

DANIEL R. FELDMAN

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PROFESSIONAL EMPLOYMENT

2015-Present	<i>Radiation Research Scientist</i>	<i>Lawrence Berkeley National Laboratory</i>
2011-2015	<i>Geological Project Scientist</i>	<i>Lawrence Berkeley National Laboratory</i>
2008-2011	<i>Postdoctoral Fellow</i>	<i>UC-Berkeley</i>
2002-2008	<i>Doctoral Candidate</i>	<i>Caltech</i>
2001	<i>Summer Intern</i>	<i>Los Alamos National Laboratory</i>
2000-2002	<i>Undergraduate Researcher</i>	<i>MIT</i>
1998-1999	<i>Intel Honors Intern</i>	<i>Intel, Corp.</i>

EDUCATION

- Ph.D., Environmental Science and Engineering, Caltech 2008.
- M.S., Environmental Science and Engineering, Caltech 2004.
- B.S., Environmental Engineering Science, MIT 2002.
 - Minor in Earth and Planetary Science.
 - Minor in Latin American Studies.

PEER-REVIEWED PUBLICATIONS

- Mlynczak, M.L., T. Daniels, D. Kratz, D.R. Feldman, D. Fahey, L.W. Anderson, J. Lawler, J. Mast (2015), Uncertainties in radiative forcing by CO₂ due to spectral line parameters and lineshape function, *Journal of Climate*, (Submitted).
- Kahn, B.H., X.L. Huang, G.L. Stephens, W.D. Collins, **D.R. Feldman**, H. Su, S. Wong, Q. Yue (2015), Far- and mid-infrared spectral band contributions to the clear-sky super greenhouse effect, *Geophysical Research Letters*, (Submitted).
- **Feldman, D.R.**, W.D. Collins, J.L. Paige (2015) Pan-Spectral Observing System Simulation Experiments of Shortwave Reflectance and Longwave Radiance for Climate Model Evaluation, *Geoscientific Model Development*, **8**, 1943-1954, doi:[10.5194/gmd-8-1943-2015](https://doi.org/10.5194/gmd-8-1943-2015).
- **Feldman, D.R.**, P.J. Gero, W.D. Collins, M.S. Torn, E.J. Mlawer, T.R. Shippert (2015) Observational Determination of Surface Radiative Forcing by CO₂ from 2000 to 2010. *Nature*, **519**, 339-343, doi:[10.1038/nature14240](https://doi.org/10.1038/nature14240).
- **Feldman, D.R.**, W.D. Collins, R. Pincus, X.L. Huang, X.H. Chen, (2014) Far-Infrared Surface Emissivity and Climate, *Proceedings of the National Academy of Sciences of*

