

## Curriculum Vitae

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### Education

B.S., Meteorology, Pennsylvania State University, 1983  
M.S., Atmospheric Science, University of Arizona, 1986  
Ph.D., Atmospheric Science, University of Arizona, 1989

### Professional Experience

Professor, University of Colorado, Laboratory for Atmospheric and Space Physics, Department of Atmospheric and Oceanic Science, 2009-present  
Associate Professor, University of Colorado, Laboratory for Atmospheric and Space Physics, Department of Atmospheric and Oceanic Science, 2004-2009  
Radiation Group Leader, Atmospheric Physics Branch, NASA Ames Research Center, 1994-2004  
Lecturer, San Jose State University, Department of Meteorology, 2000-2003  
Research Scientist, Atmospheric Physics Branch, NASA Ames Research Center, 1989-1994  
Research Assistant, Institute of Atmospheric Physics, University of Arizona, 1983-1989

### Professional Activities

Secretary of the IAMAS International Radiation Commission (IRC), 2012-present  
Member, Committee on *The Effects of Solar Variability on Earth's Climate: A Workshop, Space Studies Research Board*, National Research Council, 2011-2012  
Principal Investigator, Joint Polar Satellite System (JPSS) Total and Spectral Solar Irradiance Sensor, 2005-present  
Director, LASP/NASA Goddard Sun-Climate Research Center, 2010-present  
Member, NASA Living With a Star Targeted Research & Technology Program Steering Committee, 2011-present  
Member, IAMAS International Radiation Commission (IRC), 2009-present  
Member, Climate Absolute Radiance and Refractivity Observatory Decadal Survey Mission Science Working Group, 2008-present  
Member, Aerosol, Cloud, and Ecosystem (ACE) Decadal Survey Mission Science Working Group, 2008-present  
Member of the European Fleet for Airborne Research (EUFAR), 2006-present.  
Member, National Research Council Space Studies Board (SSB), Committee on Large Optical Systems in Space, 2005-2007  
Member, Steering Committee, Achieving Satellite Instrument Calibration for Climate Change, ASIC3, 2005-2007

Member, Review Panel for the Marine Meteorology Division of Naval Research Laboratory Monterey, Science and Technology Program, 2006  
 Member, Science Program Organizers, SORCE Science Meeting, 2003, 2006  
 Member, Solar Radiation and Climate Experiment (SORCE), 1999-present  
 Member, Triana/DSCOVR Science Team, 1998-present  
 Member, NASA New Investigator Program NRA review panel, 2004, 2012.  
 Member, NASA Radiation Science Program NRA review panel, 2003  
 Mentor, ARM Shortwave Spectrometer, 2001-present  
 Member, Atmospheric Radiation Measurement Program (ARM) Science Team, 1997-present  
 Member, The Cirrus Regional Study of Tropical Anvils and Cirrus Layers - Florida Area Cirrus Experiment (CRYSTAL-FACE) Science Team, 2001-present  
 Member, Southern African Regional Science Initiative –2000 Science Team  
 Member, Chapman Conference on Atmospheric Absorption of Solar Radiation Program Committee, 2001  
 Member, Atmospheric Radiation Measurement (ARM) Enhanced Shortwave Experiment (ARESE) II Science Team  
 Member, Total Solar Irradiance Mission Science and Technical Approach evaluation panel, 1998  
 Member, International Global Atmospheric Chemistry (IGAC), Focus on Atmospheric Aerosols, Direct Aerosol Radiative Forcing Activity, 1995-1999  
 Member, First International Satellite Cloud Climatology Program (ISCCP) Regional Experiment, Phase III (FIRE III) Science Team, 1994-2000  
 Science Team Leader, International Global Aerosol Program (IGAP), Radiative Effects of Aerosols, 1993

### **Professional Honors**

NASA Robert H. Goddard Exceptional Achievement Award, LASP TCTE Team, 2013  
 Elected Secretary of the International Radiation Commission (IRC), 2012  
 Humboldt Research Award, Alexander von Humboldt Foundation, 2011.  
 Elected to the International Radiation Commission (IRC), 2009.  
 NASA Group Achievement Award, TC4 Science Team, 2008  
 NASA Group Achievement Award, INTEX-NA Science Team, 2005  
 NASA Group Achievement Award, CRYSTAL-FACE Science Team, 2003  
 NASA Exceptional Scientific Achievement Medal, 1997  
 NASA Group Achievement Award, FIRE Phase II Science and Operations Team, 1997  
 NASA Ames Honor Award, Scientist, 1995  
 NASA Ames Outstanding Performance Award, 1990

