

Laura Holt

Curriculum Vitæ

Education

- 2005 **Bachelor of Arts**, *St. Cloud State University*, summa cum laude.
Mathematics
- 2005 **Bachelor of Science**, *St. Cloud State University*, summa cum laude.
Physics
- 2013 **Doctor of Philosophy**, *University of Colorado Boulder*.
Atmospheric Science

Professional Experience

- 2016– **Research Scientist**, *NorthWest Research Associates*, Boulder, CO.
- 2014–2016 **Postdoctoral Research Scientist**, *NorthWest Research Associates*, Boulder, CO.
- 2013–2014 **Postdoctoral Research Scientist**, *University of Colorado Boulder / Laboratory for Atmospheric and Space Physics*, Boulder, CO.
- 2007–2013 **Graduate Research Assistant**, *University of Colorado Boulder / Laboratory for Atmospheric and Space Physics*, Boulder, CO.
- 2005–2006 **Product Development Engineer**, *Colorlink, Inc.*, Boulder, CO.
- 2003–2005 **Undergraduate Research Assistant**, *St. Cloud State University*.
- 2002–2003 **Astronomical Observatory Manager**, *St. Cloud State University*.

Research Interests

- Middle atmosphere dynamics
- Gravity waves
- Polar mesospheric clouds and teleconnections
- Global climate models

Honors

- 2013 **IAGA Young Scientist Award**
- 2012 **Best Poster Presentation–ATOC Student Poster Conference**
- 2011 **Best Student Paper–3rd Annual International HEPPA Workshop**
- 2008 **NSF Graduate Research Fellowship Honorable Mention**

Publications

Published, Refereed Articles

1. Laura A. Holt, M. Joan Alexander, Lawrence Coy, Andrea Molod, William M. Putman, Steven Pawson, and Chuntao Liu. An evaluation of gravity waves and gravity wave sources in the Southern Hemisphere in a 7-km global climate simulation. *Quart. J. Roy. Met. Soc.*, Accepted, 2017. doi:10.1002/qj.3101.

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2. Lars Hoffmann, R. Spang, A. Orr, M. Joan Alexander, Laura A. Holt, and O. Stein. A ten-year satellite record of gravity wave activity in the lower stratosphere to study polar stratospheric cloud formation. *Atmos. Chem. Phys. Discuss.*, 2016, 2016. doi:10.5194/acp-2016-757.
3. Laura A. Holt, M. Joan Alexander, Lawrence Coy, Andrea Molod, William M. Putman, and Steven Pawson. Tropical waves and the quasi-biennial oscillation in a 7-km global climate simulation. *J. Atmos. Sci.*, 73:3771–3783, 2016. doi:10.1175/JAS-D-15-0350.1.
4. Cora E. Randall, V. Lynn Harvey, Laura A. Holt, Dan R. Marsh, Doug Kinnison, Bernd Funke, and Peter F. Bernath. Simulation of energetic particle precipitation effects during the 2003–2004 Arctic winter. *J. Geophys. Res. Sp. Phys.*, 120, 2015. doi:10.1002/2015JA021196.
5. Bernd Funke, Manuel López-Puertas, Laura A. Holt, Cora E. Randall, Gabriele P. Stiller, and Thomas von Clarmann. Hemispheric distributions and interannual variability of NO_y produced by energetic particle precipitation in 2002–2012. *J. Geophys. Res.*, 119:13565–13582, 2014. doi:10.1002/2014JD022423.
6. Anne K. Smith, Manuel López-Puertas, Bernd Funke, M. Garcia-Comas, Martin G. Mlynchzak, and Laura A. Holt. Nighttime ozone variability in the high latitude winter mesosphere. *J. Geophys. Res.*, 119:13547–13564, 2014. doi:10.1002/2014JD021987.
7. Scott M. Bailey, Brentha Thurairajah, Cora E. Randall, Laura A. Holt, David E. Siskind, V. Lynn Harvey, Karthik Venkataramani, Mark E. Hervig, Pingping Rong, and James M. Russell, III. A multi tracer analysis of thermosphere to stratosphere descent triggered by the 2013 Stratospheric Sudden Warming. *Geophys. Res. Lett.*, 2014. doi:10.1002/2014GL059860.
8. Laura A. Holt, Cora E. Randall, Ethan D. Peck, Daniel R. Marsh, Anne K. Smith, and V. Lynn Harvey. The influence of major sudden stratospheric warmings and elevated stratopause events on the effects of energetic particle precipitation in WACCM. *J. Geophys. Res.*, 118:11,636–11,646, 2013. doi:10.1002/2013JD020294.
9. Laura A. Holt, Cora E. Randall, V. Lynn Harvey, Ellis E. Remsberg, Gabriele P. Stiller, Bernd Funke, Peter F. Bernath, and Kaley A. Walker. Atmospheric effects of energetic particle precipitation in the Arctic winter 1978–1979 revisited. *J. Geophys. Res.*, 117, 2012. doi:10.1029/2011JD016663.
10. Laura A. Holt and Kevin L. Haglin. Short-lived phi mesons. *J. Phys. G: Nuclear and Part. Phys.*, 31(4), 2005. doi:10.1088/0954-3899/31/4/030.