- the United States of America*, **111**(46), 16297-16302, doi:[10.1073/pnas.141364011](https://doi.org/10.1073/pnas.141364011).
- Roberts, Y.L., P.A. Pilewskie, **D.R. Feldman**, B. Kindel, W.D. Collins (2014) Temporal Variability in Observed and Simulated Hyperspectral Reflectance, *Journal of Geophysical Research-Atmospheres*, **119**, 10,262–10,280, doi:[10.1002/2014JD021566](https://doi.org/10.1002/2014JD021566).
 - Jin, Z., C. Lukashin, Y.L. Roberts, B. Wielicki, **D.R. Feldman**, W.D. Collins, (2014) Interannual Variability of The Earth's Spectral Solar Reflectance From Data And Model, *Journal of Geophysical Research-Atmospheres*, **119**, 4458–4470, doi:[10.1002/2013JD021056](https://doi.org/10.1002/2013JD021056).
 - Roberts, Y., Pilewskie, P., B.C. Kindel, **Feldman, D.R.**, W.D. Collins, (2013), Quantitative Comparison of the Variability in Observed and Simulated Shortwave Reflectance, *Aerosol Chemistry and Physics*, **13**, 3133-3147, doi:[10.5194/acp-13-3133-2013](https://doi.org/10.5194/acp-13-3133-2013).
 - Coleman, D.M., and **D.R. Feldman**, (2013), Porting Existing Radiation Code for GPU Acceleration. *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*, **99**, 1-6, doi:[10.1109/JSTARS.2013.2247379](https://doi.org/10.1109/JSTARS.2013.2247379).
 - **Feldman, D.R.**, D.M. Coleman, W.D. Collins, (2013), On the Usage of Spectral and Broadband Satellite Instrument Measurements to Differentiate Climate Models with Different Low-Cloud Feedback Strengths. *Journal of Climate*, **26**(17), 6561-6574, doi:[10.1175/JCLI-D-12-00378.1](https://doi.org/10.1175/JCLI-D-12-00378.1).
 - Wielicki, B.A., D.F. Young, M.G. Mlynczak, K.J. Thome, S. Leroy, J. Corliss, J.G. Anderson, C.O. Ao, R. Bantges, F. Best, K. Bowman, H. Brindley, J.J. Butler, W. Collins, J.A. Dykema, D.R. Doelling, **D.R. Feldman**, N. Fox, X. Huang, R. Holz, Y. Huang, Z. Jin, D. Jennings, D.G. Johnson, K. Jucks, S. Kato, D.B. Kirk-Davidoff, R. Knuteson, G. Kopp, D.P. Kratz, X. Liu, C. Lukashin, A.J. Manucci, N. Phojanamongkolkij, P. Pilewskie, V. Ramaswamy, H. Revercomb, J. Rice, C.M. Roithmayr, F. Rose, S. Sandford, E.L. Shirley, W.L. Smith Sr., B. Soden, P.W. Speth, W. Sun, P.C. Taylor, D. Tobin, X. Xiong. (2013), Achieving Climate Change Absolute Accuracy in Orbit, *Bulletin of the American Meteorological Society*, **94**, 1519–1539, doi:[10.1175/BAMS-D-12-00149.1](https://doi.org/10.1175/BAMS-D-12-00149.1).
 - **Feldman, D. R.**, C. A. Algieri, W. D. Collins, Y. L. Roberts, and P. A. Pilewskie (2011), Simulation studies for the detection of changes in broadband albedo and shortwave nadir reflectance spectra under a climate change scenario, *Journal of Geophysical Research-Atmospheres*, **116**, D24103, doi:[10.1029/2011JD016407](https://doi.org/10.1029/2011JD016407).
 - **Feldman, D. R.**, C. A. Algieri, J. R. Ong, and W. D. Collins (2011), CLARREO shortwave observing system simulation experiments of the twenty-first century: Simulator design and implementation, *Journal of Geophysical Research-Atmospheres*, **116**, D10107, doi:[10.1029/2010JD015350](https://doi.org/10.1029/2010JD015350).
 - **Feldman, D.R.**, K.N. Liou., T.S. L'Ecuyer, Y.L. Yung, (2008), Remote Sensing of Tropical Tropopause Layer Radiation Balance Using A-Train Measurements, *Journal of Geophysical Research-Atmospheres*, **113**, D21113, doi:[10.1029/2008JD010158](https://doi.org/10.1029/2008JD010158).
 - **Feldman D. R.**, K. N. Liou, R. L. Shia, Y. L. Yung (2008), On the information content of the thermal infrared cooling rate profile from satellite instrument measurements, *Journal of Geophysical Research-Atmospheres*, **113**, D11118, doi:[10.1029/2007JD009041](https://doi.org/10.1029/2007JD009041).
 - Su, H., J.H. Jiang, Y. Gu, J.D. Neelin, B.H. Kahn, **D.R. Feldman**, Y.L. Yung, J.W. Waters, N.J. Livesey, M.L. Santee (2008), Variations of tropical upper tropospheric clouds with sea surface temperature and implications for radiative effects, *Journal of Geophysical Research-Atmospheres*, **113**, D10211, doi:[10.1029/2007JD009624](https://doi.org/10.1029/2007JD009624).
 - Li, L., A. P. Ingersoll, X. Jiang, **D.R. Feldman**, and Y. L. Yung (2007), Lorenz energy cycle of the global atmosphere based on reanalysis datasets, *Geophysical Research*

Letters, 34, L16813, doi:[10.1029/2007GL029985](https://doi.org/10.1029/2007GL029985).

