

CURRICULUM VITAE

Personal Data

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University Education

B.S. (Botany, May 1976) Arizona State University, Tempe AZ
M.S. (Botany, Dec 1978) Arizona State University, Tempe AZ
Ph.D. (Botany, Jan 1982) Washington State University, Pullman WA

Academic Positions and Affiliations

1994-present Professor, Department of Environmental, Population, and Organismic Biology,
University of Colorado, Boulder

2004-2005 Visiting Professor, Institut für Baumphysiologie und Forstbotanik, Albert-Ludwigs
Universität, Freiburg, Germany

2001-2004 Chair, Department of Environmental, Population, and Organismic Biology,
University of Colorado, Boulder

2000-present Fellow, Cooperative Institute for Research in Environmental Sciences
(CIRES), University of Colorado, Boulder

1998-2001 Director, Baker Residential Academic Program in Environmental Studies,
University of Colorado, Boulder

1990-1991 Visiting Professor, Lehrstuhl für Pflanzenökologie, Universität Bayreuth,
Bayreuth, Germany

1989-1994 Associate Professor, Department of Environmental, Population, and Organismic
Biology, University of Colorado, Boulder

Academic Positions and Affiliations (contd.)

1982-1989 Assistant Professor, Department of Environmental, Population, and Organismic Biology, University of Colorado, Boulder

Honors and Awards

Alcoa Foundation Fellowship (Graduate Studies) (1981-1982)
 George H. Hudson Memorial Graduate Fellowship (Graduate Studies) (1981-1982)
 Alexander von Humboldt Fellowship (1990-1991)
 John Simon Guggenheim Fellowship (1998-1999)
 Deutscher Akademischer Austauschdienst (DAAD) Fellowship (1998-1999)
 Fulbright Senior Fellowship (Germany) (2004-2005)
 University of Colorado Faculty Fellowship (2004-2005)
 Appointed Professor of Distinction, College of Arts and Sciences, Univ of Colorado (2007)

Selected Professional Service

Editor-in-Chief, *Oecologia* (Germany), 2006-present

Editorial Board, *Plant Biosystems* (Italy), 2004-2006
 Editorial Board, *Plant Biology* (Germany), 2003-2006
 Editorial Board, *Tree Physiology* (USA), 1997- 1998
 Editorial Board, *Ecology* and *Ecological Monographs* (USA), 1994-1997
 Editorial Board, *Oecologia* (Germany), 1991-present; Editor, Review Articles, 1998-2003
 Associate Editor, *American Midland Naturalist* (USA), 1986-1990

Panel Member, Population Biology and Physiological Ecology, National Science Foundation, 1987-1990.

Panel Member, Evolutionary and Ecological Physiology, National Science Foundation, 1992-1995; 1997-2000; 2006-2007.

Panel Member, Integrative Research Challenges in Environmental Biology, National Science Foundation, 2000-2002.

Co-Chair, Committee on the Integrative Role of Systematics in Physiology and Biochemistry, Systematics Agenda 2000, National Initiative, American Society of Plant Taxonomists, 1991-1993.

Member, Research Advisory Committee, Columbia University Biosphere 2 Center, Oracle, Arizona, 2000-2003

Member, Steering Committee for Terrestrial Ecology Research Facilities, US Department of Energy, 2000-2002

Selected Professional Service (contd.)

Member, Steering Committee, Rocky Mountain Ecological Observatory Network, Member of National Ecological Observatory Network (NEON) Consortium

President, Physiological Ecology Section, Ecological Society of America, 2002-2004.

