

CURRICULUM VITA

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Professional Experience

- August 2005 to present. Professor of Physics and Research Physicist in the Geophysical Research Center, New Mexico Institute of Mining and Technology.
 - Courses Taught: General Physics I and II, Modern Physics, Senior Laboratory, Graduate Quantum Mechanics I and II, Physics of the Upper Atmosphere, Chemical Spectroscopy, Physics of Weather and Climate I and II, Atmospheric Remote Sensing
 - Department Chair: Physics Department, July 2000 - June 2002, August 2003 - May 2005.
- August 1998 to present. Associate Professor of Physics and Research Physicist in the Geophysical Research Center, New Mexico Institute of Mining and Technology.
- August 1994 to 1998. Assistant Professor of Physics and Research Physicist in the Geophysical Research Center, New Mexico Institute of Mining and Technology.
- September 1992 to July 1994. Postdoctoral Scientist, Advanced Study Program, National Center for Atmospheric Research.
- June 1992 to September 1992. Postdoctoral Fellow in Atmospheric Science, Division of Applied Sciences, Harvard University.
- September 1989 to January 1992. Graduate Teaching Fellow, Harvard University.
- August 1984 to April 1985. General Physics Laboratory Instructor, Palm Beach Junior College, Boca Raton, Florida.
- August 1983 to August 1988. Teaching and Research Assistant, Department of Physics, Florida Atlantic University.

Research Interests

Physics of the middle and upper atmosphere; molecular spectroscopy; infrared radiative transfer and climate; photochemistry of ozone, hydroxyl, and other reactive trace molecules; biologically-active UV radiation at the Earth's surface.

Education

- B.S., Physics, Florida Atlantic University, 1985.
- M.S., Physics, Florida Atlantic University, 1987.
- Ph.D., Earth and Planetary Physics, Harvard University 1992.

Thesis and Dissertation

- Observations of Atmospheric OH and Their Significance to Middle Atmospheric Photochemistry, M.S. Thesis, Florida Atlantic University, 1987. Co-advisors C. R. and E. B. Burnett.
- Radiative Constraints on the Energy Budget of the Atmosphere, Ph.D. Thesis, Harvard University, 1992. Thesis committee: M. B. McElroy, S. C. Wofsy, D. J. Jacob, B. F. Farrell.

Awards, Honors, and Fellowships

- Goddard Visiting Fellow in Earth Sciences, NASA Goddard Space Flight Center, 2002-2003.
- Distinguished Teaching Award, New Mexico Institute of Mining and Technology, 1997-1998.
- Alexander Host Fellowship, Harvard University, 1990 to 1992.
- Distinguished Teaching Award, Derek Bok Center for Teaching and Learning, Harvard University, 1990.
- Graduate Studies Scholarship, Phi Kappa Phi Honor Society, 1985-86.
- Physics Department Scholarship, Florida Atlantic University, 1983-85.

Professional Society Memberships

- American Meteorological Society, American Physical Society, American Geophysical Union
- Secretary/Treasurer, APS Topical Group on the Physics of Climate (2013-2015)

Publications

- Kotsakis, A, G. A. Morris, B. Lefer, J. Wonbani, A. Roy, K. Minschwaner, A. M. Thompson, and Y. Choi, Ozone production by corona discharges during a convective event in DISCOVER-AQ Houston, *Atmospheric Environment*, 161, 13-17, 2017.
- Huang, G., et al., Validation of 10-year SAO OMI Ozone Profile (PROFOZ) product using ozonesonde observations, *Atmos. Meas. Tech.*, 10, 24552475, 2017.
- Minschwaner, K., H. Su, and J. H. Jiang, The upward branch of the Brewer-Dobson circulation quantified by tropical stratospheric water vapor and carbon monoxide measurements from the Aura Microwave Limb Sounder, *J. Geophys. Res. Atmos.*, 121, 27902804, doi:10.1002/2015JD023961, 2016.
- Jiang, J. H., H. Su, C. Zhai, L. Wu, K. Minschwaner, A. M. Molod, and A. M. Tompkins, An assessment of upper troposphere and lower stratosphere water vapor in MERRA, MERRA2, and ECMWF reanalyses using Aura MLS observations, *J. Geophys. Res. Atmos.*, 120, 11,46811,485, doi:10.1002/2015JD023752, 2015.
- Minschwaner, K., et al., Signature of a tropical Pacific cyclone in the composition of the upper troposphere over Socorro, NM, *Geophys. Res. Lett.*, 42, 95309537, doi:10.1002/2015GL065824. 2015.
- Minschwaner, K., and G. L. Manney, Derived methane in the stratosphere and lower mesosphere from Aura Microwave Limb Sounder Measurements of nitrous oxide, water vapor, and carbon monoxide, *J. Atmos. Chem.*, 71, 253-267, 2014.

