

# Robert P. Loughman

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Dept. of Atmospheric and Planetary Sciences (APS)  
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## Professional Preparation

College of William and Mary, B.S. with honors in Physics, minor in Mathematics, May 1993  
University of Arizona, M.S. in Atmospheric Science, December 1995  
Ph.D. in Atmospheric Science, minor in Mathematics, August 1998

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## Professional Appointments

**Chairman and Associate Professor**, Hampton University, APS, September 2010 – present  
**Res. Assoc. Professor** (July 2008 – Aug. 2010) and **Asst. Professor** (Aug. 2003 – June 2008)  
Hampton University, APS / Center for Atmospheric Science  
**Research Associate**, August 1998 – August 2003  
University of Arizona (resident at NASA Goddard Space Flight Center)

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## Selected Peer-Reviewed Publications

- Moy, L., Bhartia, P. K., Jaross, G., **Loughman, R.**, Kramarova, N., Chen, Z., Taha, G., Chen, G., and Xu, P.: Altitude Registration of Limb-Scattered Radiation, *Atmos. Meas. Tech. Discuss.*, doi:10.5194/amt-2016-103, in review, 2016.
- **Loughman, R.**, D. Flittner, E. Nyaku and P.K. Bhartia, 2015, Gauss-Seidel Limb Scattering (GSLs) radiative transfer model development in support of the Ozone Mapping and Profiler Suite (OMPS) Limb Profiler mission, *Atmos. Chem. Phys.*, 15, 3007-3020, doi:10.5194/acp-15-3007-2015, 2015.
- Rault, D. and **R.P. Loughman**, 2013, The OMPS Limb Profiler environmental data record algorithm theoretical basis document and expected performance, *IEEE Trans. on Geosci. and Remote Sensing*, doi:10.1109/TGRS.2012.2213093.
- Taha, G., D.F. Rault, **R.P. Loughman**, A.E. Bourassa, and C. von Savigny, 2011, SCIAMACHY stratospheric aerosol extinction profile retrieval using the OMPS/LP algorithm. *Atmos. Meas. Tech.*, 4, pp. 547-556, doi:10.5194/amt-4-547-2011.
- **Loughman, R.P.**, D.E. Flittner, B.M. Herman, P.K. Bhartia, E. Hilsenrath and R.D. McPeters, 2005. Description and sensitivity analysis of a limb scattering ozone retrieval algorithm. *J. Geophys. Res.*, 110, doi: 10.1029/2004JD005429.
- **Loughman, R.P.** L. Oikarinen, E. Griffioen, O.V. Postylyakov, A. Rozanov, D.E. Flittner, and D.F. Rault, 2004. Comparison of radiative transfer models for limb-viewing scattered sunlight measurements. *J. Geophys. Res.*, 109, doi: 10.1029/2003JD003854.
- X. Liu, M. Newchurch, **R. Loughman** and P.K. Bhartia, 2003. Errors resulting from assuming opaque Lambertian clouds in TOMS ozone retrieval. *J. Quant. Spec. Rad. Tran.*, 85, 337-365, doi: 10.1016/S0022-4073(03)00231-0.
- I. Petropavlovskikh, **R. Loughman**, J. DeLuisi, and B. Herman, 2000. A comparison of ultraviolet intensities calculated by spherical atmosphere radiation transfer codes: Application to the aerosol corrections. *J. Geophys. Res.*, 105, 14737-14746.

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### Selected Non-Refereed Publications