Research Interests

The carbon balance of North American forests, the emission of volatile organic compounds from plants and their influence on tropospheric chemistry, the evolution of photosynthetic pathways in plants, nitrogen relations of alpine plants and microbes, the evolution of resource storage in plants

Publications from Last 5 Years:

107. Huxman, T.E. and Monson, R.K. (2003) Stomatal responses of C₃, C₄ and C₃-C₄ Flaveria species to light and intercellular CO₂ concentration: implications for the evolution of stomatal behavior. *Plant, Cell and Environment* 26: 313-322.
108. Scott-Denton, L.E., Sparks, K.L. and Monson, R.K. (2003) Spatial and temporal controls over soil respiration rate in a high-elevation, subalpine forest. *Soil Biology and Biochemistry* 35: 525-534.
109. Huxman, T.E., Scott-Denton, L.E., Turnipseed, A.A., Sparks, J.P., Harley, P.C., Sparks, K.L. and Monson, R.K. (2003) Temperature as a control over CO₂ fluxes in a high-elevation, subalpine forest. *Oecologia* 134: 537-546.
110. Monson, R.K. (2003) Gene duplication, neofunctionalization and the evolution of C₄ photosynthesis. *International Journal of Plant Science* 164: S43-S54.
111. Ackerly, D.A. and Monson, R.K. (2003) Waking the sleeping giant: the evolutionary foundations of plant functional biology. *International Journal of Plant Science* 164: S1-S6.
112. Sparks, J.P., Roberts, J.M. and Monson, R.K. (2003) The uptake of gaseous organic nitrogen by leaves: a significant global nitrogen transfer process. *Geophysical Research Letters* 30: Art. No. 2189.
113. Turnipseed, A.A., Anderson, D.E., Blanken, P.D., Baugh, W.M. and Monson, R.K. (2003) Airflows and turbulent flux measurements in mountainous terrain. Part 1. Canopy and local effects. *Agricultural and Forest Meteorology* 119: 1-21.

114. Rosenstiel, T., Potosnak, M., Griffen, K., Fall, R. and Monson, R.K. (2003) Elevated CO₂ uncouples growth and isoprene emission in a model agriforest ecosystem. *Nature* 421: 256-259.
115. Monson, R.K. (2003) The many faces of plant carbon relations: forging an ecophysiological identity in the age of human environmental impacts. *New Phytologist* 157: 167-173.
116. Rosenstiel, T.N., Ebbets, A.L., Khatri, W.C., Fall, R. and Monson, R.K. (2004) Induction of poplar leaf nitrate reductase: a test of extrachloroplastic control of isoprene emission rate. *Plant Biology* 6: 12-21.
117. Turnipseed, A.A., Anderson, D.E., Burns, S., Blanken, P.D., and Monson, R.K. (2004) Airflows and turbulent flux measurements in mountainous terrain. Part 2. Mesoscale effects. *Agricultural and Forest Meteorology* 125: 187-205.
118. Osmond, C.B., Ananyev, G., Berry, J., Langdon, C., Kolber, Z., Lin, G.H., Monson, R.K., Nichol, C., Rascher, U., Schurr, U., Smith, S., Yakir, D. (2004) Changing the way we think about global change research: scaling up in experimental ecosystem science. *Global Change Biology* 10: 393-407.
119. Yi, C., Li, R., Bakwin, P.S., Desai, A., Ricciuto, D.M., Burns, S.P., Turnipseed, A.A., Wofsy, S.C., Munger, J.W., Wilson, K. and Monson, R.K. (2004) Effect of temperature on net ecosystem CO₂ exchange in four forest ecosystems. *Geophysical Research Letters* 31: Art. No. L17107.
120. Hui, D., Wan, S., Su, B., Wilson, K., Katul, G., Monson, R.K. and Luo, Y. (2004) Gap filling missing data in eddy covariance measurements using multiple imputation for annual estimations. *Agricultural and Forest Meteorology* 121: 93-111.
121. Monson, R.K. and Rosenstiel, T.R. (2004) Plant isoprenoids. In: The Encyclopedia of Plant and Crop Science (R.M. Goodman, ed.), Marcel Dekker Publishers pp. 625-628.
122. Pegoraro, E., Rey, A., Barron-Gafford, G., Monson, R., Malhi Y. and Murthy, R. (2005) The interacting effects of elevated atmospheric CO₂ concentration, drought and leaf-to-air vapour pressure deficit on ecosystem isoprene fluxes. *Oecologia* 146: 120-129.
123. Bowling, D.R., Burns, S.P., Conway, T.J., Monson, R.K. and White, J.W.C. (2005) Extensive observations of CO₂ carbon isotope content in and above a high-elevation, subalpine forest. *Global Biogeochemical Cycles* 19: GB 3023.