### **Peer Reviewed Publications**

Wielicki, Bruce A., D. F. Young, M. G. Mlynczak, K. J. Thome, S. Leroy, J. Corlis, 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. Kat o, D. B. Kirk-Davidoff, R. Knuteson, G. Kopp, D. P. Krat z, X. Liu, C. Lukas hin, A. J. Mannucci, N. Phojanamongkolkij, P. Pilewskie, V. Ramaswamy, H. Revercomb, J. Rice, Y. Roberts , C. M. Roithma yr, F. Rose, S. Sandf ord, E. L. Shirley, W. L. Smith Sr., B. Soden, P. W. Speth, W. Sun, P. C. Taylor, D. Tobin, and X. Xiong, Achieving Climate Change Absolute Accuracy in Orbit. Bull. Amer. Meteor. Soc., 94, 1519–1539.

doi: <http://dx.doi.org/10.1175/BAMS-D-12-00149.1>(2013).

Werner F., H. Siebert, P. Pilewskie, T. Schmeissner, R. A. Shaw, and M. Wendisch, New airborne retrieval approach for trade wind cumulus properties under overlying cirrus, *J. Geophys. Res. Atmos.*, 118, 3634–3649, doi:10.1002/jgrd.50334 (2013).

Wen, G., R. F. Cahalan, J. D. Haigh, P. Pilewskie, L. Oreopoulos, and J. W. Harder, Reconciliation of modeled climate responses to spectral solar forcing, *J. Geophys. Res. Atmos.*, 118, 6281–6289, doi:10.1002/jgrd.50506 (2013),.

Kokhanovsky, A. A., P. McBride, K. S. Schmidt, P. Pilewskie, 2013: The determination of cloud optical thickness and effective particle size from measurements of transmitted diffuse light, *IEEE Geoscience and Remote Sensing Letters*, 10, 1512-1516 (2013).

Coddington O., P. Pilewskie, K.S. Schmidt, P.J. McBride, T. Vukicevic, Characterizing a New Surface-Based Shortwave Cloud Retrieval Technique, Based on Transmitted Radiance for Soil and Vegetated Surface Types. *Atmosphere*. 4(1):48-71 (2013). Roberts, Y. L., Pilewskie, P., Kindel, B. C., Feldman, D. R., and Collins, W. D.: Quantitative comparison of the variability in observed and simulated shortwave reflectance, *Atmos. Chem. Phys.*, 13, 3133–3147, doi:10.5194/acp-13-3133-2013 (2013)

Ermolli, I., Matthes, K., Dudok de Wit, T., Krivova, N. A., Tourpali, K., Weber, M., Unruh, Y. C., Gray, L., Langematz, U., Pilewskie, P., Rozanov, E., Schmutz, W., Shapiro, A., Solanki, S. K., Thuillier, G., and Woods, T. N.: Recent variability of the solar spectral irradiance and its impact on climate modelling, *Atmos. Chem. Phys.*, 13, 3945-3977, doi:10.5194/acp-13-3945-2013, (2013).

McBride, P. J., K. S. Schmidt, P. Pilewskie, A. Walther, A. K. Heidinger, D. E. Wolfe, C. W. Fairall, and S. Lance, CalNex cloud properties retrieved from a ship-based spectrometer and comparisons with satellite and aircraft retrieved cloud properties, *J. Geophys. Res.*, 117, D00V23, doi:10.1029/2012JD017624 (2012).

LeBlanc, S. E., K. S. Schmidt, P. Pilewskie, J. Redemann, C. Hostetler, R. Ferrare, J. Hair, J. M. Langridge, and D. A. Lack, Spectral aerosol direct radiative forcing from airborne radiative measurements during CalNex and ARCTAS, *J. Geophys. Res.*, 117, D00V20, doi:10.1029/2012JD018106 (2012).

Coddington, O. M., P. Pilewskie, and T. Vukicevic, The Shannon information content of hyperspectral shortwave cloud albedo measurements: Quantification and practical applications, *J. Geophys. Res.*, doi:10.1029/2011JD016771 (2012).

Schmidt, K. S., and P. Pilewskie, Airborne Measurements of Spectral Shortwave Radiation in Cloud and Aerosol Remote Sensing and Energy Budget Studies, in *Light Scattering Reviews*, 6, edited by A. Kokhanovsky, Springer, 336 pp. (2011).