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- Rault, D., **R. Loughman**, G. Taha and A.J. Fleig, 2008. Algorithm Theoretical Basis Document (ATBD) for the Environmental Data Record (EDR) Algorithm of the Ozone Mapping and Profiler Suite (OMPS) Limb Profiler. National Polar-Orbiting Operational Environmental Satellite System (NPOESS) Program.  
[https://ozoneaq.gsfc.nasa.gov/media/docs/EDR\\_ATBD\\_baseline\\_version1.pdf](https://ozoneaq.gsfc.nasa.gov/media/docs/EDR_ATBD_baseline_version1.pdf)
- **Loughman, R.**, D. Rault, A. Bourassa and G. Taha, 2008. Report on the 4<sup>th</sup> International Limb Workshop, SPARC Newsletter #31, July 2008.
- Rault, D., **R. Loughman** and G. Taha, 2008. Data analysis and retrieval algorithms for the ozone mapping and profiler suite/limb profiler instrument. *Proc. of the SPIE*, 7107, pp. 71070T-71070T-12, doi: 10.1117/12.800672.
- Rault, D. and **R. Loughman**, 2007. Stratospheric and upper tropospheric aerosol retrieval from limb scatter signals. *Proc. of the SPIE*, 6745, pp. 674509, doi: 10.1117/12.737325.
- **Loughman, R.**, D. Rault and T. Deshler, 2007. Retrieval of aerosol properties from SAGE III limb scattering measurements: Future applications for OMPS, *Hyperspectral Imaging and Sounding of the Environment (HISE) 2007*, Code 104710,  
<https://doi.org/10.1364/HISE.2007.HThA6>.
- **Loughman, R.** and D. Rault, 2006. Retrieval of aerosol properties from SAGE III limb scattering measurements, Proceedings of the NOAA Educational Partnership Programs' Education and Science Forum.
- Flittner, D.E., E. Hilsenrath, S.J. Janz, **R.P. Loughman**, R.D. McPeters and D.F. Rault, 2004. Retrievals from the Limb Ozone Retrieval Experiment on STS107, *Proc. of the SPIE*, 5542, pp. 215-226, doi: 10.1117/12.559746.
- Lee, K.V. and R. Loughman, 2004. The accuracy of SAGE III: Comparing limb scattering measurements. 2004 IEEE International Geoscience and Remote Sensing Symposium (IGARSS) Proceedings: Science for Society: Exploring and Managing a Changing Planet, Volume 7, pp. 4363-4366.
- Rault, D.F., **R. Loughman** and C. Sioris, 2004. Retrieval of atmospheric ozone and nitrogen dioxide vertical distribution from SAGE III limb scattering measurements. *Proc. of the SPIE*, 5235, pp. 298-309.
- Rault, D.F., D. Flittner, **R. Loughman**, and R. McPeters, " Ozone Retrieval from SAGE III Limb Scattering measurement," in *Optical Remote Sensing*, OSA Technical Digest (Optical Society of America, 2003), paper OWB1.  
<http://www.opticsinfobase.org/abstract.cfm?URI=ORS-2003-OWB1>
- **Loughman, R.**, K.V. Lee, M. Hill, D. Flittner, D. Rault, R. McPeters, E. Hilsenrath, S. Janz, T. Brown, and P.K. Bhartia, 2004. Examination of the SOLSE/LORE-2 limb scattering data. NOAA Research and Education Advancements in Oceanic and Atmospheric Sciences, CREST Publication Series, No. 02-2004, Proceedings of the NOAA Educational Partnership Programs' "Education and Science Forum", R. Khanbilvardi and S. Merchant, Eds., City College of CUNY, October 21-23, 2004.

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### Selected Conference Presentations