124. Monson, R.K., Sparks, J.P., Rosenstiel, T.N., Scott-Denton, L.E., Huxman, T.E., Harley, P.C., Turnipseed, A.A., Burns, S.P., Backlund, B. and Hu, J. (2005) Climatic influences on net ecosystem CO₂ exchange during the transition from wintertime carbon source to springtime carbon sink in a high-elevation, subalpine forest. *Oecologia* 146: 130-147.
125. Yi, C., Monson, R.K., Anderson, D.E., Zhai, Z., Lamb, B., Turnipseed, A.A. and Burns, S.P. (2005) Modeling and measuring the nighttime drainage flow in a high-elevation, subalpine forest ecosystem with complex terrain. *Journal of Geophysical Research* 110: D22303.
126. Scott, L.E., Rosenstiel, T.N. and Monson, R.K. (2006) Differential controls by climate and substrate over the heterotrophic and rhizospheric components of soil respiration. *Global Change Biology* 12: 205-216.
127. Sacks, W., Schimel, D., Monson, R. and Braswell, R. (2006) Model-data fusion analysis of ecosystem respiration at the Niwot Ridge Ameriflux site. *Global Change Biology* 12: 240-259.
128. Monson, R.K., Lipson, D.A., Turnipseed, A.A., Burns, S.P., Delany, A., Williams, M.W., and Schmidt, S.K. (2006) Winter forest soil respiration controlled by climate and microbial community composition. *Nature* 439: 711-714.
129. Monson, R.K., Rosenstiel, T.N., Forbis, T.A., Lipson, D.A. and Jaeger, C.H., III (2006) Nitrogen and carbon storage in alpine plants. *Integrative and Comparative Biology* 46: 35-48.
130. Monson, R.K., Burns, S.P., Williams, M.W., Delany, A.C., Weintraub, M. and Lipson, D.A. (2006) The contribution of beneath-snow soil respiration to total ecosystem respiration in a high-elevation, subalpine forest. *Global Biogeochemical Cycles* 20: GB3030.
131. Fuentes, J., Stockwell, W., Wang, D., Bowling, D., Monson, R. and Potosnak, M. (2006) Biogenic hydrocarbon chemistry within and above a mixed deciduous forest. *Journal of Atmospheric Chemistry* 56: 165-185.
132. Kucharik, C.J., Barford, C.C., El Maayar, M., Wofsy, S.C., Monson, R.K., Baldocchi, D.D. (2006) A multiyear evaluation of a Dynamic Global Vegetation Model at three AmeriFlux forest sites: Vegetation structure, phenology, soil temperature, and CO₂ and H₂O vapor exchange. *Ecological Modelling* 196: 1-31.