- Guo, X., V. Natraj, **D.R. Feldman**, R.J.D. Spurr, R.L. Shia, S.P. Sander, Y.L. Yung (2007), Retrieval of ozone profile from ground-based measurements with polarization: A synthetic study, *Journal of Quantitative Spectroscopy and Radiative Transfer*, **103**(1), 175-192, doi:[10.1016/j.jqsrt.2006.05.008](https://doi.org/10.1016/j.jqsrt.2006.05.008).
- **Feldman, D. R.**, K. N. Liou, Y. L. Yung, D. C. Tobin, and A. Berk (2006), Direct retrieval of stratospheric CO₂ infrared cooling rate profiles from AIRS data, *Geophysical Research Letters*, **33**, L11803, doi:[10.1029/2005GL024680](https://doi.org/10.1029/2005GL024680).

CURRENT AND PENDING FUNDING

- NASA
 - ROSES Atmospheric Composition: Spectral Climate Signal (Current, PI).
 - ROSES Atmospheric Composition: Spectral Climate Signal (Current, Collaborator).
 - ROSES CLARREO Science Definition Team (Current, Co-I).
 - ROSES DSCOVRE Earth Science Algorithms (Current, Co-I).
 - ROSES Advancing Collaborative Connections for Earth System Science (Pending, Co-I)
- NSF
 - EAGER Meteoritic Atmospheric Profiling (Current, Collaborator)
- DoE
 - Atmospheric System Research (ASR) Science Focus Area (SFA) (Current, Senior Personnel).
 - Office of Science, SciDAC/Climate Variability and Change RFMIP (Current, Co-I).
 - Office of Science, SciDAC/Climate Variability and Change Infrared Radiation (Current, Co-I).

PUBLIC PRESENTATIONS

- **Feldman, D.R.**, W.D. Collins, M.S. Torn, P.J. Gero, E.J. Mlawer, T.R. Shippert, (2015), Observational Determination of Surface Radiative Forcing by CO₂ and CH₄, Our Common Future Under Climate Change, Paris, FR, 7-10 Jul.
- Collins, W.D., **D.R. Feldman**, M.S. Torn, P.J. Gero, E.J. Mlawer, T.R. Shippert, (2015) Observational Determination of Surface Radiative Forcing by the Major Anthropogenic GHGs, International Union of Geodesy and Geophysics, Prague, CZ, 22 Jun. – 2 Jul.
- Kuo, C., **D.R. Feldman**, R. Bantges, H. Brindley, J. Murray, J. Pickering, P. Yang, M. Flanner, X. Huang, (2015) Modeling LW Radiation Exchange Between Polar Surface and Clouds, CESM Conference, Breckenridge, CO, Jun. 15-18.
- **Feldman, D.R.**, Y.L. Roberts, J.L. Paige, Z.M. Subin, Y. Liu, G. Pau, W.D. Collins, (2015) Simulating Hyperspectral Satellite Instrument Measurements in Pursuit of an Observational Constraint for Low-Cloud Feedbacks, CFMIP Meeting, Monterey, CA 8-11 Jun.
- **Feldman, D.R.**, W.D. Collins, P.J. Gero, D.D. Turner, S. Biraud, E.J. Mlawer, M.S. Torn, (2015), Radiative Surface Forcing from CH₄ at the North Slope of Alaska and Southern Great Plains Sites, Atmospheric Systems Research (ASR) Annual Science Team Meeting, Vienna, Va, 16-19 Mar. (Invited)