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- **Loughman, R.**, P.K. Bhartia, L. Moy, N. Kramarova, and K. Wargan, 2016. Using MERRA-2 analysis fields to simulate limb scattered radiance profiles for inhomogeneous atmospheric lines of sight: Preparation for data assimilation of OMPS LP radiances through 2D single-scattering GSLS radiative transfer model development, Poster presentation, Fall AGU Meeting, San Francisco, California.
- Taha, G., P.K. Bhartia, Z. Chen, P. Xu, **R. Loughman**, and G. Jaross, 2016. OMPS Limb Profiler: Extending SAGE and CALIPSO Stratospheric Aerosol Records, Poster presentation, Fall AGU Meeting, San Francisco, California.
- DeLand, M., P.K. Bhartia, G. Jaross, **R. Loughman**, P. Xu, Z. Chen, N. Kramarova, G. Taha, L. Moy, N. Gorkavyi, and T. Zhu, 2016. Suomi NPP OMPS Limb Profiler data products, Poster presentation, Quadrennial Ozone Symposium, Edinburgh, Scotland.
- Taha, G., P.K. Bhartia, P. Xu, **R. Loughman**, and G. Jaross, 2016. OMPS LP aerosol extinction coefficient measurements, Oral presentation, 2<sup>nd</sup> Workshop on Stratospheric Sulfur and its Role in Climate, Potsdam, Germany.
- **Loughman, R.**, P.K. Bhartia, G. Taha, P. Xu, E. Nyaku, G. Jaross, P. Colarco and V. Aquila, 2016. The OMPS Limb Profiler stratospheric aerosol retrieval, Poster presentation, 21<sup>st</sup> Annual Research Symposium, Hampton University.
- Taha, G., P.K. Bhartia, P. Xu, **R.P. Loughman**, G.R. Jaross, M.T. DeLand, P.R. Colarco, and V. Aquila, 2015. OMPS LP Characterization of Stratospheric Aerosols, Poster presentation, Fall AGU Meeting, San Francisco, California.
- Bhartia, P.K., M.P. McCormick, and **R.P. Loughman**, 2015. Volcanic Aerosols from Satellites: Current and Emerging Capabilities. Oral presentation, Fall AGU Meeting, San Francisco, California.
- **Loughman, R.**, P.K. Bhartia, G. Taha, P. Xu, E. Nyaku, G. Jaross, P. Colarco and V. Aquila, 2015. The OMPS Limb Profiler stratospheric aerosol retrieval, Oral presentation, 8<sup>th</sup> Atmospheric Limb Workshop, Gothenburg, Sweden.
- **Loughman, R.**, E. Nyaku, P.K. Bhartia, and N. Gorkavyi, 2015. OMPS Limb Profiler (LP) aerosol extinction algorithm development, 2015 NOAA Satellite Conference, Greenbelt, Maryland.
- Moy, L., P.K. Bhartia, Z. Chen, M.T. DeLand, G.R. Jaross, T.J. Kelly, N.A. Kramarova, **R.P. Loughman**, G. Taha and P. Xu, 2014. Evaluation of MLS mesospheric geopotential height profiles and improved altitude registration of the OMPS Limb Profiler measurements. Poster presentation, Fall AGU Meeting, San Francisco, California.
- **Loughman, R.**, D. Flittner, E. Nyaku, and P.K. Bhartia, 2014. Limb Scattering Radiative Transfer Model Development in Support of the Ozone Mapping and Profiler Suite (OMPS) Limb Profiler Mission, NOAA EPP 7<sup>th</sup> Biennial Education and Science Forum, University of Maryland Eastern Shore.

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### Selected Conference Presentations (continued)

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- **Loughman, R.**, D. Flittner, E. Nyaku, and P.K. Bhartia, 2014. Limb Scattering Radiative Transfer Model Development in Support of the Ozone Mapping and Profiler Suite (OMPS) Limb Profiler Mission, Poster presentation, 19<sup>th</sup> Annual Research Symposium, Hampton University.
- Nyaku, E., **Loughman, R.**, D. Flittner, and P.K. Bhartia, 2014. Characterizing aerosol properties in the upper troposphere and stratosphere from limb scattered radiance, Poster presentation, 19<sup>th</sup> Annual Research Symposium, Hampton University.
- **Loughman, R.**, D. Flittner, E. Nyaku, and P.K. Bhartia, 2013. Limb Scattering Radiative Transfer Model Development in Support of the Ozone Mapping and Profiler Suite (OMPS) Limb Profiler Mission, Poster presentation, 7<sup>th</sup> Atmospheric Limb Conference, Bremen, Germany.
- **Loughman, R.**, D. Flittner, E. Nyaku, P.K. Bhartia and L. Flynn, 2013. Limb Scattering Radiative Transfer Model Development in Support of the Ozone Mapping and Profiler Suite (OMPS) Limb Profiler Mission, Oral presentation, 8<sup>th</sup> Annual NOAA-CREST Symposium, City College of the City University of New York.
- **Loughman, R.**, D. Rault, D. Ludy, E. Nyaku, and S. Hyater-Adams, 2012. The OMPS Limb Profiler Instrument on the NPP satellite, Oral presentation, The 6th NOAA Educational Partnership Program Education and Science Forum, Tallahassee, Florida.
- Xu, P., D.F. Rault, S. Pawson, **R. Loughman**, and G. Taha, 2011. Global Performance Evaluation of OMPS Limb Profiler Using the Proxy Data Assimilated from GEOS-5, Poster presentation, Fall AGU Meeting, San Francisco, California.
- **Loughman, R.**, D. Rault, D. Ludy, E. Nyaku, and S. Hyater-Adams, 2011. Testing the OMPS Limb Profiler (LP) retrieval algorithms, Oral presentation, The 7th Annual NOAA-CREST Symposium, Hampton, Virginia.
- **Loughman, R.**, D. Rault, J. Zawodny, G. Taha, D. Flittner and M. Patrick McCormick, 2010. Limb Scattering and Occultation Measurement Opportunities from the International Space Station Stratospheric Aerosol and Gas Experiment (SAGE) III mission. Oral presentation, The Meeting of the Americas, Foz do Iguassu, Brazil.
- **Loughman, R.**, D. Rault, G. Taha, J. Li, T. Zhu and A. Bourassa, 2009. The OMPS Limb Profiler Ozone and Aerosol Profile Retrieval algorithms. Oral presentation, 5th Atmospheric Limb Conference, Helsinki, Finland.
- **Loughman, R.**, D. Rault, G. Taha, J. Li, T. Zhu and A. Bourassa, 2009. The OMPS Limb Profiler Ozone and Aerosol Profile Retrieval algorithms. Oral presentation, 5th NOAA Educational Partnership Program Education and Science Forum, Washington, D.C.
- Taha, G., A. Bourassa, D.F. Rault, **R. Loughman**, D. Flittner, G. Jaross, and R. McPeters, 2008. Evaluation of OMPS Limb Profiler retrieval algorithm using limb scattering measurements, Poster presentation, Quadrennial Ozone Symposium, Tromso, Norway.

