Curriculum Vitae

Graham Douglas FARQUHAR AO, FAA, FRS, NAS

Research School of Biology
College of Medicine, Biology and Environment
Australian National University

Address: 702 Burra Road
Burra NSW 2620

Date of Birth: 8 December 1947

Academic Qualifications

1968	BSc Australian National University
1969	BSc University of Queensland Honours in Biophysics
1973	PhD Australian National University - Supervisors: IR Cowan and RO Slatyer
2006	Doctor Honoris Causa, Universiteit Antwerpen
2013	Doctor Honoris Causa, University of Wageningen

Academic Awards and Distinctions

1968	Biophysics Scholarship
1970 -73	Commonwealth Post-graduate Scholarship
1980	P.L. Goldacre Award from the Australian Society of Plant Physiologists
1981	Senior Scientist Award under the Japan/Australia Science and Technology Agreement for collaborative research at RIKEN
1982	Australian American Educational Foundation (FULBRIGHT) Senior Scientist Fellowship for research at Carnegie Institution of Washington, Stanford
1983	Gottschalk Medal from the Australian Academy of Science
1984	British Council Academic Links and Interchange Scheme Award
1986	Australia - Royal Society Exchange Award
1987	Bourse de haut niveau du Ministère de la Recherche et de l'Enseignement Superieur de France
1988	Elected to Fellowship of the Australian Academy of Science
1991	Elected to Corresponding Membership of the American Society of Plant Physiologists
1991	CSIRO Medal for research achievement
1995	Elected to Fellowship of Royal Society (of London)
2001	Leading Australian Citation Laureate
2001	CSIRO Medal for team research
2004	Top100 Award
2005	JG Wood Lecturer (Australian Society of Plant Scientists)
2005	Gary Comer Climate Change Mentor Award
2006	Honorary Doctorate, Universiteit Antwerpen
2009	Land & Water Senior Research Fellowship
2011	Alexander von Humboldt Research Award
2013	Einstein Professor of Chinese Academy of Sciences
2013	Honorary Doctorate, University of Wageningen
2013	Elected Foreign Associate of the U.S. National Academy of Sciences
2013	Honorary Professorship, Centre for Agricultural Resources Research Shijiazhuang, Chinese Academy of Sciences

Other Awards and Distinctions

2003	Centenary Medal: Citation '*For service to Australian society and science in plant physiology*'.
2006	Royal Society of Tasmania R.M. Johnston Memorial Medal. Awarded to "a scholar of great distinction in any field within the Society's purview."
2007	Shared Nobel Prize: Inter-governmental Panel on Climate Change
2011	Peter Baume Award: The Australian National University's highest award
2013	Order of Australia Officer (AO) in the General Division
2014	Rank Prize (U.K.) (Nutrition, animal & crop husbandry - shared with RA Richards)

Membership of Learned Societies

- Australian Society of Plant Scientists
- Australian Academy of Science
- American Society of Plant Biologists
- Royal Society of London
- American Geophysical Union
- European Geosciences Union
- U.S. National Academy of Sciences

Fields of Interest

- Integration of photosynthesis and growth with nitrogen and water use of plants
- Stomatal physiology
- Isotopic composition of plants
- Global change science

Present Position

Distinguished Professor at The Australian National University (ANU) since 2003

Other Posts

1973 - 75	Research Associate, DOE Plant Research Laboratory, MSU
1975 - 76	Research Specialist, DOE Plant Research Laboratory, MSU
1976 - 80	Research Fellow, ANU
1980	Senior Research Fellow, ANU
1980 - 83	Fellow, ANU
1983 - 88	Senior Fellow, ANU
1988 – 2003	Professor, ANU
1988 – 89	Group Leader of Plant Environmental Biology, RSBS, ANU
1998 - 2001	Deputy CEO and Program Leader, CRC for Greenhouse Accounting
1994 - 2009	Group Leader of Environmental Biology Group, RSBS, ANU
2005 – 2008	Associate Director, Research School of Biological Sciences (RSBS)

Other Activities

The Australian National University

1980 - 90	Member, ANU Arts Centre Committee of Management
1994 - 97	Chairman, ANU Global Change Confederation
1998 - 99	Member, Board of the Institute of Advanced Studies, ANU
2001	Member, Steering Committee for the National Institute of Bioscience
2002 - 05	Member, Academic Board, ANU
2002 - 05	Member, National Institute for the Environment
2002	Member, Advisory Board of the ANU Centre for Complex Systems
2003 - 04	Chair, Board of Institute of Advanced Studies [from Sept 2003]
2004 - 05	Chair, Institute of Advanced Studies Forum

2005 Member, Board of the Faculties
2005 Member ANU-CSIRO Alliance Steering Committee and ANU Focus Group for Changing Research Practices
2005 Member, ANU Relationships and Funding Planning Groups
2005 Member, ANU Research Development Working Group
2005 - 2008 Board Member, Australian National University Institute for Environment
2006 – 2009 ANU Person Designated to Receive Formal Complaints in Science
2007 - Current Member, Senior Advisory Board, BioSolar Project
2009 - 2010 Member, Institute of Advanced Studies sub-committee of the University Research Committee
2010-current ANU Research Misconduct Assessor for Science
2013- Member Selection Committee for JG Crawford Prize

Australian Academy of Science

1990 - 94 Member, Sectional Committee 5,
1993 Member, National Primary School Project Advisory Committee
1993 Chairman, Gottschalk Award Committee
1994 - 97 Member, Council
1996 - 97 Chairman, AAS National Committee on Climate and Global Change
1996 - 97 Vice President
2007 – 2011 Member, Video Histories Committee
2007 - 2011 Vice President and Secretary (Biological), member of Executive Committee and of Council

Royal Society

2007 – current Member, Theo Murphy Fund Advisory Board
2010 -2011 Member, Organising Committee, Reducing Greenhouse Gas Emissions from Agriculture: Meeting the Challenges of Food Security and Climate Change. London 28Feb-1 Mar 2011

Journal Editorial and Advisory Boards

1984 - 89 Member, Advisory Committee for the *Australian Journal of Plant Physiology*
1985 - 93 Member, Editorial Board of *Planta*
1986 - 89 Member, Editorial Advisory Panel of *Tree Physiology*
1986 - Member, Editorial Board of *Functional Ecology* (British Ecological Society)
1987 - Current Member, Review Board of *Plant, Cell and Environment*
1990 - 94 Chairman, Advisory Committee for the *Australian Journal of Plant Physiology*
Member, Board of the Australian Journals of Scientific Research
1993 - 96 Member, Editorial Board, *Plant and Soil*
1993 - 99 Member, Editorial Review Board, *Tree Physiology*
1994 - 98 Member, Editorial Board, *Oecologia*
1997 - 2001 Subject Editor, *Plant, Cell and Environment*
2002 - Editorial Board – *Mitigation and Adaptation Strategies for Global Change*
2005 - Associate Editor, *Plant Cell & Environment*
2005 -2008 Chair, *Functional Plant Biology* Editorial Advisory Committee
2005 -2008 Member Board of Standards for CSIRO/AAS Journals
2008 - Associate Editor, *Ecohydrology*
2008 - Associate Editor – *Water Resources Research*
2011 - Member Advisory Board *Environment Control in Biology* (Japan)
2013- Associate Editor *Plant Physiology*

Other Professional Bodies Activities

2003 -2008 Board Member, Federation of Australian Scientific and Technological Societies
2004 -2010 Board Member, Australian Society of Plant Biologists

Institute/Organisation Reviews and Scientific Advisory Boards

1992 Member, INRE Review Committee on CSIRO Division of Atmospheric Research
1998 Reviewer, with Ray Walker, of Australian Biological Resources

	Study (ABRS) for Environment Australia
2002	Reviewer, University of Western Australia's Institute of Advanced Studies
2004 - Current	Member, Scientific Advisory Board for the Max-Planck-Institute for Biogeochemistry
2005 - 2007	Member of Review Panel, Australian Nuclear Science and Technology Organisation (ANSTO) "Isotopic Tracers in Atmospheric Transport" (*IsoTrans*) project
2005	Member Expert Advisory Board of Impacts Centre for Southeast Asia (ICSEA)
2008	Reviewer UK Biotechnology and Biological Research Council (BBSRC) Climate Change Strategic Review of Climate Change Research
2009	Panellist for NSF/Gates Foundation *BREAD* Program
2010	Mentor for NSF/BBSRC Photosynthesis Ideas Lab
2012	Member, Max Planck Research Field Commission
2013 - current	Member, Singapore National Research Foundation Competitive Research Program Panel

Co-founder Cooperative Research Centre for Greenhouse Accounting

1998-2000	Deputy CEO and Program Leader,
2001-2006	Board alternate
2002-2006	Member, Management Team

Government Service

1994 - 98	Chairman, National Greenhouse Gases Inventory Working Group on Carbon Dioxide from the Biosphere
1997	Science adviser and Australian delegate to Framework Convention on Climate Change, Conference of Parties, Kyoto
1997 - 2000	Member, Greenhouse Science Advisory Committee
1997 - 1999	Member, Reference Group for Greenhouse Challenge Sinks Workbook
1998 -	Member, High Level Steering Committee, National Carbon Accounting System, Australian Greenhouse Office
2002	Member, Minister's Consultative Panel on National Research Priorities
2002	Member of Minister's Reference Group on Mapping Australia's Science and Innovation System
2007 - 2008	Member, Climate Change Research Strategy for Primary Industries. Joint Federal, State & Territory governments, CSIRO, Rural Research & Development Corporation; managed by Land & Water Australia

Australian Research Council

1990 - 1993	Member, Biological Panel, Research Grants Committee
2005 – 2008	Australian Reader
2014-	PI ARC Centre of Excellence on Translational Photosynthesis

International Committees

1983	Australian organiser of US/Australia Science and Technology Agreement Workshop on Stomatal Function
1986 - 93	Elected to International Photosynthesis Committee
1986 - 96	Member, Australian Committee for International Geosphere - Biosphere Programme (IGBP)
1989 - 90	Member, International Coordinating Panel on Biospheric Aspects of the Hydrological Cycle (IGBP)
1990 - 93	Member, Scientific Steering Committee, International Global Atmospheric Chemistry Project (IGAC/IGBP)
1994 - 96	Member, South-East Asian Regional Committee for START
1994 - 96	Chairman, Australian Committee for IGBP.
2006 – 2007	Member, Scientific Advisory Committee for Isotopes 2007 conference, Benicassim, Spain.
2008 - 2011	Member, Scientific Committee for International Botanical Congress, Melbourne 2011
2009	Member, Scientific Steering Committee for the International Carbon Dioxide Conference 2009, Jena, Germany.
2010–2013	Member International Organizing Committee for the fourth InterDrought congress (ID4), Perth (Australia) in September 2013

2010-2012 Member of the International Scientific Board (ISB) of the joint FESPB/EPSO Plant Biology Congress (July 29th to August 3rd, 2012. Freiburg, Germany).

Inter-governmental Panel on Climate Change

1994 - 96 Lead Author on Second Assessment Report
1994 Member, Australian Academy of Technology Sciences and Engineering Steering Committee on Climate Change
1998 - 2001 Lead Author on Third Assessment Report
1988 – 2000 Convening Lead Author on Special Report on Land Use, Land Use Change and Forestry
2006 – 2007 Reviewer for Fourth Assessment Report

Patents

Masle J, Gilmore SR and Farquhar GD. "The use of the ERECTA gene to control water use efficiency in plants": International Patent Application, number WO 2004/005555 A1 (priority date 02 July 2002). Granted Aug 7, 2008 in Australia AU 2003/236580 B2, in Germany DE 60336328 D1 Apr 21, 2011, in Spain ES 2362903 T3 Jul 14, 2011.

Publications

311 research publications (see below)

Books

- Stomatal Function. 1987. EF Zeiger, GD Farquhar, IR Cowan (eds). Stanford University Press. Stanford, California
- Perspectives of Plant Carbon and Water Relations from Stable Isotopes. 1993. J Ehleringer, AE Hall, GD Farquhar (eds). Academic Press, NY
- Plants in Action: Adaptation in Nature, Performance in Cultivation. 1999. B Atwell, P Kriedemann, C Turnbull (eds). D. Eamus, R. Bieleski (Co-eds.) G. Farquhar (Consulting ed.). Macmillan

Lectures

Invited lectures given at the following International and Australian Symposia

2014 Wheat and climate change. Borlaug Summit on Wheat for Food Security. CIMMYT, Obregon, Mexico, 27 March

Water-use efficiency and water use effectiveness, a stomatal perspective using stable isotopes. East Malling Research February 11; Plant Sciences, Cambridge University Feb 12; Plant Science, Glasgow University Feb 14; WSL ETH Zürich Switzerland April 3.

Water-use efficiency in wheat (with Richard Richards). 2014 Rank Prize Presentation, February 10, London

2013 Water-use efficiency and water use effectiveness, a stomatal perspective using stable isotopes. Opening Address: Water & Agriculture Forum. Chinese Academy of Sciences, Shijiazhuang. June 17.

Opportunities for improving plant water-use efficiency PIARN Symposium – Farm Profitability in a Food Insecure World. University of Melbourne, June 3

Relating variations in runoff to variations in climatic conditions and catchment properties. Opening hydrological talk. European Geophysical Union, April 8, Vienna, Austria.

Climate change and some likely effects on photosynthesis, evaporation and food production. Dies Natalis. March 15. University of Wageningen.

Integrating photosynthetic carbon assimilation from the leaf to the canopy. March 13. University of Wageningen.

Some thoughts on responses of vegetation to increased [CO_2]. March 13. University of Wageningen.

2012 Concepts and models of stomatal function and functioning. Opening address. *Stomatal conductance through time: towards accurate estimates of physiological CO_2 –forcing of the climate*. September 17. Royal Netherlands Academy of Science, Amsterdam.

