- Co-editor of 7 books on plant responses to environmental factors and tree physiology
- More than 50 publications in scientific volumes, proceedings and popularizing journals
- Over 80 abstracts of lectures, seminars and poster presentations
- Full list : <http://lib.ua.ac.be/AB/a50.html>

#### Scientific papers (selection)

- Janssens I.A., Sampson D.A., Cermak J., Meiresonne L., Riguzzi F., Overloop S. and Ceulemans R. (1999) Above- and below-ground phytomass and carbon storage in a Belgian Scots pine stand. *Annals of Forest Science*, 56, 81-90.
- Ceulemans R., Janssens I.A. and Jach M.E. (1999) Effects of CO<sub>2</sub> enrichment on trees and forests: Lessons to be learned in view of future ecosystem studies. *Annals of*

Botany 84, 577-590.

- Gond V., de Pury D.G.G., Eerens H., Veroustraete F. and Ceulemans R. (1999) The Brasschaat 1.1 km<sup>2</sup> pixel: a case study of monitoring a complex land surface by remote sensing and upscaled modelling approach. In: Ceulemans R., Veroustraete F., Gond V. and Van Rensbergen J. (Eds.) *Forest Ecosystem Modelling, Upscaling and Remote Sensing*. SPB Academic Publishers, The Hague, The Netherlands, pp. 221-234.
- Gond V., de Pury D.G.G., Veroustraete F. and Ceulemans R. (1999) Seasonal variation of leaf area index, leaf chloro-phyll and water content scaled-up to fAPAR to estimate the carbon balance of a temperate multi-layer, multi-species forest. *Tree Physiology* 19, 673-679.
- Janssens I.A., Mousseau M. and Ceulemans R. (1999) Tree crops. In: Reddy K.R. and Hodges H.F. (Eds.) *Crop Ecosystem Responses to Global Climate Change*, C.A.B. International, Wallingford U.K., pp. 245-270.
- Janssens I.A., Meiresonne L. and Ceulemans R. (1999) Mean soil CO<sub>2</sub> efflux from a mixed forest: temporal and spatial integration. In: Ceulemans R., Veroustraete F., Gond V. and Van Rensbergen J. (Eds.) *Forest Ecosystem Modelling, Upscaling and Remote Sensing*. SPB Academic Publishers, The Hague, The Netherlands, pp.19-31.
- Kowalski A.S., Overloop S. and Ceulemans R. (1999) Eddy fluxes above a Belgian, Campine forest and relationships with predicting variables. In: Ceulemans R., Veroustraete F., Gond V. and Van Rensbergen J. (Eds.) *Forest Ecosystem Modelling, Upscaling and Remote Sensing*. SPB Academic Publishers, The Hague, The Netherlands, pp. 3-18.
- Sampson D.A. and Ceulemans R. (1999) SECRETS—simulated carbon fluxes from a mixed coniferous/deciduous Belgian forest: Net Ecosystem Exchange. In: Ceulemans R., Veroustraete F., Gond V. and Van Rensbergen J. (Eds.) *Forest Ecosystem Modelling, Upscaling and Remote Sensing*. SPB Academic Publishers, The Hague, The Netherlands, pp 95-108.
- Valentini R., G. Matteucci, A.J. Dolman, E.D. Schulze, C. Rebmann, E.J. Moors, A. Granier, P. Gross, N.O. Jensen, K. Pilegaard, A. Lindroth, A. Grelle, C. Bernhofer, T. Grunwald, M. Aubinet, R. Ceulemans, A.S. Kowalski, T. Vesala, U. Rannik, P. Berbigier, D. Loustau, J. Guomundsson, H. Thorgeirsson, A. Ibrom, K. Morgenstern, R. Clement, J. Moncrieff, L. Montagnani, S. Minerbi and P.G. Jarvis. 2000. Respiration as the main determinant of carbon balance in European forests. *Nature* 404: 861-865.
- Janssens I.A., A.S. Kowalski and R. Ceulemans. 2001. Forest floor CO<sub>2</sub> fluxes estimated by eddy covariance and chamber-based model. *Agricultural and Forest Meteorology* 106: 61-69.
- Sampson D.A., I.A. Janssens and R. Ceulemans. 2001. Simulated soil CO<sub>2</sub> efflux and net ecosystem exchange in a 70-year-old Belgian Scots pine stand using the process model SECRETS. *Annals of Forest Science* 58: 31-46.
- 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, Ch. Bernhofer, T. Grunwald, M. Aubinet, T. Vesala, U. Rannik, P. Berbigier, D. Loustau, J. Guomundsson, A. Ibrom, K. Morgenstern, R. Clement, J. Moncrieff, L. Montagnani, S. Minerbi and R. Valentini. 2001. Carbon balance

gradient in European forests: should we doubt “surprising” results? A reply to Piovesan & Adams. *Journal of Vegetation Science* 12: 145-150.

- Nadezhdina N., J. Cermak and R. Ceulemans. 2002. Radial patterns of sap flow in woody stems of dominant and understory species: scaling errors associated with positioning of sensors. *Tree Physiology* 22: 907-918.
- Meiresonne L., D.A. Sampson, A.S. Kowalski, I.A. Janssens, N. Nadezhdina, J. Cermak, J. Van Slycken and R. Ceulemans. 2003. Water flux estimates from a Belgian Scots pine stand: a comparison of different approaches. *Journal of Hydrology* 270: 230-252.
- Xiao C.W., J. Curiel Yuste, I.A. Janssens, P. Roskams, L. Nachtergale, A. Carrara, B.Y. Sanchez and R. Ceulemans. 2003. Above- and belowground biomass and net primary production in a 73-year-old Scots pine forest. *Tree Physiology* 23: 505-516.
- Niinemets Ü., F. Valladares and R. Ceulemans. 2003. Leaf-level phenotypic variability and plasticity of invasive *Rhododendron ponticum* and non-invasive *Ilex aquifolium* co-occurring at two contrasting European sites. *Plant, Cell and Environment* 26: 941-956.
- Carrara A., A.S. Kowalski, J. Neirynek, I.A. Janssens, J. Curiel Yuste and R. Ceulemans. 2003. Net ecosystem CO<sub>2</sub> exchange of mixed forest in Belgium over 5 years. *Agricultural and Forest Meteorology* 119: 209-227.

#### Research interests

- Global climatic change studies (in particular on trees): effects of elevated atmospheric CO<sub>2</sub> and temperature on growth, development and productivity of plants. FACE-studies on poplar.
- General ecology (tropical forests, deforestation, fragmentation, pollution, global changes, grasslands and biodiversity)
- Alternative bio-energy sources : fast growing biomass production systems. Bio-energy from biomass plantation culture.
- Poplar: ecology, ecophysiology, relation physiology-genetics, applications, plantations.
- Ecophysiology and environmental physiology of trees (gas exchange, plant growth and productivity performance; plant water relations).
- Crown architecture, crown development and leaf demography of trees : plant structure modelling. Fractal modelling and light interception models.
- Modelling: process-based models for tree and forest growth and carbon balance.
- Environmental ecology: air pollution (ozone), soil pollution and water stress and their effects on plants and vegetations.