Feldman, D. R., C. A. Algieri, W. D. Collins, Y. L. Roberts, and P. A. Pilewskie, Simulation studies for the detection of changes in broadband albedo and shortwave nadir reflectance spectra under a climate change scenario, *J. Geophys. Res.*, 116, D24103, doi:10.1029/2011JD016407 (2011).

Roberts, Y. L., P. Pilewskie, and B. C. Kindel, Evaluating the observed variability in hyperspectral Earth-reflected solar radiance, *J. Geophys. Res.*, 116, D24119, doi:10.1029/2011JD016448 (2011).

Baumgardner, D., J.L. Brenguier, A. Bucholtz, H. Coe, P. DeMott, T.J. Garrett, J.F. Gayet, M. Hermann, A. Heymsfield, A. Korolev, M. Krämer, A. Petzold, W. Strapp, P. Pilewskie, J. Taylor, C. Twohy, M. Wendisch, W. Bachalo, P. Chuang, Airborne instruments to measure atmospheric aerosol particles, clouds and radiation: A cook's tour of mature and emerging technology, *Atmospheric Research*, Volume 102, Issues 1-2, pp 10-29, ISSN 0169-8095, 10.1016/j.atmosres.2011.06.021 (2011).

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- Russell, P.B., J.M. Livingston, E.G. Dutton, R.F. Pueschel, J.A. Reagan, T.E. DeFoor, M.A. Box, D. Allen, P. Pilewskie, B.M. Herman, S.A. Kinne, and D.J. Hoffmann, Pinatubo and pre-Pinatubo optical depth spectra: Mauna Loa measurements, comparisons, inferred particle size distributions, radiative effects, and relationship to lidar data. *J. Geophys. Res.*, **98**, 22969 (1993).

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- Pilewskie, P., and F.P.J. Valero, Radiative effects of the smoke from the Kuwait oil fires. *J. Geophys. Res.*, **97**, 14541 (1992).
- Pilewskie, P., and S. Twomey, Optical remote sensing of ice in clouds. *J. of Wea. Modif.*, **24**, 80 (1992).
- Pilewskie, P., and S. Twomey, Discrimination of ice from water in clouds by optical remote sensing. *Atmos. Research*, **21**, 113 (1987).
- Pilewskie, P., and S. Twomey, Cloud phase discrimination by reflectance measurements near 1.6 and 2.2  $\mu\text{m}$ . *J. Atmos. Sci.*, **44**, 3419 (1987).
- Reagan, J.A., P.A. Pilewskie, I.C. Scott-Fleming, and B.M. Herman, Extrapolation of earth-based solar irradiance measurements to exoatmospheric levels for broad-band and selected absorption-band observations. *IEEE Trans. on Geosci. Remote Sensing*, **GE-25**, 647 (1987).

### **Selected Invited Lectures, Extended Abstracts, Conference Proceedings, and Workshop Proceedings**

- Pilewskie, P., Monitoring Earth's Climate with Shortwave Hyperspectral Reflectance, Gordon Research Conference on Radiation and Climate, Colby-Sawyer College, 8-11 July 2013.
- Pilewskie, P., TSIS: The Total and Spectral Solar Irradiance Sensor, 93rd Meeting of the American Meteorological Society, Third Conference on Transition of Research to Operations, 6-10 January 2013, Austin, TX.
- Pilewskie, P., An Overview of Historical, Current, and Planned Solar Irradiance Measurements, 4th International HEPPA Workshop, National Center for Atmospheric Research, 9-12 October 2012, Boulder, CO.
- Pilewskie, P., and T. Woods, Current and Future Measurements of Total and Spectral Solar Irradiance by NASA and NOAA, TOSCA Workshop on SSI Variability and Climate Modeling, Berlin, Germany, 14-16 May 2012.
- Pilewskie, P., Solar Spectral Irradiance and Climate, Boulder Solar Day, NCAR HOA, 18 March 2011.
- Pilewskie, P., Measurements of Solar Spectral Irradiance, International Space Studies Institute, Observing and modeling Earth's energy flows, Berne, 10-14 Jan., 2011. Pilewskie, P. (Invited), G. Kopp, Y. Roberts, B. Kindel, N. Shanbhag, The Earth-Reflected Solar Spectral Radiance for Climate Benchmarking, Hyperspectral Imaging and Sensing of the Environment, OSA Optics & Photonics Congress, Vancouver, BC, Canada, April 26-30, 2009.
- Pilewskie, P (Invited), Input to the Climate System: A New Understanding of Solar Irradiance from the Solar Radiation and Climate Experiment, International Radiation Symposium, 3-8 August 2008, Foz do Iguaçu, Brazil.
- Pilewskie, P., S. Schmidt, O. Coddington, B. Kindel, P. McBride, (Invited) Advances in quantifying the spectral radiative properties of clouds and aerosols from airborne field studies, IEEE International Geoscience & Remote Sensing Symposium, July 6-11, 2008, Boston.
- Pilewskie, P, B. Kindel, K.S. Schmidt, (Invited) The Impact of Black Carbon on Cloud Radiative Forcing, American Geophysical Union Fall Meeting, 10–14 December 2007, San Francisco.
- Pilewskie, P., K.S. Schmidt, O. Coddington, R. Bergstrom, J. Redemann, (Invited) Advances in Quantifying the Radiative Effects of Aerosol Particles on Climate from Airborne Field Studies, American Geophysical Union Fall Meeting, 10–14 December 2007, San Francisco.