Several lectures, July-August. Chinese Academy of Science, Beijing & Xinjiang, China

From Guard Cell to Globe. INRA Nancy, June 22, France

From Guard Cell to Globe. Universiteit Würzburg, June 4, Germany

Linking plant physiology to landscape issues using stable isotope technology. January 5, ZALF, Berlin, Germany.

2011 Some Thoughts on Isoscapes. Keynote address. *Isoscapes 2011*. September 26, Purdue, USA.

Modelling of photosynthesis and stomatal conductance; global isotope modeling. *Workshop on Forest sensitivity to CO_2*. August 1. Sydney University.

Integrating photosynthetic carbon assimilation from the leaf to the canopy in the context of global change. Major Speaker, *Annual General Meeting, American Society of Plant Biology* August 9, Minneapolis, USA

Water-use efficiency and Water-use effectiveness. *Australia-US Science and Technology Joint Commission Meeting*. February 14, Washington, USA

2010 Global change, soil water content, stomatal behavior and the statistics of rainfall. American Geophysical Union AGM. December, San Francisco, USA

Climate change and its likely effects on photosynthesis, evaporation and food production. International Photosynthesis Congress August 27, Beijing, China.

Photosynthesis: a litany of limitations *NSF Photosynthesis Ideas Lab Planning Meeting* June 30, Washington, USA

2009 Plant Water Use Effectiveness. Keynote Address, *10th Australasian Environmental Isotope Conference & 3rd Australasian Hydrogeology Research Conference* 1-3 December 2009, Perth, WA

Climate change and its likely effects on food production. Opening Plenary Address*, The 3rd International Conference on Integrated Approaches to Improve Crop Production Under Drought Prone Environments (Interdrought III)*, October 12, Shanghai, China

Evaporative demand, transpiration, and photosynthesis: How are they changing? Atmosphere and Climate Colloquium, April 27, IAC*ETH* (Institute for Atmospheric and Climate Science, Swiss Federal Institute of Technology), Zurich, Switzerland.

Evaporative demand, transpiration, and photosynthesis: How are they changing? EGU (European Geosciences Union) General Assembly, *Land-climate interactions from models and observations: Implications from past to future climate* session, April 19-24, Vienna, Austria.

2008 Carbon isotope discrimination, water-use efficiency and water-use effectiveness. *Resource Capture by Crops: Integrated Approaches,* September 10-12, University of

Nottingham, Sutton Bonington, United Kingdom.

Carbon Isotope discrimination by leaves.
Joint European Stable Isotopes User Group (JESIUM) August 31 – September 5, Presqu'île de Giens, France.

Carbon isotope discrimination, water-use efficiency and water-use effectiveness.
International Workshop on Soil-Plant Interactions and Sustainable Agriculture in Arid Environments, July 11-18, Shihezi University, Xinjiang, China.

Pan Evaporation – wind speed.
Miniconference on Relative Humidity, Earth Temperature and Climate Change, June 23-24; Lamont-Doherty Earth Observatory of Columbia University, New York USA

Opening Address
Uni Sydney Faculty of Agriculture, Food and Natural Resources Symposium *Facing climate change: Research on adaption of agro-ecosystems*, June 13, University of Sydney.

CO_2, climate change, and agriculture: it's more or less about water.

and,

Carbon isotope discrimination and plant water-use effectiveness.
Distinguished Ecologist Lecture Series, April 11-15, University of Wyoming, Laramie, US.

2007 PenPan: A general tool for the attribution of changing pan evaporation.
AGU Meeting, San Francisco, USA.

The economics of plant water loss and photosynthetic carbon gain.
Guangzhou, China

The economics of plant water loss and carbon gain.

Evaporative demand and the hydrological cycle.
Université Paris Sud XI, Paris, France.

Implications of climate change for water use by agriculture and natural ecosystems.
Treasury Seminar Series, Canberra.

Carbon isotope discrimination and water-use effectiveness.
LaTrobe University, Melbourne.

$C0_2$ climate change, and agriculture: it's more or less about water.
LaTrobe University, Melbourne.

Terrestrial carbon sequestration and impacts on global greenhouse gas emissions.
Australian Bureau of Agricultural and Resource Economics (ABARE) Boathouse IV Meeting "Climate Change Impacts: Adaption and Mitigation Policy Responses".

The evaporation paradox, and the roles of global dimming and stilling.
Comer Science and Education Foundation "Gary C. Comer Abrupt Climate Change Fellowship Conference", New York, US.

Climate change, temperature changes and plant responses.
International Rice Research Institute (IRRI) workshop on "Cool rice for a warmer world", Wuhan, China.

CO_2, climate change, and agriculture: it's more or less about water.
Australian Bureau of Agricultural and Resource Economics (ABARE) Outlook 2007 Conference, Canberra.

Plant physiological responses to environmental forcing - How do stable isotopes behave?
European Science Foundation (ESF) Stable Isotopes in Biospheric-Atmospheric Exchange (SIBAE) Workshop on: "Stable Isotopes in Dendroclimatology - Current Status and Future Prospects." GeoForschungszentrum Potsdam (GFZ), Germany.

2006 Revisiting optimisation theory and transpiration efficiency.
The Biology of Transpiration: From Guard Cells To Globe. American Society of Plant

Biologists Conference, Snowbird, Utah, US.

Carbon isotope discrimination by Rubisco and diffusion in leaves: applications to plant water-use efficiency and finding a gene.
The 5th International Conference on Applications of Stable Isotope Techniques to Ecological Studies, Queens University, Belfast, Ireland

Plant water-use efficiency and carbon isotope discrimination
Monash University, Melbourne.

The ACCESS Initiative: Understanding the Future Functioning of Australia's Landscapes.
Australian Academy of Science, Canberra

Carbon isotope discrimination and plant water-use efficiency: ideas, agricultural uptake and now a gene.
Royal Society of Tasmania, Tasmania.

Increasing Atmospheric C02 and its Implications
Global Change And The Earth System Symposium on ANU Research, Canberra

Worldwide Changes in Atmospheric Composition and Evaporative Demand and their Effects on Plant Growth and Water Use.

Carbon isotope discrimination and plant water-use efficiency: ideas, agricultural uptake and now a gene.
Peking University, Beijing, China.

Carbon isotope discrimination and plant water-use efficiency.
Universiteit Antwerpen, Belgium.

Plant water-use efficiency and carbon isotope discrimination.
South African Plant Breeders Association 6th Annual Symposium, Langebaan, South Africa.

Climate change and the carbon cycle: Nonlinearities & uncertainties. British Council Workshop International Networking for Young Scientists. Australian National University

2005

Carbon isotope discrimination and water-use effectiveness.
Melbourne University, Melbourne.

Worldwide Changes in Evaporative Demand. Working Group on 'Water and the Environment'. Vatican City.

Evaporative Demand and Climate Change.
Abrupt Climate Change Fellowship Roundtable 2005. Palisades, New York.

Carbon isotope discrimination and water-use efficiency.
J G Wood Lecture, ComBio2005. Adelaide

From Pan Evaporation to Pinatubo.
Energy Modelling Forum, Climate Change Impacts and Integrated Assessment Meeting, Snowmass, Colorado, USA

From the chloroplast via stomata to the atmosphere and back.
Isotopes 2005 Bath. University of Bath, UK.

Trends in Pan Evaporation, Global Dimming and Brightening: Theory, Observations and Implications for the Terrestrial Water Balance
Carbon Gain and Water use by Plants, and Their Interpretation Using Stable Isotopes
Are Estimates of the Terrestrial Water Balance All Wet?
2005 Distinguished Ecologist Lecture Series. Colorado State University, USA

Trends in Pan Evaporation, Global Dimming and Brightening: Theory, Observations and Implications for the Terrestrial Water Balance
Institute for Multi-disciplinary Earth Studies, National Centre for Atmospheric

Research. Boulder, USA

Drier or Wetter Under Climate Change?
Science Meets Parliament Forum "Climate Change: what is the scientific consensus?", Canberra, ACT.

2004 The pan evaporation paradox – an overview of the scope of the problem. Australian Academy of Science Pan Evaporation Workshop. Canberra, ACT

Trends in Pan Evaporation: Theory, Observations and Implications for the Terrestrial Water Balance.
16th Australian and New Zealand Climate Forum, Lorne, Victoria

Modelling leaf water enrichment.
Biosphere-Atmosphere Stable Isotope Network (BASIN) and Stable Isotopes in Biospheric-Atmospheric Exchange (SIBAE) "Oxygen isotopes as a tracer linking global O_2, CO_2, and H_2O cycles" joint meeting. Marshall, USA.

Carbon Gain and Water Use by Plants.
Gordon Research Conference, The Metabolic Basis of Ecology, Maine, USA

Pan Evaporation in the Southern Hemisphere: What is Happening?
AGU-CGU Union Joint Assembly, Magnitudes and causes of declining solar radiation at the surface: Montreal, Canada

Oxygen isotopes in leaf water, and CO_2 – remember the gross fluxes.
Stable Isotopes in Biospheric-Atmospheric Exchange (SIBAE) and Biosphere-Atmosphere Stable Isotope Network (BASIN) joint conference. Interlaken, Switzerland.

Entropy production during plant gas exchange.
Maximum Entropy Production Workshop: INRA Bordeaux-Aquitaine, France

2003 Oxygen isotope enrichment of leaf water and organic matter
SIBAE BASIN Workshop: Orvieto, Italy

Why is pan evaporation rate going down in the northern hemisphere if there is global warming?
The Climate Centre Fall 2003 Lecturer : Columbia University, USA LDEO Campus

Pan evaporation rate in the southern hemisphere: implications for greenhouse vs aerosols.
The Climate Centre Fall 2003 Lecturer: Columbia University, USA NASA/GISS Campus

Oxygen isotopes in leaf organic material.
NETCARB Third Summer School: Germany.

The cause of decreased pan evaporation over the past 50 years.
EGS-AGU-EU6 Joint Assembly: Nice, France.

The cause of decreased pan evaporation over the past 50 years
MEP Workshop: Bordeaux, France

Incorporating the effects of diffuse light in simple models of photosynthesis and evaporation: implications for a canopy and the globe.

Monsi & Saeki Symposium: Kyoto, Japan

2002 Processes affecting the 18O composition of leaf water. Stable Isotopes and Biosphere-Atmosphere Interactions. Banff, Canada

On the spatial variation of the isotopic composition of leaf water. Stable isotope Techniques for the Analysis of Plant Metabolism, Nantes, France

2001 Unanswered questions about stomatal functioning. Forests at the Land-Atmosphere Interface, Edinburgh

Biological questions on the Dole effect. Fourth International Symposium on Inorganic Carbon Utilization, Cairns

Role of terrestrial sequestration in meeting Kyoto targets. Australian Petroleum Production and Exploration Association Ltd Conference, Hobart

Honouring research in Australia: A Scientists Perspective. ISI Honouring Research in Australia, Canberra

Applications of stable isotopes in palaeoecology. Spring Meeting American Geophysical Union, Boston

Forests, Forest Industry and Greenhouse Effect. 14th Convocation of the International Council of Academics of Engineering and Technological Sciences – World Forests and Technology, Finland

2000 Forest, forest industry and greenhouse effect. Fourteenth CAETS Convocation, World Forests and Technology, Espoo, Finland

Transpiration efficiency and carbon isotope discrimination. Water and Plants in the Landscape, CSIRO, Canberra

1999 Carbon dynamics: a major driver of global change. The Global Change Transects Workshop, Darwin

Oxygen isotope composition of organic matter. International Conference on Stable Isotopes and Isotope Effects, Carry le Rouet, France

Oxygen isotope composition of organic matter. Fifth European Symposium on Food Authenticity, La Baule, France

Global change: a plant perspective using carbon and oxygen isotope ratios. Australian and New Zealand Society for Mass Spectrometry Conference, Thredbo

Global change: a plant perspective using carbon and oxygen isotope ratios. Stable Isotope Techniques Workshop, University of Western Australia, Perth

1998 Kyoto – The Impact on Australia, APEC Centre, Melbourne

Where could Australia's forests move with change in atmospheric composition: some ideas from plant physiology and the paleo-record. CSIRO and Bureau of Resource Science, Canberra

Global change: a plant perspective. Yale University, Connecticut, USA

Australian Quaternary Palaeoecology and Palaeoclimatology Workshop, Academy of Science, Canberra

National Association of Forest Industries (NAFI), presentation at Greenhouse Stakeholders meeting, Canberra

1997 What are Stomates For? Journal of Experimental Botany Symposium, University of Kent, Canterbury, UK

Vegetation-Climate-Atmospheric Interactions: Past, Present and Future. Royal Society Symposium, London, UK

1996 Design of a Carbon Cycle Observing System, Boulder, Colorado, USA

Stable Isotopes and the Integration of Biological, Ecological and Geochemical Processes Conference, Newcastle, UK

NCAR Summer Colloquium, Terrestrial Ecosystems and the Atmosphere, Boulder, Colorado, USA

1995 Global Change: a plant perspective, IGBP/ICSU Forum on Earth System Research, Beijing, China

Plant response to CO_2: Is plant growth being stimulated by increasing atmospheric CO_2? US National Academy of Sciences, Colloquium on Carbon Dioxide and Climate Change, Irvine, California, USA

1994 Signals from plants seen in atmospheric CO_2 and its isotopes, 5th Australian Environmental Isotopes Conference, Brisbane

Biosphere 2 - a plant perspective, Space Biosphere Ventures, Oracle, Arizona, USA

The global carbon budget, Greenhouse '94, Wellington, New Zealand

1993 Ecophysiology and Genetics of Trees and Forests in a Changing Environment, Viterbo, Italy

Genetic and environmental effects on carbon and oxygen isotope discrimination during CO_2 assimilation, International Botanical Congress, Yokohama, Japan

Optimisation of stomatal behaviour and water-use efficiency at elevated CO_2 concentration and temperature, International Botanical Congress, Yokohama

^{18}O effects during CO_2 assimilation, International CO_2 Conference, Carqueiranne, France

1992 International Symposium on Perspectives of Plant Carbon and Water Relations from Stable Isotopes, Riverside, California, USA