- **Feldman, D.R.**, (2015) The Science Behind CO₂ and Climate Change, EPA Region 4 Presentation, Atlanta, GA, 5 Mar. (Invited)
- **Feldman, D.R.**, W.D.Collins, X. Huang, X. Chen, V. Walden (2015) The Potential for a Positive Feedback from Far-Infrared Surface Emissivity. February 10, Texas A&M University (invited).
- **Feldman, D.R.**, W.D.Collins, X. Huang, X. Chen, V. Walden (2014) Far-Infrared Surface Emissivity Impacts on Climate and the Potential for a Positive Feedback, Abstract A42E-08 presented at 2014 Fall Meeting, AGU, San Francisco, CA 15-19 Dec.
- Collins, W.D., **D.R. Feldman**, D.D. Turner (2014) Surface Forcing from CH₄ at the North Slope of Alaska and Southern Great Plains Sites, Abstract A34C-06 presented at 2014 Fall Meeting, AGU, San Francisco, CA 15-19 Dec.
- **Feldman, D.R.**, R. Pincus, W.D. Collins, V. Ramaswamy, D. Paynter, E.J. Mlawer, P. Forster, (2014) Diagnostics from the Radiative Forcing Model Intercomparison Project, 13th AEROCOM Workshop, Steamboat Springs, CO, 30 Sep – 2 Oct.
- **Feldman, D.R.**, W. Collins, X. Huang (2014), Far-Infrared Surface Emissivity: An Unconstrained Property that Impacts Atmospheric Radiation and Climate, AMS 14th Conference on Atmospheric Radiation, Boston, MA, 7-11 Jul.
- Collins, W.D., **D.R. Feldman**, M.S. Torn, P.J. Gero, (2014), Direct Measurements of Surface Forcing of Carbon Dioxide from 2000 to 2010, AMS 14th Conference on Atmospheric Radiation, Boston, MA, 7-11 Jul.
- **Feldman, D.R.**, M.S. Torn, W.D. Collins, P.J. Gero, D.D. Turner, (2014), Observations Surface Forcing from WMGHGs at the ARM Southern Great Plains and North Slope of Alaska sites, Atmospheric Systems Research (ASR) Annual Science Team Meeting, Potomoc, MD, 10-13 Mar.
- **Feldman, D.R.**, W.D. Collins, P.J. Gero, E.J. Mlawer, M.G. Mlynczak, (2014), CO₂ Absorption Spectroscopy and Climate Change, American Physical Society 2014 March Meeting, Denver, CO, 3-7 Mar.
- Paige, J.L., **D.R. Feldman** (2013) An Assessment of Arctic Cloud-Albedo Feedbacks in the CMIP5 Archive and Prospects for Satellite Instrument Constraint, Abstract A21B-0032 presented at 2013 Fall Meeting, AGU, San Francisco, CA 9-13 Dec.
- Roberts, Y.L., P.C. Taylor, C. Lukashin, **D.R. Feldman**, P. Pilewskie, W.D. Collins, Climate Model Validation Using Spectrally Resolved Shortwave Radiation Measurements, Abstract A43K-07 presented at 2013 Fall Meeting, AGU, San Francisco, CA 9-13 Dec.
- **Feldman, D.R.**, W.D.Collins, X. Liu (2013) Shortwave and Longwave Hyperspectral Satellite Instrument Simulations Based on High and Low Sensitivity CMIP5 Models and Applications to Existing and Planned Measurement Systems, Abstract A43K-01 presented at 2013 Fall Meeting, AGU, San Francisco, CA 9-13 Dec.
- **Feldman, D.R.**, M.S. Torn, W.D. Collins, P. Gero (2013), Measurement-Model Intercomparison of Long-Term Spectral and Broadband Infrared Measurements Trends at the ARM SGP Site, Atmospheric Systems Research (ASR) Annual Science Team Meeting, Potomoc MD, 17-21 Mar.
- **Feldman, D.R.**, W.D. Collins (2013) Pan-Spectral Signatures of Climate Change and Prospects for Observational Constraints, 93rd Annual American Meteorological Society, Austin TX, 6-10 Jan.
- **Feldman, D.R.**, W.D. Collins (2012), Characteristics of Observing Systems that Differentiate Climate Models According to Their Low-Cloud Feedback Strengths, Abstract A21I-07 presented at 2012 Fall Meeting, AGU, San Francisco, CA 3-7 Dec.
- **Feldman, D.R.**, W.D. Collins (2011), Pan-Spectral Signatures of Climate Change and

