# Curriculum vitae: Andrey A. Grachev

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**Educational Background:**

- M.Sci., Oceanography and Atmospheric Physics, Moscow Institute of Physics and Technology, 1980
- Ph.D. Geophysics and Atmospheric Physics, Moscow Institute of Physics and Technology / A.M. Obukhov Institute of Atmospheric Physics, Russian Academy of Sciences, 1984

**Employment History:**

- 1983 - 1997, A.M. Obukhov Institute of Atmospheric Physics, Russian Academy of Sciences, Moscow, Russia (1983-85, Junior Scientist; 1985-90, Scientist; 1990-97, Senior Scientist)
- 1997 - 1999, Arizona State University, Department of Mechanical and Aerospace Engineering, Environmental Fluid Dynamic Program, Tempe AZ (Research Professor)
- 1999 - Now, University of Colorado, Cooperative Institute for Research in Environmental Sciences (CIRES) / NOAA Earth System Research Laboratory, Boulder CO (Research Associate)

**Research Interests:**

- Atmospheric boundary layers and turbulence in stratified fluids over land/sea/ice
- Measurements of the atmospheric turbulence and flux parameterization
- Air-sea interaction; Arctic research; Atmospheric processes over complex terrain
- Heat/mass transfer in near-wall flows

**Synergistic Activities:**

- Editorial Board Member of the *Boundary-Layer Meteorology* Journal
- Member: American Meteorological Society, American Geophysical Union
- Reviewer: Journal of the Atmospheric Sciences, Journal of Physical Oceanography, Journal of Applied Meteorology, Journal of Atmospheric and Oceanic Technology, Bulletin of the American Meteorological Society, Journal of Geophysical Research, Geophysical Research Letters, Boundary-Layer Meteorology, Journal of Fluid Mechanics, Polar Research, Quarterly Journal of the Royal Meteorological Society, Ocean Dynamics, Ocean Modelling.
- University of Colorado CIRES supervisor
- Participation in 9 ocean expeditions aboard Russian, German, and US research vessels.

**Collaborators:**

- Christopher W. Fairall, NOAA Earth System Research Laboratory, Boulder, CO, USA
- Harindra J. S. Fernando, College of Eng., University of Notre Dame, Notre Dame, IN, USA
- Sergej S. Zilitinkevich, University of Helsinki, Helsinki, Finland
- George S. Golitsyn, A.M. Obukhov Institute of Atmospheric Physics, Moscow, Russia

- P. Ola G. Persson, CIRES, University of Colorado, Boulder, CO, USA
- Edgar L Andreas, U.S. Army NorthWest Research Associates, Inc., Lebanon, NH, USA
- Zbigniew Sorbjan, Department of Physics, Marquette University, Milwaukee, WI, USA
- William Neff, NOAA Earth System Research Laboratory, Boulder, CO, USA
- Taneil Uttal, NOAA Earth System Research Laboratory, Boulder, CO, USA
- Peter S. Guest, Naval Postgraduate School, Monterey, CA, USA
- Eric R. Pardyjak, Depart. Mech. Eng., University of Utah, Salt Lake City, UT, USA
- Detlev Helmig, Inst. Arctic and Alpine Research, University of Colorado, Boulder, CO, USA
- Jeffrey E. Hare, University of Hawaii at Manoa, JIMAR, Honolulu, HI, USA
- James B. Edson, University of Connecticut, Department of Marine Sciences, Groton, CT, USA
- Igor N. Esau, Nansen Environmental and Remote Sensing Center, Bergen, Norway

**Selected Publications:**


Mahrt L., Thomas C.K., Grachev A., Persson P.O.G. (2018) Near-surface vertical flux divergence in the stable boundary layer. *Boundary-Layer Meteorol*. **169**(3): 373–393. DOI: 10.1007/s10546-018-0379-x

Grachev A.A., Persson P.O.G., Uttal T., Akish E.A., Cox C.J., Morris S.M., Fairall C.W., Stone R.S., Lesins G., Makshtas A.P., Repina I.A. (2018) Seasonal and latitudinal variations of surface fluxes at two Arctic terrestrial sites. *Climate Dynamics*. **51**(5-6): 1793–1818. DOI: 10.1007/s00382-017-3983-4

Wang Q., Alappattu D.P., Billingsley S., Blomquist B., Burkholder R.J., Christman A.J., Creegan E.D., de Paolo T.,. Eleuterio D.P., Fernando H.J.S., Franklin K.B., Grachev A.A., Haack T., Hanley T.R., Hocut C.M., Holt T.R., Horgan K., Jonsson H.H., Hale R.A., Kalogiros J.A., Khelif D., Leo L.S., Lind R.J., Lozovatsky I., Panella-Morato J., Mukherjee S., Nuss W.A., Pozderac J., Rogers L.T., Savelyev I., Savige D.K., Shearman R.K., Shen L., Terrill E., Ulate A.M., Wang Q., Wendt R.T., Wiss R., Woods R.K., Xu L., Yamaguchi R.T., Yardim C. (2018) CASPER: Coupled Air-Sea Processes and Electromagnetic (EM) Wave ducting Research. *Bull. Amer. Meteorol. Society*. **99**(7): 1449–1471. DOI: 10.1175/BAMS-D-16-0046.1