Photosynthetic Responses to the Environment, Kona, Hawaii

IPCC meeting on Biotic Feedbacks in the Global Carbon Cycle, Wood's Hole, Massachusetts, USA

1991 International Global Atmospheric Chemistry, San Jose dos Campos, Brazil

International Symposium: Physiology and Determination of Crop Yield, Gainesville, Florida, USA

1990 Degradation of Vegetation in Semi-Arid Regions: Climate Impact and Implications, Sydney

Mathematical and Statistical Modelling of Global Change Processes, Canberra

Water and Life: Comparative Analysis of Water Relationships at the organismic, Cellular and Molecular Levels, Crans- sur-Sierre, Switzerland

Trends in Photosynthetic Research, Palma de Mallorca, Spain

FAO/IAEA International Symposium on the Use of Stable Isotopes in Plant Nutrition, Soil Fertility and Environmental Studies, Vienna, Austria

Scaling Processes between Leaf and Landscape Levels, Snowbird, Utah, USA

1989 International Geosphere-Biosphere Workshop: Global Change - A Plant Perspective, Brisbane

Symposium on Perspectives in Biochemical and Genetic Regulation of Photosynthesis, New Haven, USA

Symposium on Stomatal Resistance, University Park, Pa, USA

Rockefeller Foundation Meeting on the Potentials of Biotechnology for Improving Grain Yield of Rice under Water Limited Conditions, Bellagio, Italy

1988 International Geosphere-Biosphere Programme on Global Change, Canberra

Society for Experimental Biology, Symposium on Plants under Stress, Lancaster, UK

Royal Society meeting on Measurement of Photosynthesis, London, UK

Photosynthesis Symposium, Stanford, USA

US-Australia Workshop on Remote Sensing of Biosphere Functioning, Honolulu, USA

1987 6th Annual Plant Biochemistry and Physiology Symposium, Columbia, Missouri, USA

Rubisco 87, Tucson, USA

Vth International Conference on Mediterranean-Climate Ecosystems, Montpellier, France

XIV International Botanical Congress, Berlin, West Germany

Society for Experimental Biology Meeting on Plants and Temperature, Colchester, UK

Second German-French Colloquium on advances in research and use of stable isotopes, Maria Laach, West Germany

NATO Advanced Research Workshop, Forest Biomass for Fiber and Energy, Obidos, Portugal

International Symposium on Improving Winter Cereals Affected by Temperature and Salinity Stresses, Cordoba, Spain

1986 NASA Conference on Climate-Vegetation Interactions, Goddard Space

Applications of Stable Isotope Ratios to Ecological Research, UCLA Lake

Arrowhead Conference Center, USA

VII International Congress on Photosynthesis, Brown University, Providence, RI, USA

1985 The Changing Earth: an Australian Perspective, Canberra

Regulation of CO_2 assimilation, Gordon Conference on CO_2 fixation by green plants, New Hampshire, USA

BP Venture Research Conference, London, UK

1984 British Plant Growth Regulator Group Meeting, York, UK

Conference on Coasts and Tidal Wetlands of the Australian Monsoon Region, Darwin

1983 Gordon Conference on the Chemistry and Physics of Isotopes, Santa Barbara, California, USA

US-Australia Workshop on Stomatal Function, Honolulu, USA

International Congress on Photosynthesis, Brussels, Belgium

Symposium on the Kinetics of C_3 Photosynthesis, Tallinn, Estonia, USSR

1982 AAAS Conference on Plant Responses to Rising CO_2 concentration, Athens, Ga, USA

Ewing Symposium. Climate Processes: Sensitivity to Solar Irradiance and CO_2, New York, USA

PhD Students supervised [with graduation date]

1979	SC Wong
1981	MC Ball
1981	S von Caemmerer
1981	G Constable
1984	SF Ledgard
1984	JR Evans
1986	A Brooks
1986	MUF Kirschbaum
1988	AG Condon
1990	D Bagnall
1992	S Henderson
1992	J Virgona
1992	C López-Castañeda
1993	H Gomez-Macpherson
1996	D de Pury
1996	G Beemster
1996	A van Herwaarden
1997	PJ Franks
1998	M Barbour
2001	J Yong
2001	M Böhm
2002	T June
2003	J Styles
	K Gan
	J Miller
	I Tremmel
2004	L Cernusak
2005	Y Zhou
2006	S. Gilmore [co-supervisor with Dr J. Masle]
2007	X. Sirault

Bibliography

★ *Most significant publications*

1. Farquhar GD and Field CD (1971) Transpiration linked short-circuit currents in the xylem of a liana. **J. Exp. Bot.** 22(73): 818-829.
2. Farquhar GD (1973) A study of the responses of stomata to perturbations of environment. PhD Thesis, ANU.
3. Farquhar GD and Cowan IR (1974) Oscillations in stomatal conductance. The influence of environmental gain. **Plant Physiol.** 54: 769-772.
4. ★ Cowan IR and Farquhar GD (1977) Stomatal function in relation to leaf metabolism and environment. DH Jennings (ed). **Soc. Exp. Biol. Symp.** 31: 471-505.
5. Berry, JA and Farquhar, GD (1978) The CO_2 concentrating function of C_4 photosynthesis. A biochemical model. *In* Proc. 4th International Congress on Photosynthesis, Reading, England, 1977, pp 119-131, Hall, D, Coombs, J, Goodwin, T (eds). The Biochemical Society, London.
6. Farquhar, GD and Raschke, K (1978) On the resistance to transpiration of the sites of evaporation within the leaf. **Plant Physiol.** 61: 1000-1005.
7. Raschke, K, Hanebuth, WF and Farquhar, GD (1978) Relationship between stomatal conductance and light intensity in leaves of *Zea mays* L., derived from experiments using the mesophyll as shade. **Planta** 139: 73-77.
8. Farquhar, GD, Dubbe, DR and Raschke, K (1978) Gain of the feedback loop involving carbon dioxide and stomata. Theory and measurement. **Plant Physiol.** 62: 406-412.
9. Dubbe, D, Farquhar, GD and Raschke, K (1978) Effect of abscisic acid on the gain of the feedback loop involving carbon dioxide and stomata. **Plant Physiol.** 62: 413-417.
10. Wong, SC, Cowan, IR and Farquhar, GD (1978) Leaf conductance in relation to assimilation in *Eucalyptus pauciflora* Sieb. ex Spring. Influence of irradiance and partial pressure of carbon dioxide. **Plant Physiol.** 62: 670-674.
11. Farquhar, GD (1978) Feedforward responses of stomata to humidity. **Aust. J. Plant Physiol.** 5: 787-800.
12. Farquhar, GD (1979) Models describing the kinetics of ribulose biphosphate carboxylase-oxygenase. **Arch. Biochm. Biophys.** 193(1): 456-468.
13. Farquhar, GD, Wetselaar, R and Firth, PM (1979) Ammonia volatilization from senescing leaves of maize. **Science** 103: 1257-1258.
14. Farquhar, GD (1979) Carbon assimilation in relation to transpiration and fluxes of ammonia. *In* Photosynthesis and Plant Development. R Marcelle, H Clijsters and M van Poucke (eds). Junk, The Hague, pp 321-328.
15. ★ Wong, SC, Cowan, IR and Farquhar, GD (1979) Stomatal conductance correlates with photosynthetic capacity. **Nature** 282: 424-426.
16. ★ Farquhar, GD, von Caemmerer, S and Berry, JA (1980) A biochemical model of photosynthetic CO_2 assimilation in leaves of C_3 species. **Planta** 149: 78-90.
17. Farquhar, GD, Schulze, E-D and Kuppers, M (1980) Responses to humidity by stomata of *Nicotiana glauca* L. and *Corylus avellana* L. are consistent with the optimisation of carbon dioxide uptake with respect to water loss. **Aust. J. Plant Physiol.** 7: 315-327.

18. Farquhar, GD, Firth, PM, Wetselaar, R and Weir, B (1980) On the gaseous exchange of ammonia between leaves and the environment: measurements of the ammonia compensation point.
Plant Physiol. 66: 710-714.

19. Wetselaar, R and Farquhar, GD (1980) Losses of nitrogen from the tops of plants. **Advances in Agronomy** 33: 263-302.

20. Raven, JA and Farquhar, GD (1980) Methylammonium transport in *Phaseolus vulgaris* leaf slices. **Plant Physiol.** 67: 859-863.

21. Farquhar, GD and von Caemmerer, S (1981) Electron transport limitations on the CO_2 assimilation rate of leaves: a model and some observations in *Phaseolus vulgaris* L. *In* Proceedings of Fifth International Congress on Photosynthesis. G Akoyunoglou (ed). Balaban, Philadelphia, Vol. 4, pp 163-175.

22. Farquhar, GD (1980) Carbon isotope discrimination by plants and the ratio of intercellular and atmospheric CO_2 concentrations. *In* Carbon dioxide and climate: Australian research. GI Pearman (ed), Australian Academy of Science, Canberra, pp 105-110.

23. Farquhar, GD and von Caemmerer, S (1982) Modelling of photosynthetic response to environmental conditions. *In* Encyclopedia of Plant Physiology, New Series Vol. 12B, OL Lange, PS Nobel, CB Osmond and H Ziegler (eds). Springer-Verlag, Heidelberg, pp 549-587.

24. Azcon-Bieto, J, Farquhar, GD and Caballero, A (1981) Effects of temperature, oxygen concentration, leaf age and seasonal variations on the CO_2 compensation point of *Lolium perenne* L.: Comparison with a mathematical model including non-photorespiratory CO_2 production in the light.
Planta 152: 497-504.

25. ★ von Caemmerer, S and Farquhar, GD (1981) Some relationships between the biochemistry of photosynthesis and the gas exchange of leaves.
Planta 153: 376-387.

26. Farquhar, GD, Ball, MC, von Caemmerer, S and Roksandic, Z (1982) Effect of salinity and humidity on $\delta^{13}C$ values of halophytes - evidence of diffusional isotope fractionation determined by the ratio of intercellular/atmospheric partial pressure of CO_2 under different environmental conditions. **Oecologia** 52: 121-124.

27. Sharkey, TD, Imai, K, Farquhar, GD and Cowan, IR (1982) A direct confirmation of the standard method of estimating intercellular partial pressure of carbon dioxide. **Plant Physiol.** 69: 657-659.

28. ★ Farquhar, GD, O'Leary, MH and Berry, JA (1982) On the relationship between carbon isotope discrimination and the intercellular carbon dioxide concentration in leaves. **Aust. J. Plant Physiol.** 9: 121-137.

29. Galbally, IE, Farquhar, GD and Ayers, GP (1982) Interactions in the atmosphere of the biogeochemical cycles of carbon, nitrogen and sulfur. *In* The cycling of carbon, nitrogen, sulfur and phosphorus in terrestrial and aquatic ecosystems. IE Galbally, JR Freney (eds). Australian Academy of Science and Springer-Verlag, Canberra, pp 1-9.

30. ★ Farquhar, GD and Sharkey, TD (1982) Stomatal conductance and photosynthesis. **Ann. Rev. Plant Physiol.** 33: 317- 345.

31. Comins, HN and Farquhar, GD (1982) Stomatal regulation and water economy in Crassulacean Acid Metabolism plants; an optimisation model**. J. Theor. Biol.** 99: 263-284.

32. Francey, RJ and Farquhar, GD (1982) An explanation of $^{13}C/^{12}C$ variations in tree rings. **Nature** 297: 28-31.

33. Cowan, IR, Raven, JA, Hartung, W and Farquhar, GD (1982) A possible role for abscisic acid in coupling stomatal conductance and photosynthetic carbon metabolism in leaves. **Aust. J. Plant Physiol.** 9: 489-498.

34. Farquhar, GD, Wetselaar, R and Weir, B (1983) Gaseous nitrogen losses from plants. *In* Gaseous loss of nitrogen from plant-soil systems. JR Freney, JR Simpson (eds). Martinus Nijhoff/Dr W. Junk, The Hague, Dev. Plant Soil Sci. 9: 159-180.

35. Farquhar, GD (1983) On the nature of carbon isotope discrimination in C_4 species. **Aust. J. Plant Physiol.** 10: 205-226.

36. Bradford, KJ, Sharkey, TD and Farquhar, GD (1983) Gas exchange, stomatal behaviour and $\delta^{13}C$ values of the flacca tomato mutant in relation to abscisic acid. **Plant Physiol.** 72: 245-250.

37. Terry, N and Farquhar, GD (1984). Photochemical Capacity and Photosynthesis. *In* Control of crop productivity. CJ Pearson (ed), Academic Press, Sydney, pp 43-57.

38. von Caemmerer, S and Farquhar, GD (1984) Effects of partial defoliation, changes of irradiance during growth, short-term- water-stress, and growth at enhanced $p(CO_2)$ on the photosynthetic capacity of leaves of *Phaseolus vulgaris* L. **Planta** 160: 320-329.

39. Ball, MC and Farquhar, GD (1984) Photosynthetic and stomatal responses of two mangrove species, *Aegiceras corniculatum* and *Avicennia marina* to long term salinity and humidity conditions. **Plant Physiol.** 74: 1-6.

40. Ball, MC and Farquhar, GD (1984) Photosynthetic and stomatal responses of the grey mangrove, Avicennia marina, to transient salinity conditions. **Plant Physiol.** 74: 7- 11.

41. von Caemmerer, S and Farquhar, GD (1985) Kinetics and activation of Rubisco and some preliminary modelling of RuP_2 pool sizes. *In* Kinetics of photosynthetic carbon metabolism in C_3-plants. Proceedings of the 1983 Conference at Tallinn. J Viil, G Grishina, A Laisk (eds). Estonian Academy of Sciences.

42. Farquhar, GD and Wong, SC (1984) An empirical model of stomatal conductance. **Aust. J. Plant Physiol.** 11: 191-210.