- Lawrence, Z. D., G. L. Manney, K. Minschwaner, M. L. Santee, and A. Lambert, Comparisons of polar processing diagnostics from 34 years of the ERAInterim and MERRA re-analyses, *Atmos. Chem. Phys. Discuss.*, 14, 3136131408, doi:10.5194/acpd14313612014, 2014.
- Minschwaner, K., L. Hoffmann, A. Brown, M. Riese, R. Mueller, and P. F. Bernath, Stratospheric loss and atmospheric lifetimes of CFC-11 and CFC-12 derived from satellite observations, *Atmos. Chem. Phys.*, 13, 4253-4263, 2013.
- Huang, X. L., H. W. Chuang, A. Dessler, X. H. Chen, K. Minschwaner, Y. Ming, and V. Ramaswamy, A radiative-convective equilibrium perspective of weakening of the tropical Walker circulation in response to global warming, *J. Climate*, 26, 1643-1653, 2013.
- Minschwaner, K., G. L. Manney, S. H. Wang, and R. S. Harwood, Hydroxyl in the stratosphere and mesosphere - Part 1: Diurnal variability, *Atmos. Chem. Phys.*, 11, 955-962, 2011.
- Lee, J. N., D. L. Wu, G. L. Manney, M. J. Schwartz, A. Lambert, N. J. Livesey, K. R. Minschwaner, H. C. Pumphrey, W. G. Read, Aura microwave limb sounder observations of the polar middle atmosphere: Dynamics and transport of CO and H₂O, *J. Geophys. Res.*, 116, doi10.1029/2010JD014608, 2011.
- Minschwaner, K., G. L. Manney, N. J. Livesey, H. C. Pumphrey, H. M. Pickett, L. Froidevaux, A. Lambert, M. J. Schwartz, P. F. Bernath, K. A. Walker, and C. D. Boone, The photochemistry of carbon monoxide in the stratosphere and mesosphere evaluated from observations by the microwave limb sounder on the aura satellite, *J. Geophys. Res.*, 115, doi10.1029/2009JD012654, 2010.
- Manney, G. L., R. S. Harwood, I. A. MacKenzie, K. Minschwaner, D. R. Allen, M. L. Santee, K. A. Walker, M. I. Hegglin, A. Lambert, H. C. Pumphrey, P. F. Bernath, C. D. Boone, M. J. Schwartz, W. H. Daffer, N. J. Livesey, W. H. Daffer, and R. A. Fuller, Satellite observations and modeling of transport in the upper troposphere through the lower mesosphere during the 2006 major stratospheric sudden warming, *Atmos. Chem. Phys.*, 9, 4775-4795, 2009.
- Minschwaner, K., L. E. Kalnajs, M. K. Dubey, L. M. Avallone, P. Sawaengphokhai, H. E. Edens, W. P. Winn, Observation of enhanced ozone in an electrically active storm over Socorro, NM: Implications for ozone production from corona discharges, *J. Geophys. Res.*, 113, D17208, doi:10.1029/2007JD009500, 2008.
- Dessler, A. E., P. Yang, J. Lee, J. Solbrig, Z. Zhang, and K. Minschwaner, An analysis of the dependence of clear-sky top-of-atmosphere outgoing longwave radiation on atmospheric temperature and water vapor, *J. Geophys. Res.*, 113, D17102, doi:10.1029/2008JD010137, 2008.
- Pickett, H. M., B. J. Drouin, T. Canty, R. J. Salawitch, R. A. Fuller, V. A. Perun, N. J. Livesey, J. W. Waters, R. A. Stachnik, S. P. Sander, W. A. Traub, K. W. Jucks, and K. Minschwaner, Validation of Aura Microwave Limb Sounder OH and HO₂ measurements, *J. Geophys. Res.*, 113, D16S30, doi:10.1029/2007JD008775, 2008.
- Manney, G. L., K. Kruger, S. Pawson, K. Minschwaner, M. J. Schwartz, W. H. Daffer, N. J. Livesey, M. G. Mlynczak, E. E. Remsberg, J. M. Russell III, and J. W. Waters, The evolution of the stratopause during the 2006 major warming: Satellite data and assimilated meteorological analyses, *J. Geophys. Res.*, 113, D11115, doi:10.1029/2007JD009097, 2008.

- Minschwaner, K., D. Herceg, S. A. Budzien, K. F. Dymond, C. Fortna, and R. P. McCoy, Observations of ultraviolet emission in the middle and lower thermosphere: NO, O₂, O, and Mg⁺, *J. Geophys. Res.*, 112, A10311, doi:10.1029/2007JA012380, 2007.
- Dessler, A. E., and K. Minschwaner, An analysis of the regulation of tropical tropospheric water vapor, *J. Geophys. Res.*, 112, D10120, doi:10.1029/2006JD007683, 2007
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- Slanger, T. G., P. C. Cosby, B. D. Sharpee, K. Minschwaner, and D. E. Siskind, O(¹S → ¹D, ³P) branching ratio as measured in the terrestrial nightglow, *J. Geophys. Res.*, 111, A12318, 2006.
- Minschwaner, K., and A. E. Dessler, Climate feedback by water vapor in the tropical upper troposphere, *J. Climate*, 17, 1272-1282, 2004.
- Minschwaner, K., J. Bishop, S. A. Budzien, K. F. Dymond, D. E. Siskind, M. H. Stevens, and R. P. McCoy, Middle and upper thermospheric odd nitrogen, 2: Measurements of nitric oxide from ISAAC observations of NO gamma band emission, *J. Geophys. Res.*, 109, doi:10.1029/2003JA009941, 2004.
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- atmospheric column OH at Fritz Peak, Colorado, *Geophys. Res. Lett.*, 25, 1313-1316, 1998.
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- Minschwaner, K., Radiative Processes, Proceedings of the International Conference on Ozone in the Lower Stratosphere, in *Stratospheric Processes and Their Role in Climate*, Report No. 5, World Climate Research Program, Verrieres-le-Buisson, France, 1995.
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