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GENERAL

Born: July, 3, 1959, Boston Massachusetts

EDUCATION

Ph.D. 1991 - Physics, University of California at Berkeley
M.S. 1982 - Physics, University of Illinois at Urbana-Champaign
B.S. 1981 - Physics, Massachusetts Institute of Technology

CURRENT POSITION

Staff Scientist, 1998-present. Atmospheric Science Department, Lawrence Berkeley National Laboratory (LBNL)

CURRENT RESEARCH

- *Observation of non-CO2 Greenhouse Gas Emissions from California*. California Energy Commission 2007-2009
- *High-Resolution Fossil Fuel Emissions Estimates in Support of NACP*. DOE Terrestrial Carbon Program, 2005-2008
- *Carbon Cycle Measurements at DOE ARM-SGP*. DOE-ARM Program, 2000-2008
- *High Availability Unmanned Aerial Platforms for Carbon Cycle Measurements*. DOE-SBIR Program, 2007-2008
- *Ultrasensitive Airborne Instrumentation for the Quantification of Aerosol Precursors*. DOE-SBIR Program, 2007-2009

PREVIOUS POSITIONS

Postdoctoral Fellow, 1995-1997. University of California, Berkeley. Terrestrial ecosystem response to global change: Study of soil carbon cycling in meadow ecosystems. Field measurements soil physical, chemical and biological properties, laboratory measurements of organic matter decomposition rates.
Postdoctoral Fellow, 1993-1995. Lawrence Berkeley National Laboratory. Investigation of subsurface transport of volatile organic contaminants (VOC) into houses. Measurements of VOC transport at field sites, modeled estimates of VOC exposure for individuals living near contaminated sites.
Postdoctoral Fellow: 1991-1993. University of California, Berkeley. Experimental cosmology; estimates of the Hubble constant and peculiar velocity fields from measurements of the Sunyaev-Zel'dovich effect toward clusters of galaxies. Development of far-infrared bolometric array receiver and observations at the Cal. Tech. Submillimeter Observatory.

Doctoral Research: 1986 - 1991. Experimental cosmology; measurements of anisotropy in the cosmic microwave background radiation. Designed, fabricated, and integrated optics, bolometric receiver, and instrument flight electronics to a balloon-borne millimeter-wave telescope. Collaborated on balloon flights, conducted data analysis.

SERVICES TO PROFESSION

Committee Reports: Contributed to the North American Carbon Program Implementation Plan
Review of Proposals: US NSF-Atmospheric Chemistry, US NOAA-Office of Global Programs, US DOE – Office of Science, National Institute Global Environmental Change, Israeli Science Foundation
Review of Manuscripts: Journal Geophysical Research, Journal of Applied Meteorology, Ecological Applications, Environmental Science & Technology, Journal of Atmospheric Environment, Transactions on Geoscience and Remote Sensing, and Astrophysical Journal.

PUBLICATIONS

A. REFEREED ENVIRONMENTAL SCIENCE/ECOLOGY PUBLICATIONS

1. Fischer, M.L., and D. Littlejohn. 2007. Ammonia at Blodgett Forest, Sierra Nevada, USA. Atmospheric Chemistry and Physics Discussions. 7, 1-31.
(http://www.atmos-chem-phys-discuss.net/7/14139/2007/acpd-7-14139-2007.html)
2. Fischer, M.L, Billesbach, D.P., Riley, W.J, Berry, J.A., and M.S. Torn. 2007. Spatiotemporal Variations in Growing Season Exchanges of CO2, H2O, and Sensible Heat in Agricultural Fields of the Southern Great Plains. Earth Interactions, 11, 1-21.
(http://ams.allenpress.com/perlserv/?request=get-abstract&doi=10.1175%2FEI231.1)
3. Fischer, M.L., W.J. Riley, and S.Tonse. 2005. Development of an Implementation Plan for Atmospheric Carbon Monitoring in California. California Energy Commission, PIER Energy-Related Environmental Research. CEC-500-2005-123 (LBNL-57485).
(http://www.energy.ca.gov/pier/final_project_reports/CEC-500-2005-123.html)
4. Dunne, J.A., Saleska, S.R., Fischer, M.L., and J. Harte. 2004. Integrating Experimental and Gradient Methods in Ecological Climate Change Research. Ecology, 85, 904-916. (LBNL-55169)
5. Billesbach, D.P., Fischer, M.L, Torn, M.A., and Berry, J.A.2004. A Portable Eddy Covariance System for the Measurement of Ecosystem-Atmosphere Exchange of CO2, Water Vapor, and Energy. J. Atmos. Ocean. Tech. 21, 684-695. (LBNL-55170)
6. Fischer, M.L., Littlejohn, D., Lunden, M.M., and N. J. Brown. 2003. Automated Measurements of Ammonia and Nitric Acid in Indoor and Outdoor Air. Environmental Science and Technology, 37, 2114-2119. (LBNL-51385)
7. Lunden, M.M., Revzan, K.L., Fischer, M.L., Thatcher, T.L., Littlejohn, D., Hering, S.V. and N.J. Brown. 2003. The Transformation of Outdoor Ammonium Nitrate Aerosols in the Indoor Environment. Atmospheric Environment, 37, 5633-5644. (LBNL-52795).
8. Saleska, S.R., M.R. Shaw, M.L. Fischer, J.A. Dunne, C.B. Still, M. Holman, and J. Harte. 2002. Large transient Decline and Predicted Long-term Recovery of Soil Carbon under Climate Warming. Global Change Biology, 16, 1055. (LBNL-43825)
9. Torn, M.S., A. Lapenis, A. Timofeev, M. Fischer, I. Babikov, J. Harden. 2002. Soil Carbon Cycling in the Russian Steppe: Radiocarbon Analysis of Modern and Historic Russian Soils. Global Change Biology, 8, 941-953.