43. Francey, RJ, Barbetti, M, Bird, T, Beardsmore, D, Coupland, W, Dolezal, JE, Farquhar, GD, Flynn, RG, Fraser, PM, Gifford, RM, Goodman, HS, Kunda, B, McPhail, S, Nanson, G, Pearman, GI, Richards, NG, Sharkey, TD, Temple, RB and Weir, B (1984) Isotopes in Tree Rings. **CSIRO Aust. Div. Atmos. Res. Techn. Pap. No.** 4, 1-86.

44. Kirschbaum, MUF and Farquhar, GD (1984) Temperature dependence of whole leaf photosynthesis in *Eucalyptus pauciflora*. **Aust. J. Plant Physiol.** 11: 519-538.

45. ★ Farquhar, GD and Richards, RA (1984) Isotopic composition of plant carbon correlates with water-use efficiency of wheat genotypes. **Aust. J. Plant Physiol.** 11: 539-552.

46. Farquhar, GD and Kirschbaum, MUF (1985) Environmental constraints on carbon assimilation. *In* Regulation of sources and sinks in crop plants. BF Jeffcoat, AF Hawkins and AD Stead (eds). British Plant Growth Regulator Group Monograph No.12, pp 87-97.

47. Brooks, A and Farquhar, GD (1985) Effect of temperature on the CO_2/O_2 specificity of ribulose-1,5- bisphosphate carboxylase/oxygenase and the rate of respiration in the light. Estimates from gas-exchange measurements on spinach. **Planta** 165: 397-406.

48. Ehleringer, JR, Schulze, E-D, Ziegler, H, Lange, OL, Farquhar, GD and Cowan, IR (1985) Xylem-tapping mistletoes: water or nutrient parasites?
Science 227: 1479-1481.

49. Wong, SC, Cowan, IR and Farquhar, GD (1985) Leaf conductance in relation to rate of CO_2 assimilation. I. Influence of nitrogen nutrition, phosphorus nutrition, photon flux density and ambient partial pressure of CO_2 during ontogeny. **Plant Physiol.** 78: 821-825.

50. Wong, SC, Cowan, IR and Farquhar, GD (1985) Leaf conductance in relation to rate of CO_2 assimilation. II. Effects of short term exposures to different photon flux densities. **Plant Physiol.** 78: 826-829.

51. Wong, SC, Cowan, IR and Farquhar, GD (1985) Leaf conductance in relation to rate of CO_2 assimilation. III. Influences of water stress and photoinhibition. **Plant Physiol.** 78: 830-834.

52. ★Evans, JR, Sharkey, TD, Berry, JA and Farquhar, GD (1986) Carbon isotope discrimination measured concurrently with gas exchange to investigate CO_2 diffusion in leaves of higher plants. **Aust. J. Plant Physiol.** 13: 281-292.

53. Küppers, M, Wheeler, A, Kuppers, BIL, Kirschbaum, MUF and Farquhar, GD (1986) Carbon fixation in eucalypts in the field. Analysis of diurnal variations in photosynthetic capacity. **Oecologia** 70: 273-282.

54. Farquhar, GD, Hubick, KT, Condon, AG and Richards, RA (1989) Carbon isotope fractionation and plant water-use efficiency. *In* Stable Isotopes in Ecological Research. PW Rundel, JR Ehleringer and KA Nagy (eds). Springer Verlag, New York, pp 21-40.

55. Farquhar, GD (1986) Climate-vegetation interactions: stomatal conductance and photosynthetic capacity. *In* Climate-Vegetation Interactions. C Rosenzweig and R Dickinson (eds). NASA Conference Publication 2440, pp 18-27.

56. Hubick, KT, Farquhar, GD and Shorter, R (1986) Correlation between water-use efficiency and carbon isotope discrimination in diverse peanut (*Arachis*) germplasm. **Aust. J. Plant Physiol.** 13: 803-816.

57. Farquhar, GD, Hubick, KT, Terashima, I, Condon, AG and Richards, RA (1986) Genetic variation in the relationship between photosynthetic CO_2 assimilation and stomatal conductance to water loss. *In* Progress in Photosynthesis. Biggins, J (ed). Vol. IV(5): 209-212.

58. Kirschbaum, MUF and Farquhar, GD (1987) Investigation of the CO_2 dependence of quantum yield and respiration in Eucalyptus pauciflora. **Plant Physiol.** 83: 1032-1036.

59. Ehleringer, JR, Ullmann, I, Lange, OL, Farquhar, GD, Cowan, IR, Schulze, E-D and Ziegler, H (1986) Mistletoes: a hypothesis concerning morphological and chemical avoidance of herbivory. **Oecologia** 70: 234-237.

60. Condon, AG, Richards, RA and Farquhar, GD (1987) Carbon isotope discrimination is positively correlated with grain yield and dry matter production in field-grown wheat. **Crop Science** 27: 996-1001.

61. Pate, JS and Farquhar, GD (1988) Role of the crop plant in cycling of nitrogen. *In* Advances in Nitrogen Cycling in Agricultural Ecosystems. JR Wilson (ed). CAB International, Aberystwyth, pp 23-45.

62. Farquhar, GD, Masle, J, Hubick, KT, von Caemmerer, S and Terashima, I (1987) Effects of drought, salinity and soil strength on photosynthesis, transpiration and carbon isotope composition of plants. **Current Topics in Plant Biochem. Physiol.** 6: 147-155.

63. Masle, J, Farquhar, GD (1988) Effects of soil strength on the relation of water-use efficiency and growth to carbon isotope discrimination in wheat seedlings. **Plant Physiol.** 86: 32-38

64. Farquhar, GD (1988) Models relating subcellular effects of temperature to whole plant responses. *In* Plants and Temperature. SP Long and FI Woodward (eds). **Soc. Exp. Biol. Symp.** 42: 395-409.

65. Ball, MC, Cowan, IR and Farquhar, GD (1988) Maintenance of leaf temperature and the optimisation of carbon gain in relation to water loss in a tropical rain forest. **Aust. J. Plant Physiol.** 15: 263-276.

66. Körner, C, Farquhar, GD and Roksandik, Z (1988) A global survey of carbon isotope discrimination in plants from high altitude. **Oecologia** 74: 623-632.

67. Terashima, I, Wong, SC, Osmond, CB and Farquhar, GD (1988) Characterisation of non-uniform photosynthesis induced by abscisic acid in leaves having different mesophyll anatomies. **Plant Cell Physiol.** 29(3): 385-394.

68. Parkhurst, DF, Wong, SC, Farquhar, GD and Cowan, IR (1988) Gradients of intercellular CO_2 levels across the leaf mesophyll.
Plant Physiol. 86: 1032-1037.

69. Bagnall, DJ, King, RW and Farquhar, GD (1988) Temperature-dependent feedback inhibition of photosynthesis in peanut. **Planta** 175: 348-354.

70. Brugnoli, E, Hubick, KT, von Caemmerer, S, Wong, SC and Farquhar, GD (1988) Correlation between the carbon isotope discrimination in leaf starch and sugars of C_3 plants and the ratio of intercellular and atmospheric partial pressures of carbon dioxide. **Plant Physiol.** 88: 1418-1424.

71. Farquhar, GD, Wong, SC, Evans, JR and Hubick, KT (1989) Photosynthesis and gas exchange. *In* Plants under stress: physiology and ecology and their application to plant improvement. HG Jones, TJ Flowers, MB Jones (eds). Cambridge University Press, pp 47-69.

72. Farquhar, GD (1988) Atmosphere - land plant interactions. *In* Proceedings of the Elizabeth and Frederick White Symposium on Global Change. Australian Academy of Science, Canberra, pp 110-113.

73. Hubick, KT and Farquhar, GD (1987) Carbon isotope discrimination - selecting for water-use efficiency. **Australian Cotton Grower** 8(3): 66-68.

74. Farquhar, GD and Sharkey, TD. Citation Classic (1988) **Commentary on Ann. Rev. Plant Physiol.** 33: 317-345. Current Contents ISI Press, Philadelphia.

75. Masle, J, Doussinault, G, Farquhar, GD and Sun, B (1989). Foliar stage in wheat correlates better to photothermal time than to thermal time**. Plant, Cell & Env.** 12: 235-247.

76. Farquhar, GD (1989) Models of integrated photosynthesis of cells and leaves**. Phil. Trans. Roy. Soc.** (Ser. B) 323 (1216): 357-368.

77. Hubick, KT, Shorter, R and Farquhar, GD (1988) Heritability and genotype x environment interactions of carbon isotope discrimination and transpiration efficiency in peanut. **Aust. J. Plant Physiol.** 15: 799-813.

78. Wright, GC, Hubick, KT and Farquhar, GD (1988) Discrimination in carbon isotopes of leaves correlates with water-use efficiency of field grown peanut cultivars. **Aust. J. Plant Physiol.** 15: 815-825.

79. Hubick, KT and Farquhar, GD (1989) Carbon isotope discrimination and the ratio of carbon gained to water lost in barley cultivars.
Plant, Cell & Env. 12: 795-804.

80. ★ Farquhar, GD, Ehleringer, JR and Hubick, KT (1989) Carbon isotope discrimination and photosynthesis. **Ann. Rev. Plant Physiol. Mol. Biol.** 40: 503-537.

81. Evans, JR and Farquhar, GD (1991) Modelling canopy photosynthesis from the biochemistry of the C_3 chloroplast. *In* Modelling crop photosynthesis - from biochemistry to canopy. KJ Boote (ed). CSSA Special Publication Number 19, Chap 1. CCSA ASA, Madison, pp 1-15.

82. Turner, NC, Nicolas, ME, Hubick, KT and Farquhar, GD (1989) Evaluation of traits for the improvement of water-use efficiency and harvest index. *In* Drought Resistance in Cereals. FWG Baker (ed). ICSU Press, Miami. Chapter 13, pp 177-189.

83. Bowman, WD, Hubick, KT, von Caemmerer, S and Farquhar, GD (1989) Short-term changes in leaf carbon isotope discrimination in salt and water stressed C_4 grasses. **Plant Physiol.** 90: 162-166.

84. Hall, AE, Mutters, RG, Hubick, KT and Farquhar, GD (1989) Genotypic differences in carbon isotope discrimination by cowpea under wet and dry field conditions. **Crop Science** 30: 300-305.

85. Hubick, KT, Hammer, GL, Farquhar, GD, Wade, LJ, von Caemmerer, S and Henderson, SA (1990) Carbon isotope discrimination varies genetically in C_4 species. **Plant Physiol.** 91: 534-7.

86. Raven, JA and Farquhar, GD (1989) Leaf apoplast pH estimation in Phaseolus vulgaris. *In* Plant Membrane Transport: the Current Position. J Dainty, MI De Michelis, E Marre and F Rasi-Caldogno (eds). Elsevier, pp 607-610.

87. Raven, JA and Farquhar, GD (1989) The greater ^{13}C natural abundance in nitrate-grown than in ammonium-grown Ricinus communis is mainly a function of the lower ratio of CO_2-transport limitation to biochemical limitation of photosynthesis in nitrate-grown plants, with their higher organic onion content as a less significant factor. *In* Proceedings of the Second Advanced Course on Inorganic Nitrogen Metabolism. WR Ullrich (ed) Springer (1989).

88. Condon, AG, Farquhar, GD and Richards, RA (1990) Genotypic variation in carbon isotope discrimination and water-use efficiency in wheat. Leaf gas-exchange and whole plant studies. **Aust. J. Plant Physiol.** 17: 9-22.

89. Collatz, GJ, Berry, JA, Farquhar, GD and Pierce, J (1990) The relationship between the Rubisco reaction mechanism and models of photosynthesis. **Plant, Cell & Env.** 13: 219-225.

90. Giersch, C, Lammel, D and Farquhar, G (1990) Control analysis of photosynthetic CO_2 fixation. **Photosynth. Res.** 24: 151-165.

91. Hammer, GL, Donatelli, M, Farquhar, GD, Hubick, KT and Wade, LJ (1989) Radiation-use efficiency, water-use efficiency and crop improvement in grain sorghum. Proc. Aust. Sorghum Workshop, Toowoomba, pp 184-91.

92. Raven, JA and Farquhar, GD (1990) The influence of N metabolism and organic acid synthesis on the natural abundance of C isotopes in plants**. New Phytol.** 116: 505-529.

93. Virgona, JM, Hubick, KT, Rawson, HM, Farquhar, GD and Downes, RW (1990) Genotypic variation in transpiration efficiency and carbon allocation during early growth in sunflower. **Aust. J. Plant Physiol.** 17: 207-214.

94. Masle, J, Farquhar, GD and Gifford, RM (1990) Growth and carbon economy of wheat seedlings as affected by soil resistance to penetration and ambient partial pressure of CO_2. **Aust. J. Plant Physiol.** 17: 465-487.

95. Virgona, JM, Farquhar, GD and Hubick, KT (1990) Improving transpiration efficiency of sunflower using carbon isotope discrimination. Proc. 8th Workshop, The Australian Sunflower Association, pp 87-89.

96. Farquhar, GD (1991) Use of stable isotopes in evaluating plant water-use efficiency. Proc. International Symposium on the Use of Stable Isotopes in Plant Nutrition, Soil Fertility and Environmental Studies. IAEA/FAO, Vienna, pp 475-488.

97. Ehdaie, B, Hall, AE, Farquhar, GD, Nguyen, HT and Waines, JG (1991) Water-use efficiency and carbon isotope discrimination in wheat.

Crop Science 31: 1282-1288.

98. Wright, GC, Hubick, KT and Farquhar, GD (1991) Physiological analysis of peanut cultivar response to timing and duration of drought stress. **Aust. J. Agric. Res.** 42: 453-70.

99. Read, J and Farquhar, GD (1991) Comparative studies in *Nothofagus* (Fagaceae). I. Leaf carbon isotope discrimination. **Functional Ecology** 5: 684-695.

100. Hall, AE, Mutters, RG, Farquhar, GD (1992) Genotypic and drought- induced differences in carbon isotope discrimination and gas exchange of cowpea. **Crop Science** 32: 1-6.