- Pilewskie, P., (Invited) Hyperspectral Solar Spectral Measurements and Applications, The Fourier Transform Spectroscopy and Hyperspectral Imaging and Sounding of the Environment Topical Meeting, February 12–15, 2007, Santa Fe, NM.
- Pilewskie, P., J. Lean, and T. Woods, SORCE Solar Spectral Irradiance and Climate Modeling Workshop, *The Earth Observer*, **18**, 5 (2006).
- Pilewskie, P., (Invited) Validation of satellite cloud remote sensing via airborne spectral irradiance, International EUFAR Workshop: Combining Upcoming Satellite Missions and Aircraft Activities: Future Challenges for the EUFAR Fleet, Paris, 13-15 September 2006
- Lean, J., Pilewskie, T. Woods, and V. George, SORCE 4th Annual Science Team Meeting, *The Earth Observer*, **18**, 6 (2006).
- Pilewskie, P., Solar Radiation, Clouds, and Climate: A Multi-Spectral View from the Surface to the Top of the Atmosphere, (Invited Seminar), University of Arizona, November 2006.
- Pilewskie, P., SORCE, Glory, TSIS and the Importance of Solar Spectral Variability, Sun-Climate Center Seminar Series, (Invited Seminar), NASA Goddard Space Flight Center, May, 2006.
- Pilewskie, P., Solar Radiation, Clouds, and Climate: A Multi-Spectral View from Airborne and Satellite Observations, (Invited Seminar), Texas A&M University, October 2005.
- Lean, J., G. Kopp, M. Baldwin, G. Rottman, D. Rind, P. Pilewskie, T. Woods, and R. Cahalan, SORCE Science Meeting Addresses “Decadal Variability in the Sun and Climate.” *The Earth Observer*, **16**, 6 (2004).
- Rottman, G., J. Lean, P. Pilewskie, and R. Cahalan, The Solar Radiation and Climate Experiment (SORCE) 2003 Science Team Meeting. *The Earth Observer*, **16**, 1 (2004).
- Pilewskie, P., Coordinated airborne field campaigns (Invited Lecture), Graduate Student Summer Program in Earth System Science, the Goddard Earth Sciences and Technology Center, Greenbelt, MD. 2003
- Pilewskie, P., and M. Rabbette, A moderate resolution view of the spectral absorption of clouds (Invited Presentation), Chapman Conference on Atmospheric Absorption of Solar Radiation, Estes Park, CO. 2001.
- Pilewskie, P., Moderate Resolution solar spectrometry in the clear and cloudy atmosphere (Invited Presentation), Gordon Research Conference on Solar Radiation & Climate. Plymouth, NH. 1998.
- Pilewskie, P., and S. Twomey, Cloud properties derived from surface-based near-infrared spectral transmission. In *IRS '96: Current Problems in Atmospheric Radiation*. W.L. Smith and K. Stamnes, Ed. A. Deepak Publishing. 1997.
- Pilewskie, P., A. F.H. Goetz, D. A. Beal, and R. W. Bergstrom, Surface measurements of solar spectral radiative flux in the cloud-free atmosphere. Extended abstracts, Amer. Meteor. Soc. Ninth Conf. on Atmospheric Radiation. Long Beach, CA. Feb. 2-7, 1997.
- Pilewskie, P., Radiative Properties of Aerosols in *IGAP: A Plan For An International Global Aerosol Program*. P. Hobbs, Ed. 1994.
- Pilewskie, P., and Francisco P.J. Valero, Ground-Based Remote Sensing During FIRE IFO II. Extended abstracts, FIRE Cirrus Science Conference, Breckenridge, CO. June 14-17, 1993.
- Pilewskie P., Ground-based remote sensing of particle size in ice clouds, Extended abstracts, Amer. Meteor. Soc. Seventh Conf. on Atmospheric Radiation. San Francisco. 1990.
- Pilewskie P., Radiative Properties of Liquid Water and Ice Clouds (Invited Presentation), Annual Meeting of the Optical Society of America. Boston, MA. 1990.
- Pilewskie, P., and S. Twomey, 1986: Cloud spectral reflectance in the near-infrared. Extended abstracts, Amer. Meteor. Soc. Sixth Conf. on Atmospheric Radiation. Williamsburg, VA. 1986.