10. Fischer, M. L., Price, P. N., Thatcher, T. L., Schwalbe, C. A., Craig, M. J., Wood, E. E., Sextro, R. G., and A. J. Gadgil. 2001. Rapid Measurements and Mapping of Tracer Gas Concentrations in a Large Indoor Space. Atmospheric Environment, 35, 2837-2844.
11. Price, P. N., M. L. Fischer, R. G. Sextro, and A. J. Gadgil. 2001. Algorithm for rapid tomography of gas concentrations. Atmospheric Environment, 35, 2827-2835.
12. Harte, J., S. McCarthy, K. Taylor, A. Kinzig, M. L. Fischer. 1998. Estimating Species-Area Relationships from Plot to Landscape Scale Using Species Spatial-Turnover Data. OIKOS, 86, 45-54.
13. Conrad, M. E., P. F. Daley, M. L. Fischer, B. B. Buchanan, T. Leighton, M. Kashgarian. 1997. Carbon Isotope Evidence for Intrinsic Bioremediation af Petroleum Hydrocarbons, Environmental Science & Technology, 31, 1463.
14. Fischer, M.L., A. J. Bentley, K. A. Dunkin, A. T. Hodgson, W. W. Nazaroff, R. G. Sextro, and J. M. Daisey. 1996. Factors Affecting Indoor Air Concentrations of Volatile Organic Compounds at a Site of Subsurface Gasoline Contamination. Environmental Science & Technology, 30, 2948.

B. REFEREED ASTROPHYSICS PUBLICATIONS

1. Holzapfel, W.L., M. Arnaud, P.A.R. Ade, S.E. Church,M. L. Fischer, P.D. Mauskopf, Y. Rephaeli, T.M. Wilbanks, and A.E. Lange. 1997. Measurement of the Hubble constant from X-ray and 2.1 millimeter observations of Abell 2163. Astrophysical Journal, 480, 449.
2. Holzapfel, W.L., T. M. Wilbanks, P.A.R. Ade, S.E. Church, M. L. Fischer, P.D. Mauskopf, D.E. Osgood, and A.E. Lange. 1997. The Sunyaev-Zeldovich infrared experiment: A millimeter-wave receiver for cluster cosmology. Astrophysical Journal, 479, 17.
3. Bock, J., M. L. Fischer, A. E. Lange, and M. K. Parikh. 1995. Emissivity Measurements of Reflective Surfaces at Near-Millimeter Wavelengths, Applied Optics, 34,4812.
4. Fischer, M.L., A. Clapp, M. Devlin, J.O. Gundersen, A.E. Lange, P.M. Lubin, P.R. Meinhold, P.L. Richards, and G.F. Smoot. 1995. Measurements of the Millimeter-wave Spectrum of Interstellar Dust Emission, Astrophys.J., 444, 226.
5. Fischer, M.L., and A.E. Lange. 1993. Confusion Limits to the Measurement of the Sunyaev-Zel'dovich Effect in Clusters of Galaxies at Millimeter Wavelengths, Astrophys. J., 419, 433.
6. Alsop, D.C., E.S. Cheng, A.C. Clapp, D.A. Cottingham, M.L. Fischer, J.O. Gundersen, E. Kreysa, A.E. Lange, P.M. Lubin, P.R. Meinhold, P.L. Richards, and G.F. Smoot. 1992. A Search for Anisotropy in the Cosmic Background Radiation on Intermediate Angular Scales, Astrophysical Journal, 395, 317.
7. Fischer, M.L., D.C. Alsop, E.S. Cheng, A.C. Clapp, D.A. Cottingham, J.O. Gundersen, T.C. Koch, E. Kreysa, P.R. Meinhold, A.E. Lange, P.M. Lubin, P.L. Richards, and G.F. Smoot. 1992. A Bolometric Millimeter-Wave System for Observations of Anisotropy in the Cosmic Microwave Background Radiation on Medium Angular Scales, Astrophysical Journal, 330, 242.
8. Bernstein, G.M., M.L. Fischer, P.L. Richards, J.B. Peterson, and T. Timusk, A. 1990. Measurement of the Spectrum of the Cosmic Background Radiation from 1 to 3 Millimeter Wavelength, Astrophysical Journal, 362, 107.
9. Bernstein, G.M., M.L. Fischer, P.L. Richards, J.B. Peterson, and T. Timusk. 1989. Anisotropy of the Diffuse Background at Millimeter Wavelengths, Astrophysical Journal Letters, 337, L1.