Prospects for Observational Constraints, EOS Transactions AGU, 92(52), Fall Meeting Supplemental, Abstract GC11B-0910.

- **Feldman, D.R.**, X. Huang, K.N. Liou, Y.L. Yung, (2011) Atmospheric Cooling in the Far-Infrared, Far Infrared Workshop, Madison, WI.
- Collins, W.D., **D.R. Feldman** (2010), Climate Change Time-to-Detection Simulations using IPCC Models for Shortwave Forcings and Feedbacks, EOS Transactions AGU, 91(52), Fall Meeting Supplemental, Abstract GC53C-04.
- **Feldman, D.R.**, W.D. Collins (2010), Spectral Forcing and Feedback Signals in IPCC Simulations: Simulations of Next-Generation Observing Systems, EOS Transactions AGU, 91(52), Fall Meeting Supplemental, Abstract GC41B-0896.
- **Feldman, D.R.**, W.D. Collins, et al (2010), Observational System Simulation Experiments of CLARREO Shortwave Reflectance Spectra, 11th International Meeting on Statistical Climatology, Edinburgh, UK.
- **Feldman, D.R.**, W.D. Collins, et al (2010), The Earth's Reflected Shortwave Spectrum: Present and Future, 13th American Meteorological Conference on Atmospheric Radiation and Cloud Physics, Portland, Oregon.
- **Feldman, D.R.**, W.D. Collins (2009), Detecting Aerosols and Greenhouse Gases Forcings using Shortwave CLARREO Spectra, EOS Transactions AGU, 90(52), Fall Meeting Supplemental, Abstract GC51B-07.
- Collins, W.D., **D.R. Feldman**, (2009), Detecting Land Surface and Cloud Feedbacks using Shortwave CLARREO Spectra, EOS Transactions AGU, 90(52), Fall Meeting Supplemental, Abstract GC51B-08.
- **Feldman, D.R.**, W.D. Collins (2008), CLARREO Shortwave Observing System Simulation Experiment to Detect Forcing and Feedback, EOS Transactions AGU, 89(53), Fall Meeting Supplemental, Abstract GC23A-0740.
- **Feldman, D.R.**, K.N. Liou, Y.L. Yung, D. Johnson, M. Mlynyczak (2007), Determination of atmospheric temperature, water vapor, and heating rates from mid- and far- infrared hyperspectral measurements, EOS Transactions AGU, 88(52), Fall Meeting Supplemental, Abstract GC34A-02.
- **Feldman, D.R.**, K.N. Liou, Y.L. Yung (2007), Remote Sensing of TTL Radiation Balance, 14th American Meteorological Conference on the Middle Atmosphere, Session on Recent Field Investigations of the TTL, Portland, OR.
- **Feldman, D.R.**, K.N. Liou, Y.L. Yung (2006), Validation of a Direct Cooling Rate Retrieval Method Using AIRS and TES Data, EOS Transactions AGU, 87(52), Fall Meeting Supplemental, Abstract A13B-0891.
- **Feldman, D.R.**, L. Kuai, V. Natraj, Y.L. Yung (2006), Introductory Tools for Radiative Transfer Models, EOS Transactions AGU, 87(52), Fall Meeting Supplemental, Abstract ED43B-0939.
- **Feldman, D.R.**, K.N. Liou, Y.L. Yung, D. Tobin, L. Berk (2005), Direct Retrieval of Radiative Flux-Divergence and Radiative Forcing from Satellite Spectral Measurements, EOS Transactions AGU, 86(52), Fall Meeting Supplemental, Abstract A43B-0084.

