

## BIOGRAPHY: ROBERT B. JACKSON

(February 2021)

### ADDRESS

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### EDUCATION

B.S. Chemical Engineering	Rice University, 1983
M.S. Ecology and Environment	Utah State University, 1990
M.S. Statistics	Utah State University, 1992
Ph.D. Ecology and Environment	Utah State University, 1992

### PROFESSIONAL & TEACHING EXPERIENCE

Chair, Department of Earth System Science, Stanford University (2016-2019)  
Douglas Provostial Professor, School of Earth Sciences, Stanford University (2014-present)  
Senior Fellow, Woods Institute for the Environment, Stanford University (2014-present)  
Senior Fellow, Precourt Institute for Energy, Stanford University (2014-present)  
Senior Associate Dean for Research, Nicholas School of the Environment (2010-2012)  
Nicholas Chair of Global Environmental Change, Nicholas School of the Environment, Duke University (2007-2013)  
Director, National Institute for Climate Change Research, DOE, southeast region (2005-present)  
Co-Founder and Co-Director, Climate Change Policy Partnership (2005-2011)  
Director, Duke Center on Global Change (2004-2013)  
Professor, Department of Biology and Nicholas School of the Environment & Earth Sciences, Duke University (2003-2013)  
Associate Professor, Department of Biology and Nicholas School of the Environment & Earth Sciences, Duke University (2001-2002)  
Director, Duke University Program in Ecology (2002-2006)  
Director, Duke University Laboratory for Isotope Ratio Mass Spectrometry, (2000-2013)  
Assistant Professor, Department of Biology and Nicholas School of the Environment, Duke University (1999-2000)  
Assistant Professor, Department of Biology, UT Austin (1995-1998)  
Department of Energy Distinguished Postdoctoral Fellow for Global Change, Stanford University (1993-1994)  
Graduate Research Assistant, Utah State University (1988-1992)  
Dow Chemical Co. (1983-1987)

### GRANTS, FELLOWSHIPS, & AWARDS

#### **Selected Awards, Offices, and Recent Extracurricular Service**

Fellow, Center for Advanced Studies in the Behavioral Sciences (2019)  
Fellow, John Simon Guggenheim Memorial Foundation (2018)  
Global Carbon Project, Chair (co-Chair 2014-2016; Chair 2017-present)  
Fellow, American Association for the Advancement of Science (2017)  
Chair, Publications Committee, Ecological Society of America (2017-2020)  
CA Council on Science and Technology, Steering Committee, Natural Gas Storage Report (2017)  
American Geophysical Union, Rights and Responsibilities Position Statement (2016-2017)  
Fellow, Ecological Society of America (2012)

Global Carbon Project, Scientific Steering Committee (2012-present)  
U.S. Carbon Cycle Science Plan, co-chair (2009-2012)  
Fellow, American Geophysical Union (2008-present)  
Vice President for Science, Ecological Society of America (2007-2011)  
President, Biogeosciences Section, American Geophysical Union (2004-2006)  
ISI Highly Cited (ISIHighlyCited.com, 2004-present)  
President, Physiological Ecology Section, Ecological Society of America (2000-2002)  
Presidential Early Career Award in Science and Engineering, National Science Foundation (1999)  
Global Change and Terrestrial Ecosystems, Task 1.3.1 Leader (International Geosphere Biosphere Programme; 1996-present)  
Biospheric Aspects of the Hydrological Cycle, Activity 2.4 leader (IGBP; 1999-present)  
Murray F. Buell Award for Excellence in Ecology (Ecological Society of America, 1990)