101. Dingkuhn, M, Farquhar, GD, De Datta, SK and O'Toole, JC (1991) Discrimination of ^{13}C among upland rices having different water use efficiencies. **Aust. J. Agric. Res.** 42: 1123-31.

102. Körner, Ch, Farquhar, GD, Wong, SC (1991) Carbon isotope discrimination by plants follows latitudinal and altitudinal trends. **Oecologia** 88: 30-40.

103. Henderson, SA, von Caemmerer, S and Farquhar, GD (1992) Short term measurements of carbon isotope discrimination in several C_4 species. **Aust. J. Plant Physiol.** 19: 263-285.

104. Condon, AG, Richards, RA and Farquhar, GD (1992) The effect of variation in soil water availability, vapour pressure deficit and nitrogen nutrition on carbon isotope discrimination in wheat. **Aust. J. Agric. Res.** 43: 935-947.

105. Farquhar, GD and Sharkey, TD (1994) Photosynthesis and carbon assimilation. *In* Physiology and determination of crop yield. KJ Boote, JM Bennett, TR Sinclair, GM Paulsen (eds). ASA, CSSA, SSSA Madison, WI. Chapter 8A, pp 187-210.

106. Lloyd, J, Syvertsen, JP, Kriedemann, PE and Farquhar, GD (1992) Low conductances for CO_2 diffusion from stomata to the sites of carboxylation in leaves of woody species. **Plant, Cell & Env.**15: 873-900.

107. Farquhar, GD and Lloyd, J (1993) Carbon and oxygen isotope effects on the exchange of carbon dioxide between plants and the atmosphere. *In* Stable Isotopes and Plant Carbon/Water Relations. JR Ehleringer, AE Hall and GD Farquhar (eds). Academic Press, San Diego, pp 47-70.

108. Masle, J, Shin, JS and Farquhar, GD (1993) Analysis of restriction fragment length polymorphisms associated with variation of carbon isotope discrimination among ecotypes of *Arabidopsis thaliana*. *In* Stable Isotopes and Plant Carbon/Water Relations. JR Ehleringer, AE Hall and GD Farquhar (eds). Academic Press, San Diego, pp 371-386.

109. Wright, GC, Hubick, KT, Farquhar, GD and Rao, RCN (1993) Genetic and environmental variation in transpiration efficiency and its correlation with carbon isotope discrimination and specific leaf area in peanut. *In* Stable Isotopes and Plant Carbon/Water Relations. JR Ehleringer, AE Hall and GD Farquhar (eds). Academic Press, San Diego, pp 247-267.

110. Farquhar, GD (1993) Plants for the Future. *In* Drought-Water-Flood. D Tier (ed). **ANZAAS**.

110a. van Herwaarden, AF, Farquhar, GD and Richards, RA (1993) Grain yield, nitrogen uptake and sustainable wheat production: are varieties equal? *In* Proceedings of the Seventh Australian Agronomy Conference, Adelaide, p 366.

111. Masle, J, Farquhar, GD and Wong, SC (1992) Transpiration ratio and plant mineral content are related among genotypes of a range of species. **Aust. J. Plant Physiol.** 19: 709-21.

112. Wong, SC, Kriedemann, PE and Farquhar, GD (1992) CO_2 x nitrogen interaction on seedling growth of four species of Eucalypt. **Aust. J. Bot.** 40: 457-472.

113. ★ Farquhar, GD, Lloyd, J, Taylor, JA, Flanagan, LB, Syvertsen, JP, Hubick, KT, Wong, SC and Ehleringer, JR (1993) Vegetation effects on the isotopic composition of oxygen in atmospheric CO_2. **Nature** 363: 439-443.

114. White, J, Molfino, B, Labeyrie, L, Stauffer, B and Farquhar, GD (1993) How Reliable and Consistent Are Paleodata from Continents, Oceans, and Ice? *In* Global changes in the Perspective of the Past. JA Eddy and H Oeschger (eds). John Wiley, pp 73-102.

115. Condon, AG, Richards, RA and Farquhar, GD (1993) Relationships between carbon isotope discrimination, water-use efficiency and transpiration efficiency for dryland wheat. **Aust. J. Agric. Res.** 44:2 1693-1711.

116. Marshall, JD, Ehleringer, JR, Schulze, E-D and Farquhar, GD (1994) Carbon isotope composition, gas exchange, and heterotrophy in Australian mistletoes. **Functional Ecology** 8: 237-241.

117. Nageswara Rao, RC, Williams, JH, Wadia, KDR, Hubick, KT and Farquhar, GD (1993) Crop growth, water-use efficiency and carbon isotope discrimination in groundnut (*Arachis hypogaea* L.) genotypes under end-of-season drought conditions. **Ann. Appl. Biol.** 122: 357-367.

118. Wright, GC, Rao, RCN and Farquhar, GD (1994) Water-use efficiency and carbon isotope discrimination in peanut under water deficit conditions. **Crop Science** 34: 92-97.

119. Flanagan, LB, Phillips, SL, Ehleringer, JR, Lloyd, J and Farquhar, GD (1994) Effect of changes in leaf water oxygen isotopic composition on discrimination against $C^{18}O^{16}O$ during photosynthetic gas exchange. **Aust. J. Plant Physiol.** 21: 221-234.

120. Hall, AE, Richards, RA, Condon, AG, Wright, GC and Farquhar, GD (1994) Carbon isotope discrimination and plant breeding. **Plant Breeding Reviews** 4: 81-113.

121. Poorter, H and Farquhar, GD (1994) Transpiration, intercellular carbon dioxide concentration and carbon-isotope discrimination of 24 wild species differing in relative growth rate. **Aust. J. Plant Physiol.** 21: 507-516.

122. Farquhar, GD, Condon, AG and Masle, J (1994) On the use of carbon and oxygen isotope composition and mineral ash content in breeding for improved rice production under favourable, irrigated conditions. *In* Breaking the Yield Barrier. KG Cassman (ed). International Rice Research Institute, pp 95-101.

123. Lloyd, JJ and Farquhar, GD (1994) ^{13}C Discrimination during CO_2 assimilation by the terrestrial biosphere. **Oecologia** 99: 201-215.

124. López-Castañeda, C, Richards, RA and Farquhar, GD (1995) Variation in early vigour between wheat and barley. **Crop Science** 35(2): 472-479.

125. Bird, MJ, Lloyd, JJ and Farquhar, GD (1994) Terrestrial carbon storage at the last glacial maximum. **Nature** 371: 566.

126. Nageswara Rao, RC, Udaykumar, M, Farquhar, GD, Talwar, HS and Prasad, TG (1995) Variation in carbon isotope discrimination and its relation with specific leaf area and ribulose-1-5 bisphosphate carboxylase content in groundnut genotypes. **Aust. J. Plant Physiol.** 22(4): 545-551.

127. Franks, PJ, Cowan, IR, Tyerman, SD, Cleary, AL, Lloyd, JJ and Farquhar, GD (1995) Guard cell pressure/aperture characteristics measured with the pressure probe. **Plant, Cell & Env.** 18: 795-800.

128. Syvertsen, JP, Lloyd, JJ, McConchie, C, Kriedemann, PE and Farquhar, GD (1995) On the relationship between leaf anatomy and CO_2 diffusion through the mesophyll of hypostomatous leaves.
Plant, Cell & Env. 18: 149-157

129. Barson, M, Lloyd, J and Farquhar, GD (1995) Land use changes: a surprise in the National Greenhouse Gas Inventory. **Search** 26(4).

130. Kruijt, B, Lloyd, JJ, Grace, J, McIntyre, J, Farquhar, GD, Miranda, AC and McCracken, P (1996) Sources and sinks of CO_2 in Rondonia tropical rainforest. *In* Amazonian Deforestation and Climate. JHC Gash, CA Nobre, JM Roberts, RL Victoria (eds). Wiley, Chichester, UK, pp 331-351.

131. Lloyd, JJ and Farquhar, GD (1996) The CO_2 dependence of photosynthesis, plant growth responses to elevated atmospheric CO_2 concentrations, and their interaction with soil nutrient status. I. General principles and forest ecosystems. **Functional Ecology** 10(1): 4-32.

132. Melillo, J, Prentice, IC, Schulze, E-D and Farquhar, GD, Sala, OE (1996) Terrestrial ecosystems: Biotic feedbacks to climate. *In* IPCC WG I Report, Climate Change 1995, Chap 9, pp 449-481.

133. Virgona, JM and Farquhar, GD (1996) Genotypic variation in relative growth rate and carbon isotope discrimination in sunflower is related to variation in photosynthetic capacity. **Aust. J. Plant Physiol.** 23(2): 227-36.

134. Anderson, JE, Williams, J, Kriedemann, P, Austin, M and Farquhar, GD (1996) Correlations between carbon isotope discrimination and climate of native habitats for diverse eucalypt taxa growing in a common garden.
Aust. J. Plant Physiol. 23(3): 311-320.

135. López-Castañeda, C, Richards, RA, Farquhar, GD and Williamson, RE (1996) Seed and seedling characteristics contributing to variation in early vigour among temperate cereals. **Crop Science** 36: 1257-1266.

136. Lloyd, J, Kruijt, B, Hollinger, DY, Grace, J, Francey, RJ, Wong, S-C, Kelliher, FM, Miranda, AC, Farquhar, GD, Gash, JHC, Vygodskaya, NN, Wright, IR, Miranda, HS and Schulze, E-D (1996) Vegetation effects on the isotopic composition of atmospheric CO_2 local and regional scales: theoretical aspects and a comparison between rain forest in Amazonia and a boreal forest in Siberia. **Aust. J. Plant Physiol.** 23(3): 371-399.

137. Beemster, GTS, Masle, J, Williamson, RW and Farquhar, GD (1996) Effects of soil resistance to root penetration on leaf expansion in wheat (*Triticum aestivum* L.): Kinematic analysis of leaf elongation. **J. Exp. Bot.** 47: 1663-1678.

137a. van Herwaarden, AF, Angus, JF, Farquhar, GD and Richards, RA (1996) Physiological responses of six Australian spring wheats to nitrogen fertiliser. *In* Proceedings of the Eight Australian Agronomy Conference, Toowoomba, pp 570-573.

138. Franks, PJ, Cowan, IR and Farquhar, GD (1997) The apparent feedforward response of stomata to air vapour pressure deficit: Information revealed by different experimental procedures with two rainforest trees. **Plant, Cell & Env.** 20: 142-145.

139. von Caemmerer, S, Millgate, A, Farquhar, GD and Furbank, RT (1997) Reduction of Ribulose-1,5-bisphosphate carboxylase/oxygenase by antisense RNA in the C_4 plant, *Flaveria bidentis*, leads to reduced assimilation rates and increased carbon isotope discrimination. **Plant Physiol.** 113: 469-477.

140. Syvertsen, JP, Smith, ML, Lloyd, J and Farquhar, GD (1997) Net CO_2 assimilation, carbon isotope discrimination, growth and water use efficiency of citrus trees in response to nitrogen status. **J. Amer. Soc. Hort. Sci.** 122: 226-232.

141. Hammer, GL, Farquhar, GD and Broad, I (1997) On the extent of genetic variation for transpiration efficiency in Sorghum. **Aust. J. Agric. Res.** 48: 649-655.

142. ★ de Pury, DGG and Farquhar, GD (1997) Simple scaling of photosynthesis from leaves to canopies without the errors of big-leaf models. **Plant, Cell & Env.** 20(5): 537-557.

143. Bird, MI, Lloyd, J and Farquhar, GD (1996) Terrestrial carbon-storage from the last glacial maximum to the present. **Chemosphere** 33(9): 1675-1685.

144. Boyer, JS, Wong, SC and Farquhar, GD (1997) Carbon dioxide and water vapor exchange across leaf cuticle (epidermis) at various water potentials. **Plant Physiol.** 114(1): 185-191.

145. Buckley, TN, Farquhar, GD and Mott, KA (1997) The effects of patchy stomatal conductance distributions on gas-exchange calculations. **Plant, Cell & Env.** 20(7): 867-880.

146. Caemmerer, S von, Ludwig, M, Millgate, A, Farquhar, GD, Price, D, Badger, M and Furbank, RT (1997) Isotope discrimination during C_4 photosynthesis: Insights from transgenic plants. **Aust. J. Plant Physiol.** 24: 487-494.

147. Yong, JWH, Wong, SC and Farquhar, GD (1997) Stomatal responses to changes in vapour pressure difference between leaf and air. **Plant, Cell & Env.** 20(10): 1213-1216.

148. ★ Farquhar, GD, Henry, BK and Styles, JM (1997) A rapid on-line technique for determination of oxygen isotope composition of nitrogen-containing organic matter and water. **Rapid Communications in Mass Spectrometry** 11(14): 1554-1560.

149. Lloyd, J, Kruijt, B, Hollinger, DY, Grace, J, Francey, RJ, Wong, S-C, Kelliher, FM, Miranda, AC, Farquhar, GD, Gash, JHC, Vygodskaya, NN, Wright, IR, Miranda, HS and Schulze, E-D (1997) A response to the comment 'Interpretation of Recycling Indexes' by Leonel da Silveira Lobo Sternberg on 'Vegetation effects on the isotopic composition of atmospheric CO_2 local and regional scales: theoretical aspects and a comparison between rain forest in Amazonia and a boreal forest in Siberia'. **Aust. J. Plant Physiol.** 24: 399-405.

150. Franks, PJ, Cowan, IR and Farquhar, GD (1998) A study of stomatal mechanics using the cell pressure probe. **Plant, Cell & Env.** 21(1): 94-100.

151. Noble, IR, Gifford, RM and Farquhar, GD (1997) What do we know about impacts of action or no action? "A perspective from the biological sciences". *In* Summary of Proceedings of "The Challenge for Australia on Global Climate Change" 29-30 April 1997, Canberra. Published by The National Academies Forum, pp. 15-22.

152. Henderson, S, von Caemmerer, S, Farquhar, GD, Wade, L and Hammer, G (1998) Correlations between carbon isotope discrimination and transpiration efficiency in lines of the C_4 species *Sorghum bicolor* in the glasshouse and the field. **Aust. J. Plant Phys.** 25(1): 111-123.