## Contributions to National Academy of Science Decadal Strategy for Solar and Space Physics

Pilewskie, P., G. Kopp, E. Richard, R. Cahalan, and W. F. Denig, The Total and Spectral Solar Irradiance Sensor: Response to the National Academy of Science Decadal Strategy for Solar and Space Physics (2010).

## Contributions to National Academy of Science Decadal Survey on Earth Observations

Hansen, J.E., M. I. Mishchenko, L.D. Travis, R. Burg, Y.J. Kaufman, B. Cairns, G. Rottman, G. Kopp, P. Pilewskie, and V. Martins: NASA Glory Mission (2005)

Wielicki, B., K. Priestley, P. Pilewskie, J. Harder, F. Valero, J. Rice, J. Anderson, M. Mlynczak, J. Harries, W. Wiscombe, D. Siegel, C. McClain, T. Stone, T. Karl, J. Bates, K. Trenberth, and B. Barkstrom: Climate Calibration Observatory: NIST in Orbit (2005)

## Field Experiments (*participated on aircraft and/or ground-based platforms*)

Kuwait Oil Fire Experiment	1991
Pinatubo Airborne Mission	1991
FIRE II Cirrus Experiment	1991
Arctic Airborne Stratospheric Experiment II (AASE)	1992
Atlantic Stratocumulus Transition Experiment (ASTEX)	1992
Pilot Radiation Observation Experiment (PROBE)	1992
Tropical Ocean Global Atmosphere-Coupled Ocean Atmosphere Response Experiment (TOGA-COARE)	1993
Central Equatorial Pacific Experiment (CEPEX)	1993
Monterey Area Ship Tracks (MAST)	1994
Sulfates, Clouds, and Radiation-California (SCAR-C)	1994
The Arizona Program, <b>Principal Investigator</b>	1995
Subsonic Aircraft: Contrail and Cloud Effects Special Study (SUCCESS), <b>Principal Investigator</b>	1996
ARM Shortwave Intensive Operating Period, <b>Principal Investigator</b>	1997
FIRE III Arctic Cloud Experiment, <b>Principal Investigator</b>	1998
ARM Unmanned Aerospace Vehicle Kauai Experiment, <b>Principal Investigator</b>	1998
ARM Enhanced Shortwave Experiment (ARESE) II, <b>Principal Investigator</b>	2000
Puerto Rico Dust Experiment, <b>Principal Investigator</b>	2000
Southern African Regional Science Initiative -2000, <b>Principal Investigator</b>	2000
Aerosol Characterization Experiment – Asia, <b>Principal Investigator</b>	2001
The Cirrus Regional Study of Tropical Anvils and Cirrus Layers - Florida Area Cirrus Experiment, <b>Principal Investigator</b>	2002
ARM Unmanned Aerospace Vehicle Experiment, <b>Principal Investigator</b>	2002
ARM Aerosol Intensive Operating Period, <b>Principal Investigator</b>	2003
New England Air Quality Study, <b>Principal Investigator</b>	2004
DOE ARM Mixed Phase Arctic Cloud Experiment, <b>Principal Investigator</b>	2004
Intercontinental Chemical Transport Experiment, Megacity Initiative: Local and Global Research Observations, <b>Principal Investigator</b>	2006
Gulf of Mexico Atmospheric Composition and Climate Study, <b>PI</b>	2006
PACific Dust EXperiment (PACDEX), <b>Principal Investigator</b>	2007

Tropical Composition, Cloud and Climate Coupling (TC4) Experiment, <b>PI</b>	2007
Aerosol, Radiation, and Cloud Processes affecting Arctic Climate (ARCPAC), <b>PI</b>	2008
International Chemistry Experiment in the Arctic Lower Troposphere(ICEALOT), <b>PI</b>	2008
Research at the Nexus of Air Quality and Climate Change (CalNex), <b>PI</b>	2010
Airborne Tropical Tropopause Experiment (ATTREX), <b>PI</b>	2011
Airborne Tropical Tropopause Experiment (ATTREX), <b>PI</b>	2013