### **Selected Recent Grants and Gifts (>\$100,000)**

United Nations Environment Programme: Improving estimates of industrial emissions in the global methane cycle (\$815,000, RB Jackson and four co-PIs; 3/21-2/23)  
Ecosystem Services Market Consortium LLC: Neural Network for gap-filling and estimating N<sub>2</sub>O emissions (\$150,000; C Dorich, R Conant, RB Jackson; 11/20-11/21)  
Stanford University: Initiative for Environmental Equity and Sustainability (\$125,000; RB Jackson and four co-PIs; 9/20-8/22)  
CA Energy Commission, SUMMATION: SUPer eMitters of Methane Detection Using Aircraft, Towers, and Intensive Observational Network (\$6,000,000, S Biraud and seven co-PIs, 10/19-9/22)  
Woods Institute for the Environment, Stanford University, Methane removal and atmospheric restoration (\$185,000, RB Jackson and E Solomon, 10/19-9/21).  
USGS, John Wesley Powell Center, Wetland fluxnet synthesis for methane: understanding and predicting methane fluxes at daily to interannual timescales (\$175,000, RB Jackson, S Knox, L, B Poulter)  
Moore Foundation, Advancing understanding of the global methane cycle (\$2,500,000, RB Jackson and five co-PIs; 10/16-9/21)  
CA Energy Commission, Quantification of methane from California's plugged & abandoned oil and gas wells: effects of land subsidence and other factors (\$650,000, M Fischer and four co-PIs, 7/17-6/19)  
Woods Institute for the Environment, Stanford University, Developing and deploying a real-time benzene laser in the field (\$200,000, RB Jackson, R Sur, and R Hanson, 10/16-9/18).  
NSF, SusChEM: Geochemical Characterization and Evaluation of the Environmental Impacts of Hydraulic Fracturing Fluids (\$258,000, A Vengosh, RB Jackson, T Darrah, 9/14-8/18)  
Precourt Institute for Energy, Stanford University, Simultaneous atmospheric C<sub>1</sub>-C<sub>3</sub> detection with a compact mid infrared laser sensor (\$192,000, R Hanson, RB Jackson, 10/15-9/18)  
NASA, Quantifying drought-induced tree mortality at multiple scales across Texas: regional carbon cycling, biophysics, and regime shifts (\$270,000, RB Jackson; 9/13-8/17)  
USDA, Drought-induced mortality of trees: ecosystem changes under climate change (\$750,000, RB Jackson, D Johnson, J-C Domec, J Swenson, HW Polley; 9/12-8/17)  
Precourt Institute for Energy, Stanford University, Imaging-based approaches to detecting and quantifying natural gas leaks (\$185,000, RB Jackson and A Brandt, 10/14-9/16)

## **SELECTED PROFESSIONAL ACTIVITIES**

### **Editorial, Governing, and Advisory Boards**

Environmental Research Letters, Executive Board (2018-present)  
School of Global Environmental Sustainability, CSU, Advisory Board (2014-present)  
Annual Review of Ecology, Evolution, and Systematics (2009-2013)

Issues in Ecology, Editorial Board (2007-2013)  
Springer-Verlag Ecological Studies, Book Series (2003-present)  
Faculty of 1000 Biology (2005-2006)  
Ecology and Ecological Monographs, Special Features Editor (2001-2006)  
Functional Ecology (2000-2005)  
National Science Foundation, Biogeosciences Working Group (2002- 2005)  
Oecologia (2000-2004)  
Organization for Tropical Studies, Assembly of Delegates (2000-2004)

### **Professional society memberships**

AAAS, American Chemical Society, American Geophysical Union, Ecological Society of America, Geological Society of America

### **Recent Invited panels, seminars, and workshops (>400 in total)**

2019 Carbon Cycle Assessments, Simon Fraser University, Vancouver, Canada  
2019 Oil Field Injection, Cal State University Bakersfield, Bakersfield, CA  
2019 Emissions Briefing, National Press Club, Washington, DC  
2019 Land Cover Mapping, Google, Mountain View, CA  
2019 Palo Alto Garden Club, Palo Alto, CA  
2019 Regional Carbon Cycle Assessments 2 (RECCAP2), Gotemba, Japan  
2019 Green New Deal, Stanford, CA  
2019 John Wesley Powell Center, U.S. Geological Survey, Ft. Collins, CO  
2019 Distinguished Scientist Seminar, Lawrence Berkeley National Lab, Berkeley, CA  
2019 SB100 Workshop, San Francisco, CA  
2019 Sustainability Science 2.0, George Mason University, Arlington, VA  
2019 Global Carbon Project, Scientific Steering Committee, University of Minnesota  
2019 Sustainable Healthy Cities, University of Minnesota, Minneapolis, MN  
2019 World Meteorological Organization, Global Climate Summit, New York, NY  
2019 Climate Briefing, Hungarian President János Áder, New York, NY  
2019 Ecology Center, Utah State University, Logan, UT  
2019 Council for the Advancement of Science Writing, Penn State University, State College, PA  
2020 Gates Foundation, Forestry briefing to Bill Gates, Seattle, WA  
2020 Salk Institute, Plant Carbon Drawdown 2020, La Jolla, CA  
2020 Edison Electric Institute, The Role of Forestry in Addressing Climate  
2020 Coronavirus and the Environment, Foundation for Science and Technology, London, UK  
2020 Natural Pathways for Carbon Sequestration, California Council on Science and Technology  
2020 G20 Workshop on the Implications of COVID-19 on Sustainable Economic Recovery  
2020 Global Carbon Project, Scientific Steering Committee  
2020 World Farmers' Organization (WFO), Advisory Council  
2020 Plenary Lecture, Ecological Society of America  
2020 Citizens Climate Lobby  
2020 School of Natural and Environmental Sciences, Newcastle University  
2020 Stanford Carbon Management Symposium  
2020 University of British Columbia, Geography Colloquium  
2020 Harvey Mudd College  
2020 Instituto Potosino de Investigación Científica y Tecnológica, A.C. (IPICYT), Mexico  
2021 Joint Mathematics Meeting