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### Selected Conference Presentations (continued)

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- Rault, D.F., **R. Loughman**, A. Bourassa, G. Taha, and D. Flittner, 2008. NPP Ozone Mapper and Profiler Suite. The Limb Profiler. Poster presentation, Quadrennial Ozone Symposium, Tromso, Norway.
- **Loughman, R.**, D. Rault, A. Bourassa, G. Taha and D. Flittner, 2008. The OMPS Limb Profiler Ozone and Aerosol Profile Retrieval algorithms. Oral presentation, 37th COSPAR Scientific Assembly, Montreal, Canada.
- Rault, D., **Loughman, R.**, A. Bourassa, G. Taha, G. Jaross, and D. Flittner, 2008. The OMPS Limb Profiler instrument: Data analysis and retrieval algorithm. Oral presentation, 37th COSPAR Scientific Assembly, Montreal, Canada.
- Taha, G., G. Jaross, D. Rault, A. Bourassa, **Loughman, R.**, D. Flittner, and R. McPeters, 2008. Altitude registration analysis and ozone profile retrieval using SCIAMACHY limb scattering measurements. Oral presentation, 37th COSPAR Scientific Assembly, Montreal, Canada.
- Bourassa, A., **Loughman, R.**, D. Flittner, D. Rault and G. Taha, 2008. Evaluation of the OMPS Limb Profiler stratospheric aerosol inversion algorithm. Oral presentation, 37th COSPAR Scientific Assembly, Montreal, Canada.
- **Loughman, R.** and D. Rault, 2008. Retrieval of aerosol properties from SAGE III limb scattering measurements, NOAA CREST Research Symposium, Mayaguez, Puerto Rico.
- **Loughman, R.** and D. Rault, 2007. Stratospheric and upper tropospheric aerosol retrieval from limb scatter signals. Oral presentation, 4<sup>th</sup> International Limb Workshop, Virginia Beach, Virginia.
- **Loughman, R.**, D. Rault, T. Deshler, D. Degenstein 2007. Retrieval of aerosol properties from SAGE III limb scattering measurements, Oral presentation, Fall AGU Meeting, San Francisco, California.
- Rault, D. and **R. Loughman**, 2007. Stratospheric and upper tropospheric aerosol retrieval from Limb Scatter signals. Oral presentation, AGU Joint Assembly, Acapulco, Mexico.
- **Loughman, R.**, D. Rault and T. Deshler, 2007. Retrieval of aerosol properties from limb scattering measurements: Future applications for OMPS. Oral presentation, OSA HISE Meeting, Santa Fe, New Mexico.
- Paterson, W.R., M.P. McCormick, J.M. Russell, J. Anderson, S. Kireev, **R.P. Loughman**, and W.L. Smith, 2006. A Department of Atmospheric and Planetary Sciences at Hampton University, Poster presentation, Fall AGU Meeting, San Francisco, California.
- **Loughman, R.**, D. Rault and T. Deshler, 2006. Retrieval of aerosol properties from limb scattering measurements: Implications for OMPS. Oral presentation, Fall AGU Meeting, San Francisco, California.
- **Loughman, R.**, D. Rault and T. Deshler, 2006. Retrieval of aerosol properties from limb scattering measurements. Oral presentation, Spring AGU Meeting, Baltimore, Maryland.