### **Current Funded Proposals**

Project Title: Total Solar Irradiance Sensor (TSIS)  
 Involvement: Principal-Investigator  
 Funding Agency: NASA  
 Period of Performance: 10/1/2008-9/30/2016  
 Total award: \$46,000,000

Project Title: Airborne Tropical Tropopause Experiment (ATTREX)  
 Involvement: Flight Instrument Principal-Investigator  
 Funding Agency: NASA Ames  
 Period of Performance: 6/1/2010 - 5/31/2015  
 Total award: \$386,365

Project Title: CLARREO Science Definition Team  
 Involvement: Principal-Investigator  
 Funding Agency: NASA  
 Period of Performance: 3/1/2011-2/28/2015  
 Total award: \$351,000

Project Title: Development of a Total Solar Irradiance Fundamental Climate Data Record  
 Involvement: Principal-Investigator  
 Funding Agency: NOAA National Climatic Data Center  
 Period of Performance: 12/1/13-11/30/15  
 Total award: \$ 149,817

Project Title: Implementation of Shortwave Spectral Irradiance Measurements On the NEON Airborne Observation Platform (AOP) For Atmospheric Correction  
 Involvement: Principal-Investigator  
 Funding Agency: National Ecological Observatory Network  
 Period of Performance: 10/25/13-12/31/15  
 Total award: \$217,854.00

### **University Courses Taught**

University of Colorado, Department of Atmospheric and Oceanic Science, ATOC/ASTR 5540: Mathematical Methods, Fall 2013  
 University of Colorado, Department of Atmospheric and Oceanic Science, ATOC 6020: Atmospheric Radiation Seminar, Fall 2013

University of Colorado, Department of Atmospheric and Oceanic Science, ATOC 6020:  
Atmospheric Radiation Seminar, Fall 2013

University of Colorado, Department of Atmospheric and Oceanic Science, ATOC 5560: Radiative  
Processes in Planetary Atmospheres, Fall 2012

University of Colorado, Department of Atmospheric and Oceanic Science, ATOC 6020:  
Atmospheric Radiation Seminar, Fall 2012

University of Colorado, Department of Atmospheric and Oceanic Science, ATOC 7500-003: TPC-  
INSTRUMENT LAB, Spring 2011

University of Colorado, Department of Atmospheric and Oceanic Science, ATOC 5560: Radiative  
Processes in Planetary Atmospheres, Spring 2010

University of Colorado, Department of Atmospheric and Oceanic Science, ATOC 6020:  
Atmospheric Radiation Seminar, Fall 2010

University of Colorado, Department of Atmospheric and Oceanic Science, ATOC 6020:  
Atmospheric Radiation Seminar, Spring 2010

University of Colorado, Department of Atmospheric and Oceanic Science, ATOC 4900-950,  
Independent Study, Summer 2009

University of Colorado, Department of Atmospheric and Oceanic Science, ATOC 7500-003: TPC-  
INSTRUMENT LAB, Spring 2009

University of Colorado, Department of Atmospheric and Oceanic Science, ATOC 6020:  
Atmospheric Radiation Seminar, Fall 2009

University of Colorado, Department of Atmospheric and Oceanic Science, ATOC 6020:  
Atmospheric Radiation Seminar, Spring 2009

University of Colorado, Department of Atmospheric and Oceanic Science, ATOC 6020:  
Atmospheric Radiation Seminar, Fall 2008

University of Colorado, Department of Atmospheric and Oceanic Science, ATOC 6020:  
Atmospheric Radiation Seminar, Spring 2008

University of Colorado, Department of Atmospheric and Oceanic Science, ATOC 5560: Radiative  
Processes in Planetary Atmospheres, Fall 2007

University of Colorado, Department of Atmospheric and Oceanic Science, ATOC 6020:  
Atmospheric Radiation Seminar, Fall 2007

University of Colorado, Department of Atmospheric and Oceanic Science, ATOC 7500: Instrument  
Lab, Spring 2007

University of Colorado, Department of Atmospheric and Oceanic Science, ATOC 1050: Weather  
and the Atmosphere. Spring 2007

University of Colorado, Program in Atmospheric and Oceanic Science, ATOC 5235: Introduction  
to Atmospheric Radiation and Remote Sensing. Spring 2006