### **Peer-reviewed publications** (Citations: [Google Scholar](https://scholar.google.com/citations?user=G3NBUzwAAAAJ&hl=en&oi=ao) ~95,000, h>130:

<https://scholar.google.com/citations?user=G3NBUzwAAAAJ&hl=en&oi=ao>)

### **2021**

Hong C, JA Burney, J Pongratz, JEMS Nabel, ND Mueller, RB Jackson, SJ Davis 2021 Global and regional drivers of land-use emissions in 1961-2017. *Nature* 589:554-561.

- Terrer C, RP Phillips, BA Hungate, J Rosende, J Pett-Ridge, M Craig, KJ van Groenigen, TF Keenan, BN Sulman, BD Stocker, PB Reich, AFA Pellegrini, E Pendall, H Zhang, RD Evans, Y Carrillo, JB Fisher, K Van Sundert, S Vicca, RB Jackson 2021 A global tradeoff between plant and soil carbon storage under elevated CO<sub>2</sub>. *Nature*, in press.
- Canadell, JG, RB Jackson, eds. 2021 Ecosystem Collapse and Climate Change. *Springer Ecological Studies*, Book Volume 241.
- Rajagopalan S, RB Jackson, J Narula 2021 COVID-19 and emissions: an opportunity for sustainable global health. *European Heart Journal*, in press.
- Féron, S, RR Cordero, A Damiani, RB Jackson 2021 Climate change will affect photovoltaic (PV) power outputs through compound extremes. *Nature Sustainability*, in press.
- Pellegrini, AFA, T Refsland, C Averill, C Terrer, AC Staver, DG Brockway, A Caprio, W Clatterbuck, C Coetsee, JD Haywood, SE Hobbie, WA Hoffmann, J Kush, T Lewis, WK Moser, ST Overby, WA Patterson III, KG Peay, PB Reich, C Ryan, MAS Sayer, BC Scharenbroch, T Schoennagel, G Reuben Smith, K Stephan, C Swanston, MG Turner, JM Varner, RB Jackson 2021 Decadal changes in fire frequencies shift tree communities and functional traits. *Trends in Ecology and Evolution*, in press.
- Le Quéré C, GP Peters, P Friedlingstein, RM Andrew, JG Canadell, SJ Davis, RB Jackson, MW Jones. Fossil CO<sub>2</sub> emissions in the post-COVID era. *Nature Climate Change*, in press.