153. Farquhar, GD, Barbour, MM and Henry, BK (1998) Interpretation of oxygen isotope composition of leaf material. Chapter 3 *in* Stable Isotopes: integration of biological, ecological and geochemical processes. H Griffiths (ed), BIOS Scientific Publishers Ltd, Oxford, pp 27-62.

154. Farquhar, GD (1997) Carbon dioxide and vegetation. **Science** 278: 1411.

155. Millar, AH, Atkin, OK, Menz, RI, Henry, BK, Farquhar, GD and Day, DA. (1998) Analysis of respiratory chain regulation in roots of soybean seedlings. **Plant Physiology** 117: 1083-1093.

156. von Caemmerer, S and Farquhar, GD. (1999) Leaf gas exchange: a case study on development of $A:p_i$ curves. *In* 'Plants in Action'. BJ Atwell *et al*. (eds), Macmillan Press, Melbourne. Chapter 1.

157. Farquhar, GD (1998) The significance of land clearing. Presented at APEC Study Centre's conference 'Kyoto - The Impact on Australia', Melbourne, 12-13 February.

158. van Herwaarden, AF, Farquhar, GD, Angus, JF, Richards, RA and Howe, GN (1998) 'Haying-off', the negative grain yield response of dryland wheat to nitrogen fertiliser. I. Biomass, grain yield and water use. **Aust. J. Agricultural Research** 49: 1067-1081.

159. van Herwaarden, AF, Angus, JF, Richards, RA and Farquhar, GD. (1998) 'Haying-off', the negative grain yield response of dryland wheat to nitrogen fertiliser. II. Carbohydrate and protein dynamics. **Aust. J. Agricultural Research** 49: 1083-1093.

160. van Herwaarden, AF, Richards, RA, Farquhar, GD and Angus, JF (1998) 'Haying-off', the negative grain yield response of dryland wheat to nitrogen fertiliser. III. The influence of water deficit and heat shock. **Aust. J. Agricultural Research** 49: 1095-1110.

161. Schulze, E-D, Williams, RJ, Farquhar, GD, Schulze, W, Langridge, J, Miller, JM and Walker, BH. (1998) Carbon and nitrogen isotope discrimination and nitrogen nutrition of trees along a rainfall gradient in northern Australia. **Aust. J. Plant Physiol.** 25: 413-425.

162. Steffen, W *et al*. IGBP Terrestrial Carbon Working Group (1998) The terrestrial carbon cycle: Implications for the Kyoto Protocol. **Science** 280: 1393-1394.

163. Buckley, TN, Farquhar, GD and Mott, KA. (1999) Carbon-water balance and patchy stomatal conductance. **Oecologia** 118: 132-143.

164. Brugnoli, E. and Farquhar, GD. (2000) Photosynthetic fractionation of carbon isotopes. *In* Photosynthesis: Physiology and Metabolism (Advances in Photosynthesis volume 9). RC Leegood, TD Sharkey, S von Caemmerer (eds). Kluwer Academic Publishers. Chapter 17, pp 399-434.

165. Korol, RL, Kirschbaum, MUF, Farquhar, GD and Jeffreys, M. (1999) The effect of water status and soil fertility on the C-isotope signature in *Pinus radiata*. **Tree Physiology** 19: 551-562.

166. Franks, PJ and Farquhar, GD. (1999) A relationship between humidity response, growth form and photosynthetic operating point in C_3 plants. **Plant, Cell & Env.** 22, 1337-1349

167. Schulze, E-D, Farquhar, GD, Miller, JM, Schulze, W, Walker, BH and Williams, RJ. (1999) Interpretation of increased foliar $\delta^{15}N$ in woody species along a rainfall gradient in northern Australia. **Australian Journal of Plant Physiology** 26: 296-298.

168. dePury, DGG and Farquhar, GD. (1999) A commentary on the use of a sun/shade model to scale from the leaf to a canopy. **Agricultural and Forest Meteorology** 95: 257-260.

169. Roderick, ML, Berry, SL, Noble, IR and Farquhar, GD. (1999) A theoretical approach to linking the composition and morphology with the function of leaves. **Functional Ecology** 13: 683-695.

170. Lloyd, J and Farquhar, GD. (2000) Do slow-growing species and nutrient-stressed plants consistently respond less to elevated CO_2? A clarification of some issues raised issues raised by Poorter (1998). **Global Change Biology** 6: 871-876

171. Henry, BK, Atkin, OK, Day, DA, Millar, AH, Menz, RI and Farquhar, GD. (1999) Calculation of the oxygen isotope discrimination factor for studying plant respiration. **Australian Journal of Plant Physiology** 26: 773-780.

172. ★Barbour, MM and Farquhar, GD. (2000) Relative humidity- and ABA-induced variation in carbon and oxygen isotope ratios of cotton leaves. **Plant, Cell & Environment** 23: 473-485.

173. Barbour, MM, Schurr, U, Henry, BK, Wong, SC and Farquhar, GD. (2000) Variation in the oxygen isotope ratio of phloem sap sucrose from castor bean: Evidence in support of the Péclet effect. **Plant Physiology** 123: 671-679

174. Prasolova, NV, Xu, ZH, Farquhar, GD, Saffigna PG, and Dieters MJ. (2000) Variation in branchlet $\delta^{13}C$ of 8-year-old hoop pine families (*Araucaria cunninghamii*) in relation to branchlet nitrogen concentration and tree growth in subtropical Australia. **Tree Physiology** 20: 1049-1055.

175. ★ Barbour, MM, Fischer, RA, Sayre, KD and Farquhar, GD. (2000) Oxygen isotope ratio of leaf and grain material correlates with stomatal conductance and grain yield in irrigated wheat. **Aust. J. Plant Physiol** 27: 625-637

176. Lim, B, Farquhar, GD, and Ravindranath, NH. (2000) Implications of the Kyoto Protocol for the Reporting Guidelines. Chapter 6 *in* RT Watson, IR Noble *et al.* eds. Land Use, Land-Use Change and Forestry. Intergovernmental Panel on Climate Change, Cambridge University Press. pp 341-362

177. Prentice, IC, Farquhar, GD, Fasham, M., Goulden, M., Jaramillo, V., Kheshgi, H., Quere, C., Scholes, R. and Wallace, D., (2001). The Carbon Cycle and Atmospheric CO_2. Pp 183-237 *in* "Climate Change 2001: The Scientific Basis. Contribution of Working Group 1 to the Third Assessment Report of the Intergovernmental Panel on Climate Change" (Houghton, J. T., Y. Ding, D. J. Griggs, M. Noguer, P. J. van der Linden, X. Dai, K. Maskell, and C. A. Johnson eds). Cambridge University Press, Cambridge, United Kingdom and New York.

178. Anderson, JE, Kriedemann, PE, Austin, MP and Farquhar, GD. (2000) Eucalypts forming a canopy functional type in dry sclerophyll forests respond differentially to environment. **Aust. J. Botany** 48:759-775

179. Yong, JWH, Wong, SC, Letham, DS, Hocart, C. H. and Farquhar GD. (2000) Effects of elevated [CO_2] and nitrogen nutrition on cytokinins in the xylem sap and leaves of cotton. **Plant Physiology** 124: 767-780

180. Xu ZH, Saffigna, PG, Farquhar, GD, Simpson, JA, Haines, RJ, Walker, S, Osborne, DO and Guinto, D. (2000) Carbon isotope discrimination and oxygen isotope composition in clones of the F1 hybrid between slash pine and Caribbean pine in relation to tree growth, water-use efficiency and foliar nutrient concentration. **Tree Physiology** 20(18): 1209-1217

181. Franks, PJ and Farquhar, GD (2001) The effect of exogenous abscisic acid on stomatal development, stomatal mechanics and leaf gas exchange in *Tradescantia virginiana* L. **Plant Physiology** 125: 935-942

182. Miller, JM, Williams RJ and Farquhar, GD. (2001) Carbon isotope discrimination by a sequence of *Eucalyptus* species along a sub-continental rainfall gradient in Australia. **Functional Ecology** 15: 222-232

183. Farquhar, GD, von Caemmerer, S and Berry, JA. (2001) Models of photosynthesis. **Plant Physiology** 125: 42-45

184. Prasolova NV, Xu Z, Farquhar GD,. Saffigna PG and Dieters M J. (2001) Canopy carbon and oxygen isotope composition of 9-year-old hoop pine families in relation to seedling carbon isotope composition and growth, field growth performance and canopy nitrogen concentration. **Canadian Journal of Forest Research:** 31, 673-681

185. ★ Rebetzke GJ, Condon AG, Richards RA and. Farquhar, GD (2002) Selection for reduced carbon isotope discrimination increases aerial biomass and grain yield of rainfed bread wheat. **Crop Science** 42:739-745.

186. Roderick, ML, Farquhar, GD, Berry, SL, and. Noble, IR. (2001) On the direct effect of clouds and atmospheric particles on the productivity and structure of vegetation. **Oecologia** 129: 21-30

187. Barbour, MM, Andrews, TJ and Farquhar GD. (2001) Correlations between oxygen isotope ratios of wood constituents of *Quercus* and *Pinus* samples from around the world. **Australian Journal of Plant Physiology** 28: 335-348

188. Condon, AG, Richards, RA, Rebetzke, GJ, and Farquhar, GD (2002) Improving intrinsic water-use efficiency and crop yield. **Crop Science** 42:122-131

189. Gan KS, Wong SC and Farquhar GD (2004). Oxygen isotope analysis of plant water without extraction procedure. *In* Handbook of Stable Isotope Analytical Techniques, Volume I, Chapter 21 (ed Pier A. de Groot), Elsevier. pp 473-481 ISBN: 0-444-51114-8

190. Prasolova, NV, Xu, ZH, Lundkvist, K, Farquhar, GD, Dieters, MJ, Walker, S, and Saffigna, PG (2003) Genetic variation in foliar carbon isotope composition in relation to tree growth and foliar nitrogen concentrations in clones of F_1 hybrid between slash pine and Caribbean pine. **Forest Ecology and Management** 172 (2-3): 145-160

191. Cernusak, LA, Pate, JA, Farquhar, GD, (2002). Diurnal variation in the stable isotope composition of water and dry matter in fruiting *Lupinus angustifolius* under field conditions. **Plant, Cell and Environment** 25: 893-907

192. Farquhar GD, Buckley TN, Miller JM (2002) Optimal stomatal control in relation to leaf area and nitrogen content. **Silva Fennica** 36(3):625-637

193. Buckley TN, Farquhar GD, Miller JM (2002) The mathematics of linked optimisation for water and nitrogen use in a canopy. **Silva Fennica** 36(3):639-669

194. Mäkelä A, Givnish TJ., Berninger F, Buckley TN, Farquhar GD, Hari P (2002). Challenges and opportunities of the optimality approach in plant ecology. **Silva Fennica** 36(3):605-614

195. Barbour MM, Walcroft AS, Farquhar GD (2002). Seasonal variation in $\delta^{13}C$ and $\delta^{18}O$ of cellulose from growth rings of *Pinus radiata*. **Plant, Cell and Environment** 25 (11): 1483-1499

196. Gan KS, Wong SC, Yong JW H, Farquhar GD (2002). ^{18}O Spatial patterns of vein xylem water, leaf water and dry matter in cotton leaves. **Plant Physiology** 130: 1008-1021

197. Styles JM, Raupach MR, Farquhar GD, Kolle O, Lawton KA, Brand WA, Werner RA, Jordan A, Schulze E-D, Shibistova O and Lloyd J (2002), Soil and canopy CO_2, $^{13}CO_2$, H_2O and sensible heat flux partitions in a forest canopy inferred from concentration measurements. **Tellus** B 54 (5): 655-676

198. Barbour MM, Cernusak LA, Farquhar GD (2004) Factors affecting the oxygen isotope ratio of plant organic material. *In* LB Flanagan, JR Ehleringer and DE Pataki eds. .*Stable Isotopes and Biosphere Atmosphere Interactions* Elsevier Academic Press. Chapter 2, pp 9-28

199. ★ Roderick ML and Farquhar GD (2002) The cause of decreased pan evaporation over the last 50 years. **Science** 298: 1410-1411.

200. ★Farquhar GD and Gan KS (2003) On the progressive enrichment of the oxygen isotopic composition of water along a leaf. **Plant, Cell & Environment** 26 (9): 1579-1597.

201. Rebetzke GJ, Condon AG, Richards RA and Farquhar GD (2003) Inheritance of leaf conductance in three wheat crosses. **Aust J Agric Res** 54: 381-387.

202. Cernusak LA, Arthur DJ, Pate JA, Farquhar GD (2003). Water relations link carbon and oxygen isotope discrimination to phloem sap sugar concentration in *Eucalyptus globulus*. **Plant Physiology** 131: 1544-1554.

203. Buckley TN, Mott KA, and Farquhar GD. (2003). A hydromechanical and biochemical model of stomatal conductance. **Plant, Cell & Environment** 26: 1767-1785.

204. Farquhar GD and Roderick ML (2003). Pinatubo, diffuse light, and the carbon cycle. **Science** 299: 5615.

205. Gan KS, Wong SC, Yong JW and Farquhar GD. (2003). Evaluation of models of leaf water 18O enrichment using measurements of spatial patterns of vein xylem, leaf water and dry matter in maize leaves **Plant, Cell & Environment** 26 (9): 1479-1495. (Reprinted from **Plant, Cell & Environment** 26: (6) : 801-819).

206. Roderick ML, Farquhar GD (2003) The pan evaporation paradox. In: Steffen W, Sanderson A, Tyson P, Jäger J, Matson P, Moore III B, Oldfield F, Richardson K, Schellnhuber H-J, Turner II BL, Wasson R (eds) Global Change and the Earth System: A Planet Under Pressure. IGBP Global Change Series.Springer-Verlag, Berlin Heidelberg New York, p167.

