

Scott T. Salesky

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Research Interests

Environmental Fluid Mechanics, Surface Hydrology, Atmospheric Boundary Layer, Large Eddy Simulation, Turbulence, Evaporation, Land-Atmosphere Interactions, Snow and Sediment Transport, Multiphase Flows

Education

- 2014 **Ph.D. Meteorology**
The Pennsylvania State University, University Park, PA
Dissertation: *"Monin-Obukhov similarity and convective organization in the unstable atmospheric boundary layer"*
Advisor: Marcelo Chamecki
- 2010 **M.S. Meteorology**
The Pennsylvania State University, University Park, PA
Thesis: *"Similarity models of subfilter-scale energy and temperature variance for large eddy simulations of the atmospheric boundary layer."*
Advisor: Marcelo Chamecki
- 2008 **B.S. Science Education, Summa Cum Laude**
Martin Luther College, New Ulm, MN

Professional Appointments

- 2014–present **Postdoctoral Fellow**, Department of Civil Engineering
The University of British Columbia
- 2008–2014 **Graduate Research Assistant**, Department of Meteorology
The Pennsylvania State University

Honors and Awards

- 2014 **Penn State Alumni Association Dissertation Award**
The Pennsylvania State University
- 2014 **John C. Wyngaard Graduate Research Award**
Department of Meteorology, The Pennsylvania State University
- 2007 **Barbara Klockziem Scholarship**
Martin Luther College

Peer-Reviewed Publications

Li, D., **S.T. Salesky**, and T. Banerjee (2016) Connections between the Ozmidov scale and mean velocity profile in stably stratified atmospheric surface layers. *Journal of Fluid Mechanics*, **797**, R3. [DOI]

Banerjee, T., G.G. Katul, **S.T. Salesky**, and M. Chamecki (2014) Revisiting the formulations for longitudinal velocity variance in the unstable atmospheric surface layer. *Quarterly Journal of the Royal Meteorological Society*, **141(690)**:1699–1711. [DOI]

Salesky, S.T., G.G. Katul, and M. Chamecki (2013) Buoyancy effects on the integral lengthscales and mean velocity profile in atmospheric surface layer flows. *Physics of Fluids*, **25**,105101. [DOI]

Salesky, S.T. and M. Chamecki (2012) Random errors in turbulence measurements in the atmospheric surface layer: implications for Monin-Obukhov similarity theory. *Journal of the Atmospheric Sciences*, **69(12)**:3700–3714. [DOI]

Salesky, S.T. and M. Chamecki (2012) A similarity model of subfilter-scale energy for large eddy simulations of the atmospheric boundary layer. *Boundary-Layer Meteorology*, **145(1)**:69–91. [DOI]

Salesky, S.T., M. Chamecki, and N.L.Dias (2012) Estimating the random error in eddy-covariance based fluxes and other turbulence statistics: the filtering method. *Boundary-Layer Meteorology*, **144(1)**:113–135. [DOI]

Submitted Manuscripts[†]

Ghannam, K., T. Duman, **S.T. Salesky**, M. Chamecki, and G. G. Katul (2016) The nonlocal character of turbulence asymmetry in the convective atmospheric boundary layer. Submitted to *Quarterly Journal of the Royal Meteorological Society*.

Salesky, S.T., M. Chamecki, and E. Bou-Zeid (2016) On the nature of the transition between roll and cellular organization in the convective boundary layer. Submitted to *Boundary-Layer Meteorology*.

Chamecki, M., N.L. Dias, and **S.T. Salesky** (2016) Scaling laws for the structure function in the atmospheric surface layer. Submitted to *Physics of Fluids*.

Manuscripts in Preparation

Salesky, S.T., M. Giometto, M. Chamecki, M. Lehning, and M.B. Parlange (2016) The transport and deposition of heavy particles in complex terrain: an Eulerian model for large eddy simulation.

Invited Talks

Salesky, S.T., 2016. Coherent structures and turbulent transport in the atmospheric boundary layer: Insights from large eddy simulation. Department of Biological and Ecological Engineering Seminar. Oregon State University. April 29, 2016.

Salesky, S.T., 2014. Turbulent transport and convective organization in the unstable atmospheric boundary layer. Fluids Laboratory Seminar. University of British Columbia. April 9, 2014.

Salesky, S.T., and M. Chamecki, 2011. Deviations from Monin-Obukhov similarity. Department of Meteorology ‘Frank’ Talk. The Pennsylvania State University, October 28, 2011.

[†]Submitted manuscripts available upon request (scott.salesky@ubc.ca).

Conference Presentations

Salesky, S.T., M. Chamecki, and E. Bou-Zeid, 2016. On the nature of the transition from roll to cellular organization in the convective boundary layer. 22nd Symposium on Boundary Layers and Turbulence. Salt Lake City, UT, June 20-24, 2016.