## 2020

- Jackson RB, M Saunio, P Bousquet, JG Canadell, B Poulter, AR Stavert, P Bergamaschi, Y Niwa, A Segers, A Tsuruta 2020 Increasing anthropogenic methane emissions arise equally from agricultural and fossil fuel sources. *Environmental Research Letters* 15: 071002.
- McDowell NG, CD Allen, K Anderson-Teixeira, BH Aukema, B Bond-Lamberty, L Chini, JS Clark, M Dietze, C Grossiord, A Hanbury-Brown, GC Hurtt, RB Jackson, DJ Johnson, L Kueppers, JW Lichstein, K Ogle, B Poulter, TAM Pugh, R Seidl, MG Turner, M Uriarte, AP Walker, C Xu 2020 Pervasive shifts in forest dynamics in a changing world. *Science* 368:eaa9463.
- Anderegg WRL, AT Trugman, G Badgley, CM Anderson, A Bartuska, P Ciais, D Cullenward, CB Field, J Freeman, SJ Goetz, JA Hicke, D Huntzinger, RB Jackson, J Nickerson, S Pacala, JT Randerson 2020 Forests as natural climate solutions: Integrating risks from a changing climate. *Science* 368: eaa7005.
- Tian H et al. 2020 A comprehensive quantification of global nitrous oxide sources and sinks. *Nature* 586:248-256.
- Du E, C Terrer, A Pellegrini, A Ahlstrom, CJ van Lissa, X Zhao, N Xia, X Wu, RB Jackson 2020 Global patterns of terrestrial nitrogen and phosphorus limitation. *Nature Geoscience* 13:221-226.
- Peters GP, RM Andrew, JG Canadell, P Friedlingstein, RB Jackson, JI Korsbakken, C Le Quéré, A Peregon 2020 Carbon dioxide emissions continue to grow amidst slowly emerging climate policies. *Nature Climate Change* 10:3-6.
- Kattge J et al. 2020 TRY plant trait database - enhanced coverage and open access. *Global Change Biology* 26:119-188.
- Yona L, B Cashore, RB Jackson, J Ometto, MA Bradford 2020 Refining national greenhouse gas inventories. *Ambio* 49:1581-1586.
- Lebel ED, H Lu, S Speizer, C Finnegan, RB Jackson 2020 Quantifying methane emissions from natural gas water heaters. *Environmental Science and Technology* 54:5737-5745.
- Pellegrini AFA, SE Hobbie, PB Reich, A Jumpponen, ENJ Brookshire, AC Caprio, C Coetsee, RB Jackson 2020 Repeated fire shifts carbon and nitrogen cycling by changing plant inputs and soil decomposition across ecosystems. *Ecological Monographs* e01409.
- Pellegrini AFA, RB Jackson 2020 The long and short of it: a review of the timescales of how fire affects soils using the pulse-press framework. *Advances in Ecological Research* 62:147-171.

- Guzwa AJ et al. 2020 Advancing ecohydrology in the 21<sup>st</sup> century: a convergence of opportunities. *Ecohydrology* 13:e2208.
- Jackson RB, EI Solomon, JG Canadell, M Cargnello, CB Field, S Abernethy 2020 Reply to: Practical constraints on atmospheric methane removal. *Nature Sustainability*, in press.
- Zhao Y, M Saunio, P Bousquet, X Lin, A Berchet, MI Hegglin, JG Canadell, RB Jackson, EJ Dlugokencky, RL Langenfelds, M Ramonet, D Worthy, B Zheng 2020 Influences of hydroxyl radicals (OH) on top-down estimates of the global and regional methane budgets. *Atmos. Chem. Phys.* 20:9525-9546, <https://doi.org/10.5194/acp-2019-1208>.
- Wang Q, F Zhou, Z Shang, P Ciais, W Winiwarter, RB Jackson, FN Tubiello, G Janssens-Maenhout, H Tian, X Cui, JG Canadell, S Piao, S Tao 2020 Data-driven estimates of global nitrous oxide emissions from croplands. *National Science Review* 7:441-452.
- Hugelius G, J Loisel, S Chadburn, RB Jackson, M Jones, G MacDonald, M Marushchak, D Olefeldt, M Packalen, MB Siewert, C Treat, M Turetsky, C Voigt, Z Yu 2020 Large stocks of peatland carbon and nitrogen are vulnerable to permafrost thaw. *Proceedings of the National Academy of Sciences USA* 117:20438-20446.
- Le Quéré C, RB Jackson, MW Jones, AJP Smith, S Abernethy, RM Andrew, AJ De-Gol, DR Willis, Y Shan, JG Canadell, P Friedlingstein, F Creutzig, GP Peters 2020 Temporary reduction in daily global CO<sub>2</sub> emissions during the COVID-19 forced confinement. *Nature Climate Change* 10:647-653.
- Kim JH, EG Jobbágy, DD Richter, SE Trumbore, RB Jackson 2020 Agricultural acceleration of soil carbonate weathering. *Global Change Biology* 26:5988-6002.
- Diffenbaugh NS, CB Field, E Appel, I Azevedo, D Baldocchi, M Burke, J Burney, P Ciais, SJ Davis, AM Fiore, S Fletcher, T Hertel, DE Horton, Solomon Hsiang<sup>2</sup>, RB Jackson, X Jin, M Levi, D Lobell, GA McKinley, FC Moore, A Montgomery, KC Nadeau, D Pataki, JT Randerson, M Reichstein, J Schnell, SI Seneviratne, D Singh, A Steiner, G Wong-Parodi 2020 The COVID-19 lockdowns: a window into the Earth system. *Nature Reviews Earth and Environment* 1:470-481.
- Saunio M et al. 2020 The Global Methane Budget 2000-2017. *Earth System Science Data* 12:1561-1623.
- Fuss S, JG Canadell, P Ciais, RB Jackson, CD Jones, A Lyngfelt, GP Peters, DP Van Vuuren 2020 Moving towards net-zero emissions requires new alliances for carbon dioxide removal. *One Earth* 3:145-149.
- Mrad A et al. 2020 Peak grain forecasts for the U.S. High Plains amid withering waters. *Proceedings of the National Academy of Sciences USA* 117: 26145-26150.
- Zhao Y, M Saunio, P Bousquet, X Lin, A Berchet, MI Hegglin, JG Canadell, RB Jackson, M Deushi, P Jöckel, D Kinnison, O Kirner, S Strode, S Tilmes, EJ Dlugokencky, B Zheng 2020 On the role of trend and variability of hydroxyl radical (OH) in the global methane budget. *Atmos. Chem. Phys.* 20:13011-13022. <https://doi.org/10.5194/acp-20-13011-2020>
- Lebel ED, HS Lu, L Vielstädte, P Banner, M Kang, ML Fischer, RB Jackson 2020 Methane emissions from abandoned oil and gas wells in California. *Environmental Science and Technology* 54:14617-14626.
- Fay PA, D Hui, RB Jackson, HP Collis, LG Reichmann, MA Aspinwall, VL Lin, AR Khasanova, RW Heckman, HW Polley 2020 Multiple constraints cause positive and negative feedbacks limiting grassland soil CO<sub>2</sub> efflux under CO<sub>2</sub> enrichment. *Proceedings of the National Academy of Sciences USA* 118 (2) e2008284117.
- Friedlingstein P. et al. 2020 Global Carbon Budget 2020 *Earth Syst. Sci. Data*, 12, 3269-3340, 2020
- Matthews HD, KB Tokarska, ZRJ Nicholls, J Rogelj, JG Canadell, P Friedlingstein, TL Frölicher, PM Forster, NP Gillett, T Ilyina, RB Jackson, CD Jones, C Koven<sup>15</sup>, R Knutti, AH MacDougall, M Meinshausen, N Mengis, R Sférian, and K Zickfeld 2020 Opportunities and challenges in using carbon budgets to guide climate policy. *Nature Geoscience* 13:769-779.