C. RECENT ENVIRONMENTAL SCIENCE/ECOLOGY REPORTS and ABSTRACTS

1. M.L. Fischer, K.R. Gurney, J. Gregg, S. Murtishaw, R. Andres, S. Knox, B. Seib. 2006. Comparison of Anthropogenic CO2, NOx, and CO Emissions: Exploiting a Synergy Between Air Quality and Carbon Cycle Studies. American Geophysical Union Fall Meeting, San Francisco, CA
2. M.L. Fischer, D. Littlejohn. 2005. Time Resolved Measurement of Ecosystem-Atmosphere NH3 Exchange Using the Eddy Covariance Technique, American Geophysical Union Fall Meeting, San Francisco, CA (LBNL-60709).
3. M.L. Fischer, K.R. Gurney, A.S. Denning, S. Knox, G. Marland, D. Ojima, L. Price, J. Sathaye. 2005. Spatiotemporally Explicit Maps of Anthropogenic CO2 Emissions for NACP. Climate Science In Support of Decision Making, US Climate Change Science Program. Washington DC. (LBNL-60710).
4. W.J. Riley, J.T. Randerson, M.L. Fischer, D. Hsueh, J. Hatch. 2005. Relating the Δ14C Value of Annual Grasses to Spatially and Temporally Distributed Fossil Fuel Emissions in California. 2005 Climate Change Meeting, California Energy Commission. Sacramento CA. (LBNL-60712)
5. D.P. Billesbach, M.S. Torn, M.L. Fischer, H. Mayeux, G. Doyle, P. Dowell. 2005. Comparative Effects of Burning on Ecosystem Fluxes and Productivity in Two Adjacent Tall-grass Prairie Pastures, American Geophysical Union Fall Meeting, San Francisco, CA. (LBNL-60711).
6. Biraud S. C., W.J. Riley, M.L. Fischer, M.S. Torn, J.A. Berry. 2005. Spatially Distributed CO_2, Sensible, and Latent Heat Fluxes over the Southern Great Plains. Seventh International Carbon Dioxide Conference, Boulder CO. (LBNL-57444)
7. Fischer, M. L., W. J. Riley, and S. Tonse. 2005. *Development of an Implementation Plan for Atmospheric Carbon Monitoring in California.* California Energy Commission, PIER Energy-Related Environmental Research. CEC-500- 2005-123 (LBNL-57485).
8. Fischer, M. L., W. J. Riley, and S. Tonse. 2004. Design of an Atmospheric Observing Strategy for California's Carbon Cycle. American Geophysical Union, San Francisco, CA.
9. M.L. Fischer, D.P. Billesbach, J.A. Berry, S.C. Biraud, W.J. Riley, and M.S. Torn. 2004. ARM Carbon Measurements in Southern Great Plains, Ameriflux Science Team Meeting, Boulder CO (LBNL-58218).
10. M.L. Fischer, D.P. Billesbach, W.J. Riley, J.A. Berry, M.S. Torn. 2004. Observed Variation in Carbon and Water Exchange Across Crop Types, Seasons, and Years in Un-irrigated Land of the Southern Great Plains, American Geophysical Union, San Francisco, CA (LBNL-58219).