Non-refereed Conference Proceedings / Presentations / Seminars

1. Laura A. Holt, Joan Alexander, Lawrence Coy, Andrew Molod, William Putman, and Steven Pawson. Gravity waves in the Southern Hemisphere extratropical winter in the 7-km GEOS-5 Nature Run. Talk, *AMS 19th Conference on Middle Atmosphere*, Portland, OR, June 2017.
2. Laura A. Holt, Joan Alexander, Lawrence Coy, William Putman, Andrea Molod, Steven Pawson, and Max Suarez. Gravity waves in the global 7-km geos-5 nature run. Seminar, *ACOM Seminar, NCAR*, Boulder, CO, May 2017.
3. Laura A. Holt, Joan Alexander, Lawrence Coy, William Putman, Andrea Molod, and Steven Pawson. Gravity waves in the Southern Hemisphere extratropical winter in the 7-km GEOS-5 Nature Run. Talk, *AGU Fall Meeting*, San Francisco, CA, December, 2016.
4. Laura A. Holt, Joan Alexander, Lawrence Coy, William Putman, Andrea Molod, Steven Pawson, and Max Suarez. The QBO in GEOS-5: MERRA-2 and the Nature Run. Talk, *SPARC QBOi and Tropical S-RIP Workshop: The QBO and its Global Impacts - Past, Present and Future*, Oxford, United Kingdom, September 2016.