- Jackson RB, EI Solomon, JG Canadell, M Cargnello, CB Field 2019 Methane removal and atmospheric restoration. *Nature Sustainability* 2:436-438.
- Jackson RB, JG Canadell 2019 To fight climate change, we should actually add carbon dioxide to the atmosphere. *Scientific American*, August issue.
- Jackson RB, P Friedlingstein, RM Andrew, JG Canadell, C Le Quéré, GP Peters 2019 Persistent fossil fuel growth threatens the Paris Agreement and planetary health. *Environmental Research Letters* 14:121001.
- Kang M, JE Ayars, RB Jackson 2019 Deep groundwater quality in the southwestern United States. *Environmental Research Letters* 14:034004.
- Polley HW, Aspinwall MJ, Collins HP, Gibson AE, Gill RA, Jackson RB, Jin VL, Khasanova AR, Reichmann LG, Fay PA 2019 CO<sub>2</sub> enrichment and soil type additively regulate grassland productivity. *New Phytologist* 222:183-192.
- Tian H, J Yang, R Xu, C Lu, JG Canadell, EA Davidson, RB Jackson, A Arneeth, J Chang, P Ciais, S Gerber, A Ito, F Joos, S Lienert, P Messina, S Olin, S Pan, C Peng, E Saikawa, RL Thompson, N Vuichard, W Winiwater, S Zaehle, B Zhang 2019 Global soil nitrous oxide emissions since the pre-industrial era estimated by an ensemble of Terrestrial Biosphere Models: Magnitude, attribution and uncertainty. *Global Change Biology* 25:640-659.
- Lecomte X, MC Caldeira FX, Catry, PM Fernandes, RB Jackson, MN Bugalho 2019 Ungulates mediate trade-offs between carbon storage and wildfire hazard in Mediterranean oak woodlands. *Journal of Applied Ecology* 56:699-710; <https://doi.org/10.1111/1365-2664.13310>.
- Thomas HJD et al. 2019 Traditional plant functional groups explain variation in economic but not size-related traits across the tundra biome. *Global Ecology and Biogeography* 28:78-95.
- McMahon D, RB Jackson 2019 Management intensification maintains wood production over multiple harvests in tropical Eucalyptus plantations. *Ecological Applications*, <https://doi.org/10.1002/eap.1879>.
- Qin Y, ND Mueller, S Siebert, RB Jackson, A AghaKouchak, JB Zimmerman, D Tong, C Hong, SJ Davis 2019 Flexibility and intensity of global water use. *Nature Sustainability* 2:515-523.
- Terrer C, RB Jackson, IC Prentice, TF Keenan, C Kaiser, S Vicca, JB Fisher, PB Reich, BD Stocker, BA Hungate, J Peñuelas, I McCallum, NA Soudzilovskaia, LA Cernusak, AF Talhelm, K Van Sundert, S Piao, PCD Newton, MJ Hovenden, DM Blumenthal, YY Liu, C Müller, K Winter, CB Field, W Viechtbauer, CJ Van Lissa, MR Hoosbeek, M Watanabe, T Koike, VO Leshyk, HW Polley, O Franklin 2019 Nitrogen and phosphorus constrain the CO<sub>2</sub> fertilization of global plant biomass. *Nature Climate Change* 9:684-689.
- Plata D, RB Jackson, A Vengosh, P Mouser 2019 More than a decade of hydraulic fracturing and horizontal drilling research. *Environmental Science: Processes and Impacts* 21:193-194.
- Knox SH, RB Jackson, B Poulter, G McNicol, E Fluet-Chouinard, et al. 2019 FLUXNET-CH<sub>4</sub> synthesis activity: objectives, observations, and future directions. *Bulletin of the American Meteorological Society* 100:2607-2632.
- McMahon DE, L Vergütz, SV Valadares, I Ribeiro da Silva, RB Jackson 2019 Soil nutrient stocks are maintained over multiple rotations in Brazilian *Eucalyptus* plantations. *Forest Ecology and Management* 448:364-375.
- Peltola O, T Vesala, Y Gao, O Rätty, P Alekseychik, M Aurela, B Chojnicki, AR Desai, AJ Dolman, ES Euskirchen, T Friborg, M Göckede, M Helbig, E Humphreys, RB Jackson, G Jocher, F Joos, J Klatt, SH Knox, L Kutzbach, S Lienert, A Lohila, I Mammarella, DF Nadeau, MB Nilsson, WC Oechel, M Peichl, T Pypker, W Quinton, J Rinne, T Sachs, M Samson, HP Schmid, O Sonntag, C Wille, D Zona, T Aalto 2019 Monthly gridded data product of northern wetland methane emissions based on upscaling eddy covariance observations. *Earth System Science Data* 11:1263-1289.
- Carnelos DA, SI Portela, EG Jobbágy, RB Jackson, C Di Bella, D Panario, C Fagúndez, JM Piñeiro-Guerra, L Grion, G Piñeiro 2019 A first record of bulk atmospheric deposition patterns of major ions in southern South America. *Biogeochemistry* 144:261-271.