133. Sims, D.A., Rahman, A.F., Cordova, V.D., El-Masri, B.Z., Baldocchi, D.D., Flanagan, L.B., Goldstein, A.H., Hollinger, D.Y., Misson, L.Y., Monson, R.K., Oechel, W.C., Schmid, H.P., Wofsy, S.C. and Xu, L.K. (2006) On the use of MODIS EVI to assess gross primary productivity of North American ecosystems. *Journal of Geophysical Research* 111: Art. No. G04015
134. Heinsch, F.A., Zhao, M.S., Running, S.W., Kimball, J.S., Nemani, R.R., Davis, K.J., Bolstad, P.V., Cook, B.D., Desai, A.R., Ricciuto, D.M., Law, B.E., Oechel, W.C., Kwon, H., Luo, H.Y., Wofsy, S.C., Dunn, A.L., Munger, J.W., Baldocchi, D.D., Xu, L.K., Hollinger, D.Y., Richardson, A.D., Stoy, P.C., Siqueira, M.B., Monson, R.K., Burns, S.P. and Flanagan, L.B. (2006) Evaluation of remote sensing based terrestrial productivity from MODIS using regional tower eddy flux network observations. *IEEE Transactions on Geoscience and Remote Sensing* 44: 1908-1925.
135. Sacks, W.J., Schimel, D.S. and Monson, R.K. (2007) Coupling between carbon cycling and climate in a high-elevation, subalpine forest: a model-data fusion analysis. *Oecologia* 151: 54-68.
136. Loreto, F., Barta, C., Calfapietra, C., Centritto, M., Fares, S., Monson, R.K. (2007) The relationship between isoprene and respiration in white poplar (*Populus alba*) leaves. *Plant, Cell & Environment* 30: 662-669.
137. Sun, J., Burns, S.P., Delany, A.C., Oncley, S.P., Turnipseed, A.A., Stephens, B.B., Lenschow, D.H., LeMone, M.A., Monson, R.K. and Anderson, D.E. (2007) CO₂ transport over complex terrain. *Agricultural and Forest Meteorology* 145: 1-21.
138. Monson, R.K., Trahan, N., Rosenstiel, T.N., Veres, P., Moore, D., Wilkinson, M., Norby, R.J., Volder, A., Tjoelker, M.G., Briske, D.D., Karnofsky, D.F. and Fall, R. (2007) Isoprene emission from terrestrial ecosystems in response to global change: minding the gap between models and observations. *Philosophical Transactions of the Royal Society, London A365*: 1677-1695.
139. Molotch, N.P., Blanken, P. D., Williams, M.W., Turnipseed, A.A., Monson, R.K. and Margulis, S. (2007) Estimating sublimation of intercepted and sub-canopy snow using eddy covariance systems. *Hydrological Processes* 21: 1567-1575.
140. Pegoraro, E., Potosnak, M.J., Monson, R.K., Rey, A., Barron-Gafford, G. and Osmond, B.C. (2007) The effect of elevated CO₂, soil and atmospheric water deficit and seasonal phenology on leaf and ecosystem isoprene emission. *Functional Plant Biology* 34: 774-784.
141. Yi, C., Anderson, D.E., Turnipseed, A.A., Burns, S.P., Sparks, J.P., Stannard, D.I. and Monson, R.K. (2007) The contribution of advective fluxes to net ecosystem CO₂ exchange in a high-elevation, subalpine forest. *Ecological Applications* (in press).

142. Weintraub, M.N., Scott-Denton, L.E., Schmidt, S.K. and Monson, R.K. (2007) The effects of tree rhizodeposition on soil exoenzyme activity, dissolved organic carbon, and nutrient availability in a subalpine forest ecosystem. *Oecologia* (in press).
143. Schaeffer, S.M., Anderson, D.E., Burns, S.P., Monson, R.K., Sun, J. and Bowling, D.R. (2007) Canopy structure and atmospheric flows in relation to the $\delta^{13}\text{C}$ of respired CO_2 in a subalpine coniferous forest. *Agricultural and Forest Meteorology* (in press).
144. Zobitz, J.M., Moore, D., Sacks, W.J., Monson, R.K., Bowling, D.R. and Schimel, D.S. (2007) Integration of process-based soil respiration models with whole ecosystem CO_2 measurements. *Ecosystems* (in press).
145. Moore, D.J.P., Hu, J., Sacks, W.J., Schimel, D.S. and Monson, R.K. (2008) Estimating transpiration and the sensitivity of carbon uptake to water availability in a subalpine forest using a simple ecosystem process model informed by measured net CO_2 and H_2O fluxes. *Agricultural and Forest Meteorology* (in press).