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### Selected Conference Presentations (continued)

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- **Loughman, R.**, R. McPeters, D. Flittner, E. Hilsenrath, S. Janz, T. Brown, D. Rault, M. Hill, S. Petelina, and C. von Savigny, 2006. The SOLSE/LORE-2 Experiment: Ozone profiles retrieved from limb scattering measurements. Oral presentation, 3rd International Limb Workshop, Montreal, Canada.
- **Loughman, R.P.** and D.F. Rault, 2006. Retrieval of aerosol properties from SAGE III limb scattering measurements. Proceedings of the 4<sup>th</sup> Annual NOAA-CREST Symposium, Mayaguez, Puerto Rico, February 23-25, 2006.
- **Loughman, R.**, D. Rault, D. Flittner, R. McPeters, E. Hilsenrath, S. Janz, T. Brown, P.K. Bhartia, M. Hill and K. Lee, 2005. Ozone Retrievals from Limb Scattered Radiance Measurements. Poster Presentation, 3<sup>rd</sup> Solar Occultation Satellite Science Team (SOSST) Meeting, Columbia, Maryland.
- **Loughman, R.**, D. Flittner, R. McPeters, E. Hilsenrath, S. Janz, T. Brown, D. Rault, P.K. Bhartia, M. Hill and K. Lee, 2004. Examination of the SOLSE/LORE-2 Data. Oral presentation, 2nd International Limb Workshop, Stockholm, Sweden.
- **Loughman, R.**, D. Rault, D. Flittner, R. McPeters, K. Lee, and M. Hill, 2004. Initial Validation of SAGE III Limb Scattering Ozone Retrievals. Poster presentation, 2<sup>nd</sup> Solar Occultation Satellite Science Team (SOSST) Meeting, Boulder, Colorado.
- Rault, D.F., D.E. Flittner and **Loughman, R.**, 2004. Retrieval of atmospheric ozone and nitrogen dioxide vertical distribution from SAGE III limb scattering measurement. Oral presentation, Spring AGU Meeting, San Francisco, California.
- **Loughman, R.**, D. Rault, D. Flittner, R. McPeters, E. Hilsenrath, P.K. Bhartia, and M.P. McCormick, 2003. Comparison of limb scattering measurements made by the SOLSE, LORE, and SAGE III instruments. Poster presentation, Fall AGU Meeting, San Francisco, California.
- Rault, D., and **Loughman, R.**, 2003. Retrieval of atmospheric ozone and nitrogen dioxide vertical distribution from SAGE III limb scattering measurement. Poster presentation, Fall AGU Meeting, San Francisco, California.
- Liu, X., M. Newchurch, J. Kim, P.K. Bhartia, and **R. Loughman**, 2003. TOMS Ozone Anomalies and Ozone Retrieval Errors Over Cloudy Areas. Oral presentation, Fall AGU Meeting, San Francisco, California.
- **Loughman, R.**, D. Flittner, D. Rault, E. Hilsenrath, R. McPeters, and P. Bhartia, 2003. Limb scattering measurements made by the Shuttle Ozone Limb Sounding Experiment (SOLSE) and Limb Ozone Retrieval Experiment (LORE) instruments. Presented at Poster session, EGS-AGU-EUG Joint Assembly, Nice, France and at Oral session, 1st International UV/Vis Limb-Scattering Workshop, Bremen, Germany.
- Rault, D., D. Flittner, **R. Loughman**, and R. McPeters, 2003. Ozone Retrieval from SAGE III limb scattering. Poster session, European Geophysical Society XXVII General Assembly, Nice, France.
- Flittner, D.E., **R.P. Loughman**, D. Rault, R.D. McPeters and E. Hilsenrath, 2003. Water vapor profiling using limb scatter measurements. Poster session, European Geophysical Society XXVII General Assembly, Nice, France.