- Sur R, Y Ding, RB Jackson, RK Hanson 2019 Tunable laser-based detection of benzene using spectrally narrow absorption features. *Applied Physics B* 125:195; <https://doi.org/10.1007/s00340-019-7311-z>.
- Zhao Y, M Saunois, P Bousquet, X Lin, A Berchet, MI Hegglin, JG Canadell, RB Jackson, DA Hauglustaine, S Szopa, AR Stavert, NL Abraham, AT Archibald, S Bekki, M Deushi, P Jöckel, B Josse, D Kinnison, O Kirner, V Marécal, FM O'Connor, DA Plummer, LE Revell, E Rozanov, A Stenke, S Strode, S Tilmes, EJ Dlugokencky, B Zheng 2019 Inter-model comparison of global hydroxyl radical (OH) distributions and their impact on atmospheric methane over the 2000–2016 period. *Atmospheric Chemistry and Physics* 19:13701–13723.
- Malhotra A, K Todd-Brown, LE Nave, NH Batjes, JR Holmquist, AM Hoyt, CM Iversen, RB Jackson, K Lajtha, C Lawrence, O Vindušková, W Wieder, M Williams, G Hugelius, J Harden 2019 The landscape of soil carbon data: emerging questions, synergies and databases. *Progress in Physical Geography: Earth and Environment* 43:707-719; <https://doi.org/10.1177/0309133319873309>.
- Ganesan AL, S Schwietzke, B Poulter, T Arnold, X Lan, M Rigby, FR Vogel, GR van der Werf, G Janssens-Maenhout, H Boesch, S Pandey, AJ Manning, RB Jackson, EG Nisbet, MR Manning 2019 Advancing scientific understanding of the global methane budget in support of the Paris Agreement. *Global Biogeochemical Cycles* 33:1475-1512.
- Friedlingstein P, Jones, M. W., O'Sullivan, M., Andrew, R. M., Hauck, J., Peters, G. P., Peters, W., Pongratz, J., Sitch, S., Le Quéré, C., Bakker, D. C. E., Canadell, J. G., Ciais, P., Jackson, R. B., Anthoni, P., Barbero, L., Bastos, A., Bastrikov, V., Becker, M., Bopp, L., Buitenhuis, E., Chandra, N., Chevallier, F., Chini, L. P., Currie, K. I., Feely, R. A., Gehlen, M., Gilfillan, D., Gkritzalis, T., Goll, D. S., Gruber, N., Gutekunst, S., Harris, I., Haverd, V., Houghton, R. A., Hurtt, G., Ilyina, T., Jain, A. K., Joetzjer, E., Kaplan, J. O., Kato, E., Klein Goldewijk, K., Korsbakken, J. I., Landschützer, P., Lauvset, S. K., Lefèvre, N., Lenton, A., Lienert, S., Lombardozzi, D., Marland, G., McGuire, P. C., Melton, J. R., Metzl, N., Munro, D. R., Nabel, J. E. M. S., Nakaoka, S.-I., Neill, C., Omar, A. M., Ono, T., Peregon, A., Pierrot, D., Poulter, B., Rehder, G., Resplandy, L., Robertson, E., Rödenbeck, C., Séférian, R., Schwinger, J., Smith, N., Tans, P. P., Tian, H., Tilbrook, B., Tubiello, F. N., van der Werf, G. R., Wiltshire, A. J., and Zaehle, S. 2019 Global Carbon Budget 2019, *Earth Syst. Sci. Data*, 11, 1783–1838, <https://doi.org/10.5194/essd-11-1783-2019>.