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5. Laura A. Holt, Joan Alexander, Lawrence Coy, William Putman, Andrea Molod, Steven Pawson, and Max Suarez. Gravity waves in the 7-km GEOS-5 Nature Run: Evaluation of global momentum fluxes, tropical waves and the QBO, and Southern Hemisphere sources. Talk, *SPARC Gravity Wave Symposium*, Pennsylvania State University, State College, PA, May 2016.
6. Laura A. Holt, Joan Alexander, Lawrence Coy, William Putman, Andrea Molod, Steven Pawson, and Max Suarez. Gravity waves in the GEOS-5 Nature Run. Seminar, *GMAO Seminar*, NASA Goddard, April 2016.
7. Laura A. Holt, Joan Alexander, Lawrence Coy, William Putman, Andrea Molod, Steven Pawson, and Max Suarez. Tropical waves and QBO dynamics in a 7-km global climate simulation. Poster, *AMS 96th annual meeting*, New Orleans, LA, January 2016.
8. Laura A. Holt, Joan Alexander, Lawrence Coy, William Putman, Andrea Molod, Steven Pawson, and Max Suarez. QBO dynamics in a 7-km global climate simulation. Talk, *Composition and Transport in the Tropical Troposphere and Lower Stratosphere Meeting*, Boulder, CO, July 2015.
9. Laura A. Holt, Joan Alexander, Lawrence Coy, William Putman, Andrea Molod, Steven Pawson, and Max Suarez. Representation of gravity waves in the 7-km resolution GEOS-5 Nature Run. Talk, *QBO Modeling and Reanalyses Workshop*, Victoria, BC, March 2015.
10. Laura A. Holt, Cora E. Randall, V. Lynn Harvey, Jeff France, James M. Russell, III, Jerry Lumpe, Scott M. Bailey, and Mark Hervig. SH PMCs in 2014 linked to NH surface cold air outbreaks. Talk, *AGU Fall Meeting*, San Francisco, CA, December 2014.
11. Laura A. Holt, Cora E. Randall, V. Lynn Harvey, Jeff France, James M. Russell, III, Jerry Lumpe, Scott M. Bailey, and Mark Hervig. SH PMCs in 2014 linked to NH surface cold air outbreaks. Poster, *ATOC Poster Conference*, Boulder, CO, November 2014.
12. Laura A. Holt, Cora E. Randall, V. Lynn Harvey, Jeff France, James M. Russell, III, Jerry Lumpe, Scott M. Bailey, and Mark Hervig. SH PMCs in 2014 linked to NH surface cold air outbreaks. Talk, *AIM 22nd Science Team Meeting*, Boulder, CO, November 2014.
13. V. Lynn Harvey, Cora E. Randall, Jeff France, Ethan D. Peck, Laura A. Holt, and Katelynn Greer. Middle Atmosphere WACCM Studies at CU. Talk, *19th Annual CESM Workshop*, Breckenridge, CO, June 2014.
14. Laura A. Holt, Cora E. Randall, V. Lynn Harvey, Jeff France, and Josh Pettit. Recent Results from the Middle Atmosphere Group at CU Boulder. Talk, *Visiting Scientist Seminar*, Department of Meteorology, Stockholm University, Sweden, May 2014.
15. Laura A. Holt, Cora E. Randall, V. Lynn Harvey, Scott M. Bailey, and Brentha Thurairajah. Indirect effect of EPP and sudden stratospheric warming events in observations. Poster, *5th International HEPPA Workshop in conjunction with SPARC/SOLARIS*, Kongresshaus Baden-Baden, Germany, May 2014.
16. Scott M. Bailey, Brentha Thurairajah, Cora E. Randall, Laura Holt, David E. Siskind, C. Y. Cullens, V. L. Harvey, K. Venkataramani, M. E. Hervig, P. Rong, and James M. Russell, III. SOFIE observations of gravity wave activity and thermosphere to stratosphere descent triggered by the 2013 Stratospheric Sudden Warming. Poster, *5th International HEPPA Workshop in conjunction with SPARC/SOLARIS*, Kongresshaus Baden-Baden, Germany, May 2014.
17. Bernd Funke, Manuel López-Puertas, Thomas von Clarmann, Gabriele P. Stiller, Laura A. Holt, and Cora E. Randall. Hemispheric distributions and inter-annual variability of NO_y

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produced by Energetic Particle Precipitation in 2002-2012 as measured by MIPAS. Poster, *5th International HEPPA Workshop in conjunction with SPARC/SOLARIS*, Kongresshaus Baden-Baden, Germany, May 2014.