University of Colorado, Program in Atmospheric and Oceanic Science, ATOC 6020-005: Remote  
Sensing Seminar. Fall 2005

University of Colorado, Program in Atmospheric and Oceanic Science, ATOC 5560: Radiative  
Processes in Planetary Atmospheres. Fall 2004

San Jose State University, Department of Meteorology, Meteorology 163: Meteorological  
Instruments (lecture and lab). Spring 2003

San Jose State University, Department of Meteorology. Meteorology 10: Weather and Climate. Fall  
2001

San Jose State University, Department of Meteorology. Meteorology 10: Weather and Climate.  
Spring 2001

San Jose State University, Department of Meteorology. Meteorology 10: Weather and Climate.  
Spring 2000

Guest lecturer (one lecture/quarter), Santa Clara University, Physics Department: Introduction to Space Physics, 1996-2000

### **Advisor to Graduate Students**

Odele Hofmann, ATOC Ph.D. candidate, 2005-2009  
Bruce Kindel, ATOC Ph.D. candidate, 2005-2010  
Patrick McBride, ATOC Ph.D. candidate, 2006-2012  
Brian Hinde, AERO, 2006-2007 (M.E.)  
Yolanda Roberts ATOC Ph.D. candidate, 2008-2012  
Neha Shanbhag, CS M.S. candidate, 2007-2009.  
Sam LeBlanc, ATOC Ph.D., 2009-present.  
Andrew Kren, ATOC Ph.D., 2010-2013.  
Shi Song, ATOC Ph.D., 2010-present.  
Timothy Reid, ATOC Ph.D., 2010-2013.  
Tomoko Koyama, ATOC Ph.D., 2010-present.

### **Exam Committees**

Comps II: Rebecca Matichuk, ATOC, 2004  
Comps II: Odele Hoffman, ATOC, 2005  
Comps II: Heather Tollerud, APS, 2005  
Comps II: Matthew Shupe, ATOC, 2006  
Comps III: Samik Dasgupta, 2006  
Comps II: Jonathan Fentzke, AERO, 2007.  
Comps II: Charles Bardeen, ATOC, 2007.  
Comps II: Rosie Polkinghorne, ATOC, 2007.  
Comps II: Christa Hasenkopf, ATOC, 2007.  
Comps II: Scott Ellis, ATOC, 2007.  
Comps II: Bruce Kindel, ATOC, 2007  
Comps II: Lin Su, ATOC, 2007.  
Comps II: Patrick McBride, ATOC, 2008.  
Comps II: Wei Yu, ATOC, 2008.  
Comps II: Dave Porter, ATOC, 2008.  
Comps II: Carl Schmitt, ATOC, 2008.  
Comps II: Keith Krause, ASEN, 2009  
Comps II: Cassie Wheeler, ATOC, 2009  
Comps II: Yolanda Roberts, ATOC, 2010  
Comps II: Heather Walsh, ATOC, 2010  
Comps II: Samuel Leblanc, ATOC, 2011.  
Comps II: Tomoko Koyama, ATOC, 2012.  
Comps II: Andrew Kren, ATOC, 2012.  
Comps II: Erik Larson, ATOC, 2012.  
Comps II: Shi Song, ATOC, 2013.

Dissertation Committee: Rebecca Matichuk, ATOC, 2007.  
Dissertation Committee: Matthew Shupe, ATOC, 2007.  
Dissertation Committee: Peter DeCarlo, ATOC, 2007.

Dissertation Committee: Sean Davis, ATOC, 2007.  
Dissertation Committee: Thomas Kampe, ATOC, 2008.  
Dissertation Committee: Charles Bardeen, ATOC, 2008.  
Masters Thesis Committee: Scott Landolt, ATOC, 2008.  
Dissertation Committee: Lansing Madry, ATOC, 2009.  
Dissertation Committee: Carl Schmitt, ATOC, 2009.  
Dissertation Committee: Jonathan Fentzke, ASEN, 2009.  
Dissertation Committee, Rosie Polkinghorne, ATOC, 2010.  
Dissertation Committee: Bruce Kindel, ATOC, 2010.  
Dissertation Committee, Christa Hasenkopf, ATOC, 2011.  
Dissertation Committee, Wei Yu, ATOC, 2011.  
Dissertation Committee, David Porter, ATOC, 2011.  
Dissertation Committee: Patrick McBride, ATOC, 2012.  
Dissertation Committee: Yolanda Roberts, ATOC, 2012  
Dissertation Committee: Sam Leblanc, ATOC, 2014