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### Selected Conference Presentations (continued)

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- Rault, D.F., **R.P. Loughman**, D. Flittner, and R. McPeters, 2002. SAGE III Limb Scattering Measurements and Initial Inversion Results, Oral presentation, Fall AGU Meeting, San Francisco, California.
- **Loughman, R.**, D. Flittner, B. Herman, P. Bhartia, E. Hilsenrath, R. McPeters, and D. Rault, 2002. Sensitivity analysis of a limb scattering ozone retrieval algorithm. Poster session, European Geophysical Society XXVII General Assembly, Nice, France.
- Colon, E., J. Hornstein, J. Lumpe, E. Shettle, R. Bevilacqua, J. Larsen, D. Flittner, and **R. Loughman**, 2002. A Comparison of Two Limb Scatter Inversion Methods. Poster presentation, Spring AGU Meeting, Washington, D.C.
- Loughman, R.P., D.E. Flittner, B.M. Herman, P.K. Bhartia, E. Hilsenrath, R.D. McPeters, and D. Rault, 2002. Description and Sensitivity Analysis of the SOLSE/LORE-2 and SAGE III Limb Scattering Ozone Retrieval Algorithm. Poster presentation, Spring AGU Meeting, Washington, D.C.
- Oikarinen, L., E. Griffioen, **R. Loughman**, O. Postlyakov, and A. Rozanov, 2001. Comparison of radiative transfer models for limb-viewing scattered sunlight measurements. Poster session, Fall American Geophysical Union (AGU) Meeting, San Francisco, California.
- Flittner, D., **R. Loughman**, D. Ward, R. McPeters, R. Veiga, M. Cisewski, J. Zawodny, and W. Chu, 2000. The possibility of ozone profiling with SAGE III limb scatter data. Poster session, Spring AGU Meeting, Washington, D.C.
- **Loughman, R.P.**, D.E. Flittner, and B.M. Herman, 1998. Scattering in the limb of a spherical-shell atmosphere as computed by a scalar radiative transfer model. Spring AGU Meeting, Boston, Massachusetts.

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### **Funded Proposals as Principal Investigator (2010 – present)**

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- Plasma Measurements for Geotail: Science and Outreach at Hampton University, NASA, \$39,988, May 2008 – April 2012 (with one year no-cost extension, assumed from Dr. William Paterson in August 2010).
- Developing Climate Data Records from the OMPS Limb Profiling Sensor, NASA Langley Research Center, \$69,460, September 2010 – September 2011.
- Developing Climate Data Records from the OMPS Limb Profiling Sensor, NASA, \$40,000, June 2011 – June 2012.
- Forward Model Development and Aerosol Sensitivity Studies for the OMPS Limb Profiler Instrument, NASA Goddard Space Flight Center, \$114,292, June 2012 – June 2013.
- OMPS-LP Data Analysis Support, SSAI Sub-Contract, \$133,995, May 2013 – April 2014.
- OMPS-LP Data Analysis Support, SSAI Sub-Contract, \$143,909, May 2014 – April 2015.
- OMPS-LP Data Analysis Support, SSAI Sub-Contract, \$121,280, May 2015 – April 2016.
- MFRSR Calibration Support, SSAI Sub-Contract, \$17,985, May 2015 – April 2016.
- OMPS-LP Data Analysis Support, SSAI Sub-Contract, \$87,906, May 2016 – April 2017.

### **Funded Proposals as Named Co-Investigator (2010 – present)**

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- Development of Vertical Ozone Profile Dataset from the OMPS Limb Profiler Instrument on Suomi NPP, NASA, \$56,863, June 2014 – May 2017.
- The Living, Breathing Planet (LBP), NASA Astrobiology Institute, \$3,747,037, June 2015 – May 2020.
- Hampton University Center for Atmospheric Research and Education (CARE), NASA, \$4,921,227, August 2015 – July 2020.
- CREST renewal, NOAA, September 2016 – August 2021.

### **Declined Proposals as Principal Investigator (2010 – present)**

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- Field Measurements of the Spectral Column Aerosol Refractive Index in the Ultraviolet and Visible Wavelengths, NASA, \$280,271, June 2011.
- Field Measurements of the Spectral Column Aerosol Refractive Index in the Ultraviolet and Visible Wavelengths, NASA, \$175,000, September 2013.
- Aerosol Retrieval Development for the Suomi NPP OMPS Limb Profiler Instrument, NASA, \$367,061, June 2014.
- Field Measurements of UV-VIS Aerosol Absorption Properties during KORUS-AQ15 (ROSES 2015), NASA, \$36,000, May 2015.
- MFRSR Deployment / Data Analysis Support, NASA Goddard Space Flight Center, \$125,000, July 2015.