18. Laura A. Holt, Cora E. Randall, Ethan D. Peck, Daniel R. Marsh, Anne K. Smith, V. Lynn Harvey, Scott Bailey, and Brentha Thurairajah. Impact of sudden stratospheric warming events on energetic particle precipitation effects. Talk, *AGU Fall Meeting*, San Francisco, CA, December 2013.
19. Scott M. Bailey, Brentha Thurairajah, Cora E. Randall, Laura Holt, David E. Siskind, M. E. Hervig, and James M. Russell, III. Transport of Polar Winter Lower-Thermospheric Nitric Oxide to the Stratosphere. Poster, *AGU Fall Meeting*, San Francisco, CA, December 2013.
20. Laura A. Holt, Cora E. Randall, and V. Lynn Harvey. Energetic particle precipitation effects observed by ACE-FTS. Talk, *ACE 10th Anniversary Science Team Meeting*, October, 2013.
21. Laura A. Holt, Cora E. Randall, Ethan D. Peck, Daniel R. Marsh, Anne K. Smith, and V. Lynn Harvey. Major SSW events and energetic particle precipitation effects. Talk, *IAGA Meeting*, Merida, Mexico, August 2013.
22. Laura A. Holt, Cora E. Randall, Ethan D. Peck, Daniel R. Marsh, Anne K. Smith, and V. Lynn Harvey. Sudden stratospheric warming impact on energetic particle precipitation effects. Talk, *CEDAR Workshop*, Boulder, CO, June 2013.
23. V. Lynn Harvey, Laura A. Holt, Cora E. Randall, Ethan D. Peck, Anne K. Smith, and Daniel R. Marsh. Stratospheric sudden warming effects on the descent of EPP-NO_x in WACCM. Talk, *International Space Science Institute Meeting*, Bern, Switzerland, March 2013.
24. Laura A. Holt, Cora E. Randall, Matthias Brakebusch, Anne K. Smith, and Daniel R. Marsh. Effects of gravity wave tuning on transport of EPP-NO_x in WACCM. Poster, *ATOC Student Poster Conference*, Boulder, CO, November 2012. **Best Poster—Atmospheric Dynamics.**
25. Laura A. Holt. Using WACCM to study the effects of energetic particle precipitation on the atmosphere. Seminar, *NOAA Space Weather Prediction Seminar*, November 2012.
26. Laura A. Holt, Cora E. Randall, Matthias Brakebusch, Anne K. Smith, and Daniel R. Marsh. Transport of NO_x created by energetic particle precipitation in WACCM. Poster, *4th International HEPPA Workshop in conjunction with SPARC/SOLARIS*, Boulder, CO, October 2012.
27. Laura A. Holt, Cora E. Randall, Anne K. Smith, and Daniel R. Marsh. Modeling energetic particle precipitation and transport with WACCM. **Invited** talk, *CEDAR Workshop*, Santa Fe, NM, June 2012.
28. Laura A. Holt, Cora E. Randall, Anne K. Smith, and Daniel R. Marsh. Transport of NO_x created by energetic particle precipitation in WACCM. Poster, *CEDAR Workshop*, Santa Fe, NM, June 2012.
29. Laura A. Holt, Cora E. Randall, Anne K. Smith, and Daniel R. Marsh. Transport of NO_x created by energetic particle precipitation in WACCM. Poster, *17th Annual CESM Workshop*, Breckenridge, CO, June 2012.
30. Laura A. Holt, Cora E. Randall, and V. Lynn Harvey. Transport of NO_x created by energetic particle precipitation from the mesosphere-lower thermosphere to the stratosphere. Poster, *WCRP Open Science Conference*, October 2011.

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31. Laura A. Holt, Cora E. Randall, and V. Lynn Harvey. Descent in the polar mesosphere and stratosphere using WACCM. Poster, *CEDAR Workshop*, Santa Fe, NM, June 2011.
32. Laura A. Holt, Cora E. Randall, V. Lynn Harvey, and Christoph Hoffmann. Descent in the polar mesosphere and stratosphere using WACCM. Poster, *3rd HEPPA Workshop*, Granada, Spain, May 2011. **Best Student Paper.**
33. Laura A. Holt, Cora E. Randall, V. Lynn Harvey, Bernd Funke, and Gabriele P. Stiller. Energetic particle precipitation effects on the Northern Hemisphere stratosphere observed by LIMS. Poster, *AGU Fall Meeting*, San Francisco, CA, December 2009.
34. Laura A. Holt, Cora E. Randall, V. Lynn Harvey, Gabriele P. Stiller, Bernd Funke, Manuel López-Puertas, and Ellis E. Remsberg. Energetic particle precipitation effects observed in LIMS data. Poster, *AGU Fall Meeting*, San Francisco, CA, December 2008.