AWARDS

- NASA Reid Award for Best Scientific Paper, 2015.
- NASA Lawrence Award for Best Earth Science Paper, 2014.
- LBNL Earth Sciences Division Early Career Award Recipient, 2012-2014.
- NASA Group Achievement Award, CLARREO Mission Concept Team, 2012.
- Dissertation Initiative for Climate Change Research Symposium Alumnus, 2010.

- NASA Distinguished Group Award for Atmospheric Infrared Sounder, 2009.
- Caltech-Y Lisa Guernsey Community Service Award, 2007.
- NASA Earth Systems Science Fellow 2005-2008.
- MIT CEE Department Richard Lee Russel Award for Continued Graduate Study, 2002.
- Malcom G. Kispert Award for Distinguished Scholar-Athlete, 2002.
- MIT Straight-T Award, 2001-2002.
- NCAA Division III Indoor Track All-American (5000 m), 2002.
- NCAA Division III Cross Country All-American, 2001.
- High School Valedictorian, 1998.
- Advanced Placement Scholar with Distinction, 1998.
- National Merit Scholarship Semifinalist, 1998.

PROFESSIONAL AFFILIATIONS

- CLimate Absolute Radiance and Refractivity Observatory Science Definition Team Member 2008-Present.
- AIRS Science Team Contributor 2004-2008.
- Orbiting Carbon Observatory Science Team Contributor 2004-2006.
- American Geophysical Union, 2004-Present.

TEACHING AND SERVICE

- United National Environment Assessment Global Environment Outlook (GEO) Global Contributor on Climate Sensitivity.
- Guest Speaker at 5th Grade Science Class at the Warm Springs Elementary School, Fremont, CA, May 2015.
- Reviewer for NSF Graduate Student Fellowship Program, 2013-2015.
- Peer reviewer for Proceedings of the National Academy of Sciences, Journal of Climate, Journal of Geophysical Research Atmospheres, Geophysical Research Letters, IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing, the Remote Sensing journal, Journal of Quantitative Spectroscopy and Radiative Transfer.
- Graduate Student Qualifying Exam Committee Member, UC-Davis, 2014.
- Mentor, Science Undergraduate Laboratory Internship, 2011-Present.
- Reviewer of Proposals for the Department of Energy Terrestrial Ecosystem Science Program, NASA Data for Operation and Assessment, the Natural Sciences and Engineering Research Council of Canada, and the Swiss Supercomputing Centre.
- Reviewer for American Geophysical Union Outstanding Student Paper Award, 2011-Present.
- Reviewer of Applicants for NSF-sponsored Dissertation Initiative for Climate Change Research, 2011-Present.
- Reviewer of Applicants for Berkeley Laboratory Internships for Precollegiate Scholars, 2012.
- Guest Lecturer, Special Topics in Physical Geography: Climates of the World, University of California-Berkeley, 2012-Present.
- AGU Session Coordinator, Fall Meeting 2011.
- Guest Lecturer, Atmospheric Physics and Dynamics, University of California-Berkeley, 2010, 2013.
- Volunteer researcher, exploring economic and environmental barriers to renewable energy adoption, Division of Ratepayer Advocates, California Public Utilities Commission, 2009.
- Guest Lecturer and Teaching Assistant, Atmospheric Radiation, Caltech, 2006-2007.

VOLUNTEERING

- Volunteer judge for the Alameda County High School Science Fair, 2013-2014.
- First Lego League volunteer coach, 2009-2010.
- Caltech Y volunteer, 2002-2008.
- President, Caltech Environmental Task Force, 2003-2007.
 - Campus-wide Earth Day celebration coordinator: 2004-2007.
- Member, MIT SAVE environmental club, 1999-2002.
- Volunteer, Amigos de las Americas, 1996-1997.