**Advisor in the NASA Ames Astrobiology Academy (<http://academy.arc.nasa.gov/>):**

Patrick McKenna, University of Wisconsin, 1997  
Jessica Marquez, Princeton University, 1998  
Michael D. Obland, University of Montana, 1999  
Andrew H. Hock, Colgate University, 2000  
Sam Clanton, John Hopkins University, 2001  
Kelley Atkinson, Embry-Riddle Aeronautical University, 2003

**Advisor to National Research Council Research Associates**

Dr. Maura Rabbette, Post-Doctoral Fellow, 1997-2000  
Dr. Manfred Wendisch (Institute for Tropospheric Research, Leipzig, Germany), Senior Fellow, 2003-2004

**Service Activities**

**ATOC**

2013-2014 Committees: Laboratory and facilities Committee (Chair); Admissions Committee (Chair), Course Fees Committee (chair).  
2012-2013 Committees: Laboratory and facilities Committee (Chair); Admissions Committee (Chair), B. Toon tenure review committee, Fahey tenure committee.  
2011-2012 Committees: Laboratory and facilities Committee (Chair); Course Fees committee  
2010-2011 Committees: Laboratory and facilities Committee (Chair); Course Fees committee; PRP Committee (co-Chair)  
2009-2010 Committees: Laboratory and facilities Committee (Chair); Course Fees committee; L. Avallone Promotion Committee; PRP Committee (co-Chair)  
2008-2009 Committees: Laboratory and facilities Committee (Chair); ATOC Graduate Student Advisor; Course Fees committee; C. Randall Tenure & Promotion Committee

2007-2008 Committees: Laboratory and facilities Committee (Chair); Comprehensive Exam Committee (Chair); ATOC Graduate Student Advisor; Course Fees committee; L. Avallone Tenure Review Committee

2006-2007 Committees: Admissions; Laboratory and facilities Committee (Chair); C. Randall reappointment; ATOC faculty representative for CU NRC Research Doctoral Study Committee; ATOC Graduate Student Advisor; ATOC representative for CSES Director Search Committee

2005-2006 Committees: Admissions; Comprehensive Exams, Distinguished Lecturers (Chair); ATOC Graduate Student Advisor

2004-2005 Committees: Admissions; Distinguished Lecturers (Chair)

## **LASP**

2013-2014: Executive Committee, Steve Massie Hiring Committee, chair; RA Evaluations Committee; LASP EPO Advisory Committee.

2012-2013: Executive Committee, Odele Coddington Promotion Committee, LASP EPO Advisory Committee.

2011-2012: Executive Committee, Frank Eparvier Promotion Committee (chair)

2009-2010: Executive Committee; Marty Snow Promotion Committee; Frank Eparvier Promotion Committee (chair).

2008-2009: Executive Committee.

2007-2008: Executive Committee; LASP representative for space needs within College of Arts and Sciences; Michael King Hiring Committee (chair).

## **University of Colorado**

2010: Proposal review panel, for CU Boulder's Innovative Grant Program.

2007: Proposal review panel, for CU Boulder's Innovative Grant Program.

2005-2006: Member, Boulder Faculty Assembly, Academic Affairs Committee

## **Science Community**

Member, Committee on The Effects of Solar Variability on Earth's Climate: A Workshop, Space Studies Research Board, National Research Council, 2011-2012.

Member, NASA Living With a Star Targeted Research & Technology Program Steering Committee, 2011

Member of the International Radiation Commission (IRC), 2009-present.

Member of science definition team for the NASA Climate Absolute Radiance and Refractivity Observatory (CLARREO) Decadal Survey Mission, 2007-present.

Member of science definition team for the NASA Aerosol, Clouds and Ecosystem (ACE) Decadal Survey Mission, 2007-2010.

Member of the European Fleet for Airborne Research (EUFAR), 2006-present.

Invited participant, NASA workshop to assess the potential of Earth climate science with data from the Deep Space Observatory (DSOVR; formerly Triana) satellite, May 2007.

Invited participant, National Research Council Workshop on Recovery of Climate Capabilities on NPOESS, Options to Ensure the Climate Record, June 2007.

Invited participant and co-Chair of Solar Breakout discussion, NASA CLARREO workshop, July 2007.

2005-2006: Member, National Research Council Space Studies Board (SSB), Committee on Large Optical Systems in Space.  
2005-2006: Member, Steering Committee, Achieving Satellite Instrument Calibration for Climate Change, ASIC<sup>3</sup>