207. Cernusak LA, Wong SC, and Farquhar GD (2003) Oxygen isotope composition of phloem sap in relation to leaf water in *Ricinus communis.* **Functional Plant Biology** 30: 1059-1070.

208. Tremmel IG, Kirchhoff H, Weis E, and Farquhar GD (2003) Dependence of plastoquinol diffusion on the shape, size, and density of integral thylakoid proteins. **Biochimica et Biophysica Acta** 1607:97-109.

209. Barbour MM, Roden JS, Farquhar GD and Ehleringer JR (2004) Expressing leaf water and cellulose oxygen isotope ratios as enrichment above source water reveals evidence of a Péclet effect. **Oecologia** 138: 426-435.

210. Barbour MM and Farquhar GD (2003) Do pathways of water movement and leaf anatomical dimensions allow development of gradients in $H_2{}^{18}O$ between veins and the sites of evaporation within leaves? **Plant, Cell & Environment** 27 (1) 107-121.

211. Barnes B, Farquhar GD and Gan KS (2004) Modelling the isotope enrichment of leaf water, **Journal of Mathematical Biology** 48: 672-702.

212. Cernusak LA, Pate JS, Farquhar GD (2004) Oxygen and carbon isotope composition of parasitic plants and their hosts in southwestern Australia. **Oecologia** 139:2 199-213

213. ★June T, Evans JR and Farquhar GD (2004) A simple new equation for the reversible temperature dependence of photosynthetic electron transport: a study on soybean leaf. **Functional Plant Biology** 31 (3), 275-83.

214. Roderick ML and Farquhar GD (2004) Changes in Australian Pan Evaporation from 1970 to 2002. **International Journal of Climatology** 24(9) 1077-1090.

215. Cernusak LA, Farquhar GD, Wong SC and Stuart-Williams HLeQ (2004) Measurement and interpretation of the oxygen isotope composition of carbon dioxide respired by leaves in the dark. **Plant Physiology** 136: 3350–3363.

216. Buckley TN and Farquhar GD (2004) A new analytical model for whole-leaf potential electron transport rate. **Plant, Cell and Environment** 27:12 1487-1502

217. Tcherkez G, Farquhar GD, Badeck F and Ghashghaie J (2004) Theoretical considerations about carbon isotope distribution in glucose of C_3 plants. **Functional Plant Biology** 31: 857-877.

218. Barbour MM, Hunt JE, Dungan RJ, Turnbull MH, Brailsford GW, Farquhar GD, Whitehead D (2004) Variation in the degree of coupling between $\delta^{13}C$ of phloem sap and ecosystem respiration in two mature *Nothofagus* forests. **New Phytologist** 166 (2) 497-512

219. Cernusak LA, Farquhar GD, Pate JS (2004) Environmental and physiological controls over oxygen and carbon isotope composition of Tasmanian blue gum, *Eucalyptus globulus.* **Tree Physiology** 25 129-146.

220. Guehl J-M, Bonal D, Ferhi A, Barigah TS, Farquhar GD, Granier A (2004) Community-level diversity of carbon-water relations in rainforest trees. *In* Ecology and Management of a Neotropical Rainforest (Lessons drawn for Paracou, a long-term experimental research site in French Guiana). S Gourlet-Fleury, J-M Guehl and O Laroussinie (eds). Elsevier SAS. Chapter 2, pp 75–94.

221. Condon AG, Richards RA, Rebetzke GJ and Farquhar GD (2004) Breeding for high water-use efficiency. **Journal of Experimental Botany** 55 (407) 2447-2459

222. Tremmel IG, Weis E and Farquhar GD (2005) The influence of protein-protein interactions on the organisation of proteins within thylakoid membranes. **Biophysical Journal** 88, 2650–2660

223. ★Farquhar GD and Cernusak LA (2005) On the isotopic composition of leaf water in the non-steady state. **Functional Plant Biology** 32 (4) 293-303

224. Tcherkez G and Farquhar GD (2005) Carbon isotope effect predictions for enzymes involved in the primary carbon metabolism of plant leaves. **Functional Plant Biology** 32 (4) 277-291

225. ★ Masle J, Gilmore S R and Farquhar GD (2005) The ERECTA gene regulates plant transpiration efficiency in Arabidopsis. **Nature** 436, 866-870 doi: 10.1038/nature03835

226. Condon AG, Farquhar GD, Rebetzke GJ, Richards RA (2006) The application of carbon isotope discrimination in cereal improvement for water-limited environments. In Drought Tolerance in Cereals. Ed J-M Ribaut. Haworth Press, Binghamton NY Chap 6 pp 171-219

227. Berry, S.L., Farquhar, G. D. and Roderick, M. L. (2005) Co-evolution of climate, vegetation, soil and air. In: Encyclopedia of Hydrological Sciences Vol. 1, 177-192.

228. Roderick, M and Farquhar GD (2005) Changes in New Zealand pan evaporation since the 1970s. **International Journal of Climatology 25**: 2031–2039

229. Powles JE, Buckley TN, Nicotra AB and Farquhar GD (2006). Dynamics of stomatal water relations following leaf excision. **Plant, Cell and Environment** 29: 981-992

230. Barbour MM, Cernusak LA, Whitehead D, Griffin KL, Turnbull MH, Tissue DT and Farquhar GD (2005). Nocturnal stomatal conductance and implications for modeling $\delta^{18}O$ of leaf-respired CO_2 in temperate tree species. **Functional Plant Biology** 32, 1107-1121

231. Rebetzke GJ, Richards RA, Condon AG and Farquhar GD (2006) Inheritance of carbon isotope discrimination in bread wheat (*Triticum aestivum* L.) **Euphytica** 150: 97-106 doi: 10.1007/S10681-006-9097-4

232. Tcherkez G and Farquhar GD (2006). Isotopic fractionation by plant nitrate reductase, twenty years later. **Functional Plant Biology** 33: 531-537

233. ★ Tcherkez G, Farquhar GD and Andrews TJ (2006). Despite slow catalysis and confused substrate specificity, all ribulose bisphosphate carboxylases may be nearly perfectly optimized. **Proceedings of the National Academy of Sciences of the USA** 103 (19) 7246-7251

see also Commentaries in PNAS and Nature:

Gutteridge S and Pierce J (2006) A unified theory for the basis of the limitations of the primary reaction of photosynthetic CO2 fixation: Was Dr. Pangloss right? **Proceedings of the National Academy of Sciences of the USA** 103 (19) 7203-7204

Griffiths, H (2006) Designs on Rubisco. **Nature** 441 940-941

234. Kirschbaum MUF, Bruhn D, Etheridge DM, Evans JR, Farquhar GD, Gifford RM, Paul KI and Winters AJ (2006). A comment on the quantitative significance of aerobic methane released by plants. **Functional Plant Biology** 33, 521-530.

235. Rotstayn LD, Roderick ML and Farquhar GD (2006). A simple pan-evaporation model for analysis of climate simulations: Evaluation over Australia. **Geophysical Research Letters** 33: L17715, doi: 10.1029/2006GL027114

236. McNevin DB, von Caemmerer S and Farquhar GD (2006). Determining RuBisCO activation kinetics and other rate and equilibrium constants by simultaneous multiple non-linear regression of a kinetic model. **Journal of Experimental Botany** 27 (14): 3883-3900

237. Marenco RA, Siebke K, Farquhar GD, Ball MC (2006) Hydraulically based stomatal oscillations and stomatal patchiness in *Gossypium hirsutum*. **Functional Plant Biology** 33, 1103–1113

238. McNevin DB, Badger MMR, Kane HJ, and Farquhar GD (2006). Measurement of (carbon) kinetic isotope effect by Rayleigh fractionation using membrane inlet mass spectrometry for CO_2 consuming reactions. **Functional Plant Biology** 33, 1115–1128

239. Rotstayn LD. Cai W, Dix MR, Farquhar GD, Feng Y, Ginoux P, Herzog M, Ito A, Penner JE, Roderick ML, and Wang M (2007) Have Australian rainfall and cloudiness increased due to the remote effects of Asian anthropogenic aerosols? **Journal of Geophysical Research - Atmospheres**., Vol. 112 D09202 1-28. doi:10.1029/2006JD007712

240. Franks PJ and Farquhar GD (2007) The mechanical diversity of stomata and its significance in gas exchange control. **Plant Physiology** 143, 77-87.

241. ★Farquhar GD, Cernusak LA, Barnes B (2007) Heavy water fractionation during transpiration. **Plant Physiology** 143, 11–18.

242. Barbour MM, Farquhar GD, Hanson DT, Bickford CP, Powers H, McDowell NG (2007). A new measurement technique reveals temporal variation in $\delta^{18}O$ of leaf-respired CO_2. **Plant, Cell and Environment** 30, 456-468.

243. Lloyd J, Bird MI, Vellen L, Miranda AC, Veenendaal EM, Djagbletey G, Miranda HS, Cook G, Farquhar GD (2008) Contributions of woody and herbaceous vegetation to tropical savanna ecosystem productivity: A quasi-global estimate. **Tree Physiology** 28: 451-468.

244. Gessler A, Peuke AD, Keitel C, Farquhar GD (2007) Oxygen isotope enrichment of organic matter in *Ricinus communis* during the diel course and as affected by assimilate transport. **New Phytologist** doi: 10.1111/j.14698137.2007.02007.x.

245. Farquhar GD and Roderick ML (2007) Worldwide Changes in Evaporative Demand. *In* The Proceedings of the Working Group 12-14 November 2005 "Water and the Environment", Pontifica Academia Scientiarvm 108. Prof I Rodriguez-Iturbe and H.E. Msgr. MS Sorondo (eds). Pontificia Academia Scientiarvm. pp81-103

246. Thompson AJ, Andrews J, Mulholland BJ, McKee JMT, Hilton HW, Horridge JS, Farquhar GD, Smeeton RC, Smillie IRA, Black CR and Taylor IB (2007) Over-production of abscisic acid in *Solanum lycopersicum* l. increases transpiration efficiency and root hydraulic conductivity and influences leaf expansion. **Plant Physiology** 143, 1905-1917.

247. Beer C, Reichstein M, Ciais P, Farquhar GD, and Papale D (2007) Mean annual GPP of Europe derived from its water balance. **Geophysical Research Letters** VOL. 34, L05401, doi:10.1029/2006GL029006

248. Stork NE, Balston J, Farquhar GD, Franks PJ, Holtum JAM and Liddell MJ (2007) Commentary. Tropical rainforest canopies and climate change **Austral Ecology** 32, 80–86.

249. Krull E, Bray S, Harms B, Baxter N, Bol R, Farquhar G (2007) Development of a stable isotope index to assess decadal-scale vegetation change and application to woodlands of the Burdekin catchment, Australia. **Global Change Biology** 13, 1-14.

250. Tremmel IG, Weis E, and Farquhar GD (2007) Macromolecular crowding and its influence on possible reaction mechanisms in photosynthetic electron flow **Biochimica et Biophysica Acta** 1767, 353-361. **doi:10.1016/j.bbabio.2007.03.007**

251. Gessler A, Keitel C, Kodama N, Weston C, Winters AJ, Keith H, Grice K, Leuning R, Farquhar GD (2007) $\delta^{13}C$ of organic matter transported from the leaves to the roots in *Eucalyptus delegatensis* : short-term variations and relation to respired CO_2. **Functional Plant Biology** 34, 692-706.

252. Cuntz M, Ogée J, Farquhar GD, Peylin P and Cernusak LA (2007) Modelling advection and diffusion of water isotopologues in leaves. **Plant, Cell and Environment** 30, 892-909.

253. Paltridge GW, Farquhar GD and Cuntz M. (2007) Maximum entropy production, cloud feedback and climate change. **Geophysical Research Letters** 34, L14708, doi:10.1029/2007GL029925.

254. Sharkey TD, Bernacchi CJ, Farquhar GD and Singaas EL (2007) Fitting photosynthetic carbon dioxide response curves for C_3 leaves. **Plant, Cell and Environment** 30, 1035-1040. doi: 10.1111/j.1365-3040.2007.01710.x

255. ★Roderick ML, Rotstayn LD, Farquhar GD and Hobbins MT. (2007) On the attribution of changing pan evaporation. **Geophysical Research Letters** VOL. 34, L17403, doi:10.1029/2007GL031166

256. Condon AG, Reynolds MP, Rebetzke GJ, Van Ginkel M, Richards RR and Farquhar GD. (2007) Using stomatal aperture-related traits to select for high yield potential in bread wheat. *In* Developments in Plant Breeding 11 - Wheat Production in Stressed

Environments. HT Buck, JE Nisi and N Salomón (eds). Springer Netherlands. Volume 12, pp 617-624.

257. Tcherkez G and Farquhar GD. (2007) On the $^{16}O/^{18}O$ isotope effect associated with photosynthetic O_2 production. **Functional Plant Biology 34**, 1049–1052

258. McNevin DB, Badger MR, Whitney SM, von Caemmerer S, Tcherkez GGB and Farquhar GD (2007). Differences in carbon isotope discrimination of three variants of D-Ribulose-1,5-bisphosphate Carboxylase/Oxygenase reflect differences in their catalytic mechanism. **J Biol Chem Vol 282**, 49 36068-36076.

259. Rebetzke GJ, Condon AG, Farquhar GD, Appels R, and Richards RA (2008) Location of quantitative trait loci for carbon isotope discrimination: Repeatability across multiple wheat (*Triticum aestivum* L.) populations. **Theoretical and Applied Genetics** 118: 123–137 DOI 10.1007/s00122-008-0882-4

260. Ripullone F, Matsuo N, Stuart-Williams H, Wong SC, Borghetti M, Tani M and Farquhar GD (2008) Environmental effects on oxygen isotope enrichment of leaf water in cotton leaves. **Plant Physiology**, 146: 729-736

261. Lloyd J and Farquhar GD. (2008). Effects of rising temperatures and $[CO_2]$ on the physiology of tropical forest trees. **Phil. Trans. R. Soc. B** doi:10.1098/rstb.2007.0032

262. Stuart-Williams H, Wong S C, Farquhar GD, Keitel C and Clayton S (2008) An innovative molybdenum column liner for oxygen and hydrogen stable isotope analysis by pyrolysis. **Rapid Communications in Mass Spectrometry** 22, 1117-1126 doi: 10.1002/rcm.3474.