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## Professional Affiliations and Awards

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- Member of the American Geophysical Union and the American Meteorological Society
- Member of the Ozone Mapping and Profiler Suite (OMPS) Science Team
- 2004 — NASA Group Achievement Award (STS-107 SOLSE-2 Team)

## Teaching and Advising

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- Developed and taught the graduate Atmospheric Radiative Transfer course (APS 649), Spring 2006 - present.
- Developed and taught the graduate Atmospheric Measurements course (APS 750), Fall 2006 – 2010, 2013 - present.
- Co-taught the graduate Atmospheric Physics course (APS 745), Fall 2006.
- Co-taught graduate Professional Writing and Presenting (APS 700), 2010 – present.
- Taught the undergraduate Weather and Climate course (APS 101), 2011 - present.
- Developed and taught the undergraduate Atmospheric Physics (SEA 345), Spring 2004 and Spring 2005.

### Advised undergraduate students:

- Advised Kristie Lee, Sher'rie Bacon and Roshawnda Walker (2004-2005).
- Advised Jordan Foley, David Auslender and Darel Davidson (2009 Summer REU program)
- Advised Jonathan Geasey and Nicolas Carletta (2010 Summer REU program)
- Advised Anderson Hayes and Brent Gills (Fall 2010 – Spring 2011 semesters)
- Advised Simone Hyater-Adams (2011 Summer CURE research program + research during the Fall 2011 and Spring 2012 semesters)
- Advised Ricardo Uribe and Curtis Driver (2012 Summer CURE research program)
- Advised Brent McBride (2013 Summer CURE research program)
- Advised Ryan McCabe and Ashley Orehek (2014 Summer CURE research program)
- Advised Nelson Ojeda (2015 Summer CURE research program)
- Advised Baseemah Rucker (2016 Summer CURE research program + research during the fall semester)

### Advised APS Ph.D. candidates:

- Advised Ernest Nyaku (2010-2016), who completed his degree requirements for December 2016 graduation
- Advised Alok Shrestha (2012-present) and Surendra Bhatta (2016 – present)

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### Committee Service

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Academic advisement committee membership:

- Served as Ph.D. committee member for graduates Charles Hill, Kevin Leavor, Robert Lee
- Served as Ph.D. committee member for current student Steven Buckner
- Served as M.S. committee member for Ariana Atwell, who completed her degree requirements for December 2016 graduation

Served on Hampton University committees:

- Served as Department Representative for Research Day (2007-2010)
- Served as Department Graduate Student Coordinator (2008-present)
- Served as Department Graduate Council Representative (2009-present)
- Served an elected member of the Academic Personnel Committee (2013-2015)
- Served as IACUC member (2013-present)

Represented Hampton University for external bodies:

- National Institute for Aerospace, Technical Advisory Council (2010 – present)
- Virginia Space Grant Consortium, Advisory Council and Fellowship Review Panelist (2010 – present)
- Virginia Air and Space Center, Foundation Board of Directors (2010 – present)

Served on external committees:

- NASA OMPS Science Team Member (2006 – present).
- Planning Committee member for the 4<sup>th</sup> Limb Workshop, Virginia Beach, 2007.
- Scientific Committee member for the 7<sup>th</sup> Limb Workshop, Bremen, Germany, 2013.
- Served as the external examiner to evaluate the dissertation of Dr. Adam Bourassa (University of Saskatchewan, 2007).
- Served on several NASA proposal review panels (including the SCIS, IIP, and ACPS programs).
- Served as a session convener for scientific meetings AGU, COSPAR.
- Provided peer reviews for numerous academic journals, including Atmospheric Measurement Techniques, Applied Optics, Bulletin of the American Meteorological Society, Remote Sensing, Optics Letters, Optics Express, the Journal of Geophysical Research, Advances in Space Research, the Canadian Journal of Physics, and the Journal of Quantitative Spectroscopy and Remote Sensing.