## 2018

- Jackson RB, C Le Quéré, RM Andrew, JG Canadell, JI Korsbakken, Z Liu, GP Peters, B Zheng 2018 Global energy growth is outpacing decarbonization. *Environmental Research Letters* 13:120401.
- Jackson RB 2018 Auto mileage rollback is a sick idea: the current EPA rules are better for our wallets and our health. *Scientific American* 319: 12
- Pellegrini AFA, A Ahlström, SE Hobbie, PB Reich, LP Nieradzik, AC Staver, BC Scharenbroch, A Jumpponen, WRL Anderegg, JT Randerson, RB Jackson 2018 Fire frequency drives decadal changes in soil carbon and nitrogen and ecosystem productivity. *Nature* 553:194–198.
- DiGiulio DC, SBC Shenkoff, RB Jackson 2018 The need to protect fresh and brackish groundwater resources during unconventional oil and gas development. *Current Opinion in Environmental Science & Health* 3:1-7.
- Tian H, J Yang, C Lu, R Xu, JG Canadell, RB Jackson, A Arneeth, J Chang, G Chen, P Ciais, S Gerber, A Ito, Y Huang, F Joos, S Lienert, P Messina, S Olin, S Pan, C Peng, E Saikawa, RL Thompson, N Vuichard, W Winiwarter, S Zaehle, B Zhang, K Zhang, Q Zhu 2018 The global N<sub>2</sub>O Model Intercomparison Project (NMIP): objectives, simulation protocol and expected products. *Bulletin of the American Meteorological Society* June: 1231-1250.

- Fay PA, MJ Aspinwall, HP Collins, AE Gibson, RH Gill, RB Jackson, VL Jin, AR Khasanova, LG Reichmann, HW Polley 2018 Flowering in grassland predicted by CO<sub>2</sub> and resource effects on species aboveground biomass. *Global Change Biology* 24:1171-1181.
- Johnson D, J-C Domec, Z Carter Berry, AM Schwantes, KA McCulloh, DR Woodruff, HW Polley, R Wortemann, JJ Swenson, D Mackay, NG McDowell, RB Jackson 2018 Co-occurring woody species have diverse hydraulic strategies and mortality rates during an extreme drought. *Plant Cell and Environment* 41:576-588.
- Kreuzer RL, TH Darrah, BS Grove, MT Moore, NR Warner, WK Eymold, CJ Whyte, G Mitra, RB Jackson, A Vengosh, RJ Poreda 2018 Structural and hydrogeological controls on hydrocarbon and brine migration into drinking water aquifers in southern New York. *Groundwater* 56:225-244.
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### **Recent Blogs**