263. Tcherkez G and Farquhar GD (2008). On the effect of heavy water (D_2O) on carbon isotope fractionation in photosynthesis **Functional Plant Biology** 35, 201-212

264. Gessler A, Tcherkez G, Peuke AD, Ghashghaie J, Farquhar GD (2008). Experimental evidence for diel variations of the carbon isotope composition in leaf, stem and phloem sap organic matter in *Ricinus communis*. **Plant, Cell and Environment** 31, 941- 953. doi: 10.1111/j.1365-3040.2008.01806.x

265. Hobbins MT, Dai A, Roderick ML, and Farquhar GD (2008). Revisiting the parameterization of potential evaporation as a driver of long-term water balance trends. **Geophysical Research Letters**. 35, L12403, doi:10.1029/2008GL033840.

266. Grice K, Lu H, Zhou Y, Stuart-Williams H, Farquhar GD (2008) Biosynthetic and environmental effects on the stable carbon isotopic compositions of anteiso- (3-methyl) and iso- (2-methyl) alkanes in tobacco leaves **Phytochemistry** 69: 2807–2814

267. Ainsworth EA, Beier C, Calfapietra C, Ceulemans R, Durand-Tardif M, Farquhar GD, Godbold DL, Hendry TH, Kaduk J, Karnosky DF, Kimball BA, Körner C, Koorneef M, Lafarge T, Leakey ADB, Lewin KF, Long SP, Manderscheid R, McNeil DL, Mies TA, Miglietta F, Morgan JA, Nagy J, Norby RJ, Norton RM, Percy KE, Rogers A, Soussana J-F, Stitt M, Weigel H-J and White JW. (2008) Next generation of elevated $[CO_2]$ experiments with crops: A critical investment for feeding the future world. **Plant Cell and Environment** 31, 1317-1324.

268. Gessler A, Tcherkez G, Karyanto O, Keitel C, Ferrio JP, Ghashghaie J, Kreuzwieser J, Farquhar GD. On the metabolic origin of the carbon isotope composition of CO_2

evolved from darkened light-adapted leaves in *Ricinus communis*. (2008) **New Phytologist** 181, 374-386 doi: 10.1111/j.1469-8137.2008.02672x.

269 Harrison MT, Edwards EJ, Farquhar GD, Nicotra AB and Evans JR. (2009) Nitrogen in cell walls of sclerophyllous leaves accounts for little of the variation in photosynthetic nitrogen use efficiency. **Plant Cell and Environment** 32 (3): 259-271 10.1111/j.1365-3040.2008.01918.x

270 Still CJ, Riley WJ, Biraud SC, Noone DC, Buenning NH, Randerson JT, Torn MS, Welker J, White JWC, Vachon R, Farquhar GD, and Berry JA. (2009) The influence of clouds and diffuse radiation on ecosystem-atmosphere CO_2 and $CO^{18}O$ exchanges. **Journal of Geophysical Research – Biogeosciences** 114, GO1018 doi:10.1029/2008JG000675

271 Roderick ML, Hobbins MT Farquhar GD (2009). Pan Evaporation Trends and the Terrestrial Water Balance. I. Principles and Observations **Geography Compass** 3: 746-760 doi: 10.1111/j.1749-8198.2008.00213.x

272 Roderick ML, Hobbins MT Farquhar GD (2009). Pan Evaporation Trends and the Terrestrial Water Balance. II. Energy Balance and Interpretation **Geography Compass** 3: 761 – 780 10.1111/j.1749-8198.2008.00214.x

273 Cernusak LA, Tcherkez G, Keitel C, Cornwell WK, Santiago LS, Knohl A, Barbour MM, Williams DG, Reich, Ellsworth DS, Dawson TE, Griffiths HG, Farquhar GD, Wright IJ, and Westoby M (2009) Why are non-photosynthetic tissues generally ^{13}C enriched compared to leaves in C_3 plants? Review and synthesis of current hypotheses. **Functional Plant Biology** 36: 199-2131.

274 von Caemmerer S, Farquhar G and Berry J. (2009) Biochemical Model of C_3 Photosynthesis. ***In*** Photosynthesis in silico: Understanding Complexity from Molecules to Ecosystems. A Laisk, L Nedbal and Govindjee (eds). Springer-Netherlands. Volume 29, pp 209-230.

275 Bernacchi CJ, Rosenthal DM, Pimentel C, Long SP, and Farquhar GD. (2009) Modeling the Temperature Dependence of C_3 Photosynthesis. ***In*** Photosynthesis in silico: Understanding Complexity from Molecules to Ecosystems. A Laisk, L Nedbal and Govindjee (eds). Springer-Netherlands. Volume 29, pp 231-246.

276 Tao G-Q, Letham SDS, Yong JWH, Zhang K, John PCL, Schwartz OOM, Wong SC, Farquhar GD (2010) Promotion of shoot development and tuberisation in potato by expression of a chimaeric cytokinin synthesis gene at normal and elevated CO_2 levels. **Functional Plant Biology** 37: 43-54.

277 Zhou Y, Grice K, Stuart-Williams H, Farquhar GD , Hocart CH, Lu H, Liu W (2010) Biosynthetic origin of the saw-toothed profile in $\delta^{13}C$ and $\delta^{2}H$ of *n*-alkanes and systematic isotopic differences between *n*-, *iso*- & *anteiso*-alkanes in leaf waxes of land plants. **Phytochemistry** 71: 388–403.

278 Barbour MM, Warren CR, Farquhar GD, Forrester G, Brown H (2010) Variability in mesophyll conductance between barley genotypes, and effects on transpiration efficiency and carbon isotope discrimination. **Plant Cell & Environment** 33, 1176–1185.

279 Zhou YP, Stuart-Williams H, Farquhar GD, Hocart CH (2010) The use of natural abundance stable isotopic ratios to indicate the presence of oxygen-containing chemical linkages between cellulose and lignin in plant cell walls. **Phytochemistry** 71: 982-993.

280 Sun F, Roderick ML, Farquhar GD, Lim W-H, Zhang Y, Bennett N, Roxburgh SH (2010) Partitioning the variance between space and time. **Geophysical Research Letters** 37, L12704,982-993 DOI:10.1029/,

281 Yong JWH, Letham DS, Wong SC, Farquhar GD (2010) Effects of root restriction on growth and associated cytokinin levels in cotton. **Functional Plant Biology** 37, 974-984.

282 Vicca S, Janssens IA, Wong SC, Cernusak LA, Farquhar GD (2010) *Zea mays* rhizosphere respiration, but not soil organic matter decomposition was stable across a temperature gradient. **Soil Biology & Biochemistry** 42, 2030-2033.

283 Zhou Y, Grice K, Chikaraishi Y, Stuart-Williams H, Farquhar GD, Ohkouchi N (2011) Temperature effect on leaf water deuterium enrichment and isotopic fractionation during leaf lipid biosynthesis: results from controlled growth of C_3 and C_4 land plants. **Phytochemistry** 72, 207-213.

284 Sun F, Roderick ML, Lim WH, Farquhar GD (2011) Hydro-climatic projections for the Murray-Darling Basin based on an ensemble derived from IPCC AR4 climate models. **Water Resources Research** 47 : W00G02 DOI: 10.1029/2010WR009829

285 Roderick ML, Farquhar GD (2011) A simple framework for relating variations in runoff to variations in climatic conditions and catchment properties. **Water Resources Research** 47 : DOI: 10.1029/2010WR009826

286 Lim WH, Roderick ML, Hobbins MT, Wong SC, Groeneveld PJ, Sun F, Farquhar GD (2012) The aerodynamics of pan evaporation. **Agricultural and Forest Meteorology** 152 : 31– 43

287 Roderick ML, Farquhar GD (2012) Geoengineering: Hazy, cool and well fed? **Nature Clim. Change** 2(2), 76-77

288 ★Farquhar GD, Cernusak LA (2012) Ternary effects on the gas exchange of isotopologues of carbon dioxide. **Plant Cell and Environment** 35, 1221-31 DOI: 10.1111/j.1365-3040.2012.02484.x

289 Roden J, Farquhar G (2012) A controlled test of the dual isotope approach for interpretation of stable carbon and oxygen isotope ratio variation in tree rings. **Tree Physiology** 32(4):490-503; doi: 10.1093/treephys/tps019

290 Roderick ML, Sun F, Farquhar GD (2012) Water cycle varies over land and sea. **Science** 1230:336

291 Sun F, Roderick ML, Farquhar GD (2012) Changes in the variability of global land precipitation. **Geophysical Research Letters** 39 DOI: 10.1029/2012GL053369

292 Rebetzke GJ, Rattey AR, Farquhar GD, Richards RA, Condon AG (2013) Genomic regions for canopy temperature and their genetic association with stomatal conductance and grain yield in wheat. **Functional Plant Biology** 40, 14-33

293 Franks PJ, Adams MA, Amthor JS, Barbour MM , Berry JA, Ellsworth DS , Farquhar GD, Ghannoum O, Lloyd J, McDowell N, Norby RJ, Tissue DT; von Caemmerer S (2013) Sensitivity of plants to changing atmospheric CO_2 concentration: From the geological past to the next century. **New Phytologist** 197 (4) 1077-1094

294 Song X, Barbour MM, Farquhar GD, Vann DR, Helliker BR (2013) Transpiration rate relates to within- and across- species variations in effective pathlength in a leaf water model of oxygen isotope enrichment **Plant Cell and Environment** 36(7) 1338-1351.

295 Tcherkez GGB, Bathellier C, Stuart-Williams H, Whitney SM, Gout E, Bligny R, Badger M, Farquhar GD (2013) D_2O solvent isotope effects suggest uniform energy barriers in ribulose-1,5-bisphosphate carboxylase/oxygenase catalysis **Biochemistry** 52(5) 869-877.

296 Lloyd J, Bloomfield K, Domingues T, Farquhar GD (2013) Photosynthetically relevant foliar traits correlating better on a mass versus an area basis: Of ecophysiological relevance or just a case of mathematical imperatives and statistical quicksand?" (NPH-L-2012-14788) **New Phytologist** 199(2):311-21.

297 Buckley TN, Cescatti A, Farquhar GD (2013) What does optimisation theory actually predict about crown profiles of photosynthetic capacity, when models incorporate greater realism? **Plant, Cell and Environment** 36(8):1547-1563.

298 Flexas J, Niinemets Ü, Gallé A, Barbour MM, Centritto M, Diaz-Espejo A, Douthe C, Galmés J, Ribas-Carbo M, Rodriguez PL, Rosselló F, Soolanayakanahally R, Tomas M, Wright IJ, Farquhar GD, Medrano H (2013) Diffusional conductances to CO_2 as a target for increasing photosynthesis and photosynthetic water-use efficiency. **Photosynthesis Research** 117, 445-59.

299 Gessler A, Brandes E, Keitel C, Boda S, Kayler ZE, Granier A, Barbour M, Farquhar GD, Treydte K. (2013) The oxygen isotope enrichment of leaf-exported assimilates - does it always reflect lamina leaf water enrichment? **New Phytologist** 1, 144-157.

300 ★Donohue RJ, Roderick ML, McVicar TR, Farquhar GD (2013) CO_2 fertilisation has increased maximum foliage cover across the globe's warm, arid environments (2013GL056017R) **Geophysical Research Letters** 40, 3031-3035.

301 Brookhouse MT, Farquhar GD, Roderick ML (2013) The impact of bushfires on water yield from south-east Australia's ash forests **Water Resources Research** 49, 4493-4505, doi:10.1002/wrcr.20351.

302 Cernusak LA, Ubierna N, Winter K, Holtum JAM, Marshall JD, Farquhar GD (2013) Carbon isotope discrimination in terrestrial plants **New Phytologist** (in press)

303 Lim WH, Roderick ML, Hobbins MT, Wong SC, Farquhar GD (2013) The energy balance of a US Class A evaporation pan. **Agricultural and Forest Meteorology** 182, 314-331.

304 Flanagan LB, Farquhar GD (2013) Variation in the carbon and oxygen isotope composition of plant biomass and its relationship to water-use efficiency at the leaf- and ecosystem-scales in a northern Great Plains grassland. **Plant, Cell and Environment** 37 (2), 425-438.

305 Roderick ML, Sun F, Lim WH, Farquhar GD (2014) A general framework for understanding the response of the water cycle to global warming over land and ocean. **Hydrology and Earth System Sciences** 18, 1575–1589

306 Hommel R, Siegwolf R, Saurer M, Farquhar G, Kayler Z, Ferrio P, Gessler A (2014) Drought response of mesophyll conductance in forest understory species - Impacts on water-use efficiency and interactions with leaf water movement. **Physiologia Plantarum** (in press).

307 Jahan E, Amthor JS, Farquhar GD, Trethowan R, Barbour MM (2014) Variation in mesophyll conductance among Australian wheat genotypes. **Functional Plant Biology** 41, 568-580.

308 Song X, Farquhar GD, Gessler A, Barbour MM. 2014. Turnover time of the non-structural carbohydrate pool influences $\delta^{18}O$ of leaf cellulose. **Plant, Cell and Environment** accepted January 2014.

309 Bloomfield KJ, Farquhar GD, Lloyd J. 2014. Photosynthesis-nitrogen relationships in tropical forest tree species as affected by soil phosphorus availability: a controlled-environment study**. Functional Plant Biology** (in press).

310 Ubierna N, Farquhar GD. 2014. Advances in measurements and models of photosynthetic carbon isotope discrimination in C_3 plants. **Plant, Cell and Environment** (in press).

311 Givnish TJ, Wong SC, Stuart-Williams H, Holloway-Phillips M, Farquhar GD. 2014. Determinants of maximum tree height in *Eucalyptus* species along a rainfall gradient in Victoria, Australia. **Ecology** (in press).