Grachev A.A., Leo L.S., Fernando H.J.S., Fairall C.W., Creegan E., Blomquist B.W., Christman A.J., Hocut C.M. (2018) Air-sea/land interaction in the coastal zone. *Boundary-Layer Meteorol*. **167**(2): 181–210. DOI: 10.1007/s10546-017-0326-2

Grachev A.A., Leo L.S., Di Sabatino S., Fernando H.J.S., Pardyjak E.R., Fairall C.W. (2016) Structure of turbulence in katabatic flows below and above the wind-speed maximum. *Boundary-Layer Meteorol*. **159**(3), 469–494. DOI: 10.1007/s10546-015-0034-8

Uttal T, et al. (2016) International Arctic Systems for Observing the Atmosphere: An International Polar Year Legacy Consortium. *Bull. Amer. Meteorol. Society*. **97**(6): 1033–1056. DOI: 10.1175/BAMS-D-14-00145.1

Grachev A.A., Andreas E.L, Fairall C.W., Guest P.S., Persson P.O.G. (2015) Similarity theory based on the Dougherty-Ozmidov length scale. *Quart. J. Roy. Meteorol. Soc.* **141**(690A): 1845–1856. DOI: 10.1002/qj.2488

Fernando H.J.S., et al. (2015) The MATERHORN: Unraveling the intricacies of mountain weather. *Bull. Amer. Meteorol. Society*. **96**(11): 1945–1967. DOI: 10.1175/BAMS-D-13-00131.1

Grachev A.A., Andreas E.L, Fairall C.W., Guest P.S., Persson P.O.G. (2013) The critical Richardson number and limits of applicability of local similarity theory in the stable boundary layer. *Boundary-Layer Meteorol.* **147**(1), 51–82. DOI: 10.1007/s10546-012-9771-0

Grachev A.A., Andreas E.L, Fairall C.W., Guest P.S., Persson P.O.G. (2012) Outlier problem in evaluating similarity functions in the stable atmospheric boundary layer. *Boundary-Layer Meteorol.* **144**(2), 137-155, DOI: 10.1007/s10546-012-9714-9

Grachev, A.A., L. Bariteau, C.W. Fairall, J.E. Hare, D. Helmig, J. Hueber, and E. K. Lang (2011), Turbulent fluxes and transfer of trace gases from ship-based measurements during TexAQS 2006, *J. Geophys. Res.*, **116**, D13110.

Sorbjan, Z., Grachev A.A. (2010) An evaluation of the flux-gradient relationship in the stable boundary layer. *Boundary-Layer Meteorol.* **135**(3), 385–405. DOI 10.1007/s10546-010-9482-3

Andreas E.L, Horst T.W., Grachev A.A., Persson, P.O.G., Fairall C.W., Guest P.S., Jordan R.E. (2010) Parametrizing turbulent exchange over summer sea ice and the marginal ice zone. *Q. J. R. Meteorol. Soc.* **136**(649B), 927–943. DOI: 10.1002/qj.618

Helmig D., Cohen L.D., Bocquet F., Oltmans S., Grachev A., Neff W. (2009) Spring and summertime diurnal surface ozone fluxes over the polar snow at Summit, Greenland, *Geophys. Res. Lett.*, **36**, L08809, DOI:10.1029/2008GL036549.

Neff W., Helmig D., Grachev A., Davis D. (2008) A study of boundary layer behavior associated with high NO concentrations at the South Pole using a minisodar, tethered balloon, and sonic anemometer, *Atmospheric Environment*, **42**(12), 2762-2779.

Grachev A.A., Andreas E.L, Fairall C.W., Guest P.S., Persson P.O.G. (2008) Turbulent measurements in the stable atmospheric boundary layer during SHEBA: ten years after. *Acta Geophysica*. **56**(1), 142–166. DOI: 10.2478/s11600-007-0048-9

Grachev A.A., Andreas E.L, Fairall C.W., Guest P.S., Persson P.O.G. (2007) SHEBA flux-profile relationships in the stable atmospheric boundary layer. *Boundary-Layer Meteorol.* **124**(3), 315–333. DOI 10.1007/s10546-007-9177-6

Grachev A.A., Andreas E.L, Fairall C.W., Guest P.S., Persson P.O.G. (2007) On the turbulent Prandtl number in the stable atmospheric boundary layer. *Boundary-Layer Meteorol.* **125**(2), 329–341. DOI 10.1007/s10546-007-9192-7

Grachev, A.A., Fairall, C.W., Persson, P.O.G., Andreas, E.L, Guest, P.S. (2005) Stable boundary-layer scaling regimes: the SHEBA data. *Boundary-Layer Meteorol.* **116**(2), 201–235. DOI 10.1007/s10546-004-2729-0

Andreas E.L, Claffey K.J., Jordan R.E., Fairall C.W., Guest P.S., Persson P.O.G., Grachev A.A. (2006) Evaluations of the von Kármán constant in the atmospheric surface layer. *J. Fluid Mech.* **559**, 117–149. DOI: 10.1017/S0022112006000164

Fairall C.W., Bradley E.F., Hare J.E., Grachev A.A., Edson J.B. (2003), Bulk parameterization of air-sea fluxes: updates and verification for the COARE algorithm, *Journal of Climate*, **16**(4), 571–591.

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Golitsyn G.S., Grachev A.A. (1980) Velocities and heat and mass transfer during the convection in two-component medium. *Doklady, Acad. Sci., USSR.* **255**(3), 548–552.