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### **Selected Poetry in Literary Journals**

Taxes, 2013, Public radio's *Marketplace*  
For John Graves, Spring 2014, Southwest Review  
Maestro, Winter 2014, Avocet  
After Fifty Years Together, Fall 2015, Boston Literary Magazine  
Acnestis, Spring 2016, Light  
The Wishbone, Spring 2016, The Lyric  
Roaming, Spring 2016, Exposition Review  
Reasons to Smile, Summer 2016, Avocet  
Sunflowers, Summer 2016, Avocet  
White Noise, Spring 2017, Cold Mountain Review  
You Outweigh Me, 2017, Measure  
Reaching for the Phone, November 2017, Cortland Review  
On the Cusp of Berries, November 2017, Cortland Review  
Aphantasia, Spring/Summer 2018, Atlanta Review  
The Long Song, Spring/Summer 2018, Atlanta Review  
A Troubling, Spring 2018, THEMA  
Frog Calls, May 2018, Stanford Magazine  
For Bashō and Issa, Spring 2018, Understory  
Climate Violence, 12/4/18, LitHub  
Ghost Sounds, 2019, America  
Chasing Owls, 2019, The Lyric  
Red Tide, Fall/Winter 2019/2020, Valparaiso Poetry Review  
Assisted Migration, 2020, Portland Review  
The Sun's Migration, 2020, Kestrel  
Dive Buddy, 2020, Magma  
Spring Pruning, 2020, The New Farmer's Almanac  
Words, 2020, The New Farmer's Almanac  
Platypus, 2020, BioScience  
Rebuilding, 2020, BioScience  
Chickens, 2020, Split Rock Review

### **Children's Books**

Jackson, RB 2006 Animal Mischief, Boyds Mills Press (the trade arm of Highlights magazine for children).  
Jackson, RB 2010 Weekend Mischief, Boyds Mills Press.

### **Edited Books and Special Features**

Sala, OE, RB Jackson, HA Mooney, RW Howarth 2000 Methods in Ecosystem Science. Springer, NY, 421 pp.  
Jackson RB 2000 Belowground processes and global change. *Ecological Applications* 10:397-483.  
Norby, RJ, AH Fitter, and RB Jackson 2000 Root dynamics and global change: an ecosystem perspective. *New Phytologist* 147:1-232.  
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Jackson RB, JG Canadell, S Fuss, J Milne, N Nakicenovic, M Tavoni 2017 Focus on Negative Emissions. Environmental Research Letters.  
Plata, D, RB Jackson, A Vengosh, P Mouser 2019 The environmental geochemistry and biology of hydraulic fracturing. Environmental Science Processes and Impacts 21:193-194.  
Canadell, J, RB Jackson 2020 Ecosystem Collapse. Springer, NY, in press.

### **Current and Former Postdoctoral Advisees**

A Ahlström, LJ Anderson, C Armas, T Bleby, M Brito Caldeira, G Bulltail, T Darrah, K Delwiche, C Ellis, R Emanuel, V Engel, K Farley, S Féron, N Fierer, E Fluet-Chouinard, M Gallagher, K Georgiou, RA Gill, M Henn, WA Hoffmann, G Hugelius, D Hui, D Jayawickreme, DM Johnson, EG Jobbágy, M Kang, A Kelley, S Knox, MG Little, H Maherali, A Malhotra, RL McCulley, AJ McElrone, G McNicol, M Nosetto, M Nuno Bugalho, S Osborn, S Palmer, A Pellegrini, G Piñeiro, WT Pockman, CD Reid, HJ Schenk, M Sherrard, J Strauss, C Terrer, L Vielstädte, O Vindušková, C Wang, D Way, Z Yang, A Zanne, K Zhao

### **Current and Former Graduate Students**

A Appling, S Abernethy, S Berthrong, MS Brumbaugh, A Down, E Lebel, WS Gordon, KS Hofmockel, EG Jobbágy, J Kim, J Loreti, R Marinos, D McMahon, C Moura, V Palacios, F Perret, A Procter, A Schwantes, E Thorsos, S Tumber-Davila, C Willson, L Yona