Parlange, M.B., **S.T. Salesky**, M.G. Giometto, M. Chamecki, and M. Lehning, 2016. The preferential deposition of snow in complex terrain: an LES investigation. 22nd Symposium on Boundary Layers and Turbulence. Salt Lake City, UT, June 20-24, 2016.

Chamecki, M., Y. Pan, N.L. Dias, and **S.T. Salesky**, 2016. Scaling laws for structure functions in the lowest layers of the ABL. 22nd Symposium on Boundary Layers and Turbulence. Salt Lake City, UT, June 20-24, 2016.

Giometto, M.G., E. Trujillo, K.C. Leonard, T.L. Maksym, F. Comola, **S.T. Salesky**, C. Meneveau, M. Lehning, and M.B. Parlange, 2016. LES modeling of wind over Antarctic snow-ice formations using a dynamic surface roughness approach. 22nd Symposium on Boundary Layers and Turbulence. Salt Lake City, UT, June 20-24, 2016.

Ghannam, K., G.G. Katul, **S.T. Salesky**, and M. Chamecki, 2015. Closure of the heat flux budget with the ejection-sweep cycle in the convective boundary layer. Fall Meeting, AGU. San Francisco, CA, December 14-18, 2015.

Salesky, S.T., M. Giometto, M. Chamecki, M. Lehning, and M.B. Parlange, 2015. The preferential deposition of snow in complex terrain: An LES investigation. Fall Meeting, AGU. San Francisco, CA, December 14-18, 2015.

Salesky, S.T., M. Giometto, M. Chamecki, and M.B. Parlange, 2015. Blowing snow in complex terrain - an LES investigation. International Conference on Model Integration Across Disparate Scales in Complex Turbulent Flow Simulation. State College, PA, June 15-17, 2015.

Banerjee, T., G.G. Katul, **S.T. Salesky**, and M. Chamecki, 2014. Logarithmic scaling in the longitudinal velocity variance explained by a spectral budget in a neutral and unstable atmosphere. APS March Meeting, Denver, CO, March 3-7, 2014.

Salesky, S.T., G.G. Katul, and M. Chamecki, 2013. Buoyancy effects on the mean velocity profile in atmospheric surface layer flows. 66th Annual Meeting, APS/DFD. Pittsburgh, PA, November 24-26, 2013.

Salesky, S.T. and M. Chamecki, 2012. Scatter in plots of Monin-Obukhov similarity functions: random errors or missing physics? American Meteorological Society 20th Symposium on Boundary Layers and Turbulence. Boston, MA, July 8-13, 2012.

Chamecki, M. and **S.T. Salesky**, 2012. A new approach to estimate random errors in turbulence statistics. American Meteorological Society 20th Symposium on Boundary Layers and Turbulence. Boston, MA, July 8-13, 2012.

Chamecki, M., and **S.T. Salesky**, 2011. Spatial locality of turbulent fluxes: toward local flux-gradient relationships in the atmospheric surface layer. Fall Meeting, AGU. San Francisco, CA, December 5-9, 2011.

Salesky, S.T., and M. Chamecki, 2011. Spatial locality of turbulent fluxes: the filtering approach. 64th Annual Meeting, APS/DFD. Baltimore, MD, November 20, 2011.

Salesky, S.T. and M. Chamecki, 2011: A similarity model of subfilter-scale scalar variance for large eddy simulations of the atmospheric boundary layer. 14th Annual Environmental Chemistry

Student Symposium. The Pennsylvania State University, April 9, 2011.

Salesky, S.T. and M. Chamecki, 2010: A local model of the subfilter-scale energy for LES of the atmospheric boundary layer. 19th Symposium on Boundary Layers and Turbulence, Keystone, CO, August 6, 2010.

Salesky, S.T. and M. Chamecki, 2010: A similarity model of the subfilter-scale energy for LES of the ABL. John C. Wyngaard Symposium, The Pennsylvania State University, June 25, 2010.

Teaching Experience

The Pennsylvania State University

Spring, 2014 Substitute Lecturer, *Atmospheric Dynamics* (6 lectures)

Spring, 2013 Teaching Assistant, *Application of Computers to Meteorology*

Fall, 2008 Teaching Assistant, *Introductory Meteorology*

Professional Memberships

American Geophysical Union

American Physical Society

American Meteorological Society

Other Professional Activities

Reviewer of manuscripts for *Advances in Water Resources*, *Agricultural and Forest Meteorology*, *Atmosphere*, *Atmospheric Measurement Techniques*, *Atmospheric Science Letters*, *Boundary-Layer Meteorology*, *Environmental Fluid Mechanics*, *Journal of the Atmospheric Sciences*, *Journal of Geophysical Research*, *Weather and Forecasting*

Session chair, 22nd Symposium on Boundary Layers and Turbulence (June 2016).

Invited attendee to The Burgers Program 2010 Research School in Fluid Dynamics, Topics in Turbulence (May 2010). Center for Scientific Computation and Mathematical Modeling, University of Maryland, College Park, MD

Personal

United States citizen

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