

EDGAR L ANDREAS

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EDUCATION

Oregon State University, Corvallis; 9/71 to 6/77
Completed Ph.D. Degree in June 1977
Major: Physical Oceanography
Minor: Applied Mathematics
Thesis Advisor: Clayton A. Paulson
Thesis Title: Observations of Velocity and Temperature
and Estimates of Momentum and Heat Fluxes in the
Internal Boundary Layer over Arctic Leads

Michigan State University, East Lansing; 9/69 to 6/71
Graduated with M.S. Degree in June 1971
Major: Physics

Knox College, Galesburg, IL; 9/65 to 6/69
Graduated with B.A. Degree in June 1969
Major: Physics

EXPERIENCE

NorthWest Research Associates (Seattle Division)
Senior Research Scientist, 1/07 to present

USA CRREL
Research Physicist, Snow and Ice Br., 12/93 to 12/06
Physicist, Snow and Ice Branch; 10/87 to 11/93
Physicist, Snow and Ice Branch, 9/81 to 9/86
Physicist, Physical Sciences Branch; 7/78 to 8/81

NOAA/ERL Wave Propagation Laboratory
National Research Council Associate; 9/86 to 9/87

Oregon State University, School of Oceanography
Research Associate; 7/77 to 6/78
Graduate Research Assistant; 1/72 to 6/77

Michigan State University, Physics Department
Teaching Assistant; 9/69 to 7/71

MEMBERSHIPS

American Geophysical Union, since 1979, Life Member
American Meteorological Society, since 1977
International Glaciological Society, since 1987
Royal Meteorological Society, since 1977, FRMetS
Society for Technical Communication, since 1983, Senior Member

FIELD EXPERIENCE

April 2005: Turbulence measurements to study rapid atmospheric forcing, Lebanon, NH
Sept.–Oct. 1997; May, Sept.–Oct. 1998: Surface flux measurements over sea ice, SHEBA camp in the Arctic Ocean
Jan.–Mar. 1992: Atmospheric boundary layer studies, Russian-American Weddell Sea drifting station
July–Aug. 1991: Micrometeorological measurements during the Sevilleta fluxes experiment, near Socorro, NM
Jan.–Feb. 1986: Surface-layer turbulence and optical turbulence over snow, SNOW-IV, Hollis, ME
Jan. 1984: Surface-layer turbulence and optical turbulence over snow, SNOW-II, Grayling, MI
Nov.–Dec. 1982: Surface-layer turbulence and optical turbulence over snow, SNOW-1B, Grayling, MI
Jan.–Feb. 1982: Surface-layer turbulence and optical turbulence over snow, SNOW-1A, Camp Ethan Allen, VT
Oct.–Nov. 1981: Air-sea-ice interaction studies, U.S.-U.S.S.R. Weddell Polynya Expedition
Feb.–April 1974: Thesis research, AIDJEX Lead Experiment, Barrow, AK, and Beaufort Sea
Aug. 1973: Technician, Hydrographic cruise off Oregon coast
May 1972: Technician, Hydrographic and air-sea interaction cruise off Oregon coast

OTHER COURSES

Presenting Data and Information, taught by Edward Tufte, Boston, MA, 2/23/07
Time Series Analysis Methods and Applications in the Atmospheric Sciences, AMS Short Course, Long Beach, CA, 2/1 to 2/2/97
Creative Writing, Lebanon College, Lebanon, NH, 3/10 to 5/26/95
Cold Regions Land and Marine Survival, taught by LTR Training Systems, Hanover, NH, 1/30 to 2/3/95
Accounting for Uncertainty, taught by M.E. Harr, Lebanon, NH, 3/4 to 3/8/91
Professional Writing Techniques, Hanover, NH, 10/26 to 10/28/88
Probability and Statistics in Science and Engineering, taught by M.E. Harr, Hanover, NH, 12/17 to 12/21/84
Clear Technical Writing, taught by J.A. Brogan, Boston, MA, 6/11 to 6/12/84
Vaisala Sounding System, Vaisala Oy, Helsinki, Finland, 8/24 to 8/28/81
Russian, Dartmouth College, Hanover, NH, 10/22 to 12/10/80
Measurement Applications of Random Data Analysis, taught by J.S. Bendat and A.G. Piersol, San Francisco, CA, 12/12/78

- AWARDS AND HONORS**
- 2007: Recognized as a distinguished alumnus of Sterling High School, Sterling, Illinois
 - 2002: Performance Award from CRREL
 - 2002: On-the-Spot Award from CRREL for a team effort to develop a new method to estimate reservoir evaporation
 - 2001: Performance Award from CRREL
 - 2001: ERDC Award for Outstanding Team Effort as member of National Missile Defense Technical Team and comparable award from CRREL
 - 2000: Performance Award from CRREL
 - 2000: Award of Excellence from the Boston and Northern New England Chapters of the Society for Technical Communication for my paper "Obtaining Surface Momentum and Sensible Heat Fluxes from Crosswind Scintillation"
 - 2000: On-the-Spot Award for being CRREL's most cited author in 1999
 - 1999: Highly Successful Performance Award from CRREL
 - 1999: CRREL Special Act Award for serving 3+ years as CRREL seminar coordinator
 - 1998: Exceptional Performance Award from CRREL
 - 1997: Exceptional Performance Award from CRREL
 - 1996: Exceptional Performance Award from CRREL
 - 1995: Award of Excellence from the Boston and Northern New England Chapters of the Society for Technical Communication for my paper "The Temperature of Evaporating Sea Spray Droplets"
 - 1995: Exceptional Performance Award from CRREL
 - 1994: Exceptional Performance Award from CRREL
 - 1993: Antarctica Service Medal
 - 1993: Exceptional Performance Award from CRREL
 - 1993: Award of Distinction at the Society for Technical Communication's International Technical Publications Competition for my paper "Sea Spray and the Turbulent Air-Sea Heat Fluxes"
 - 1992: Award of Distinction from the Boston and Northern New England Chapters of the Society for Technical Communication for my paper "Sea Spray and the Turbulent Air-Sea Heat Fluxes"
 - 1992: Exceptional Performance Award from CRREL
 - 1992: Army Research and Development Achievement Award
 - 1991: Exceptional Performance Award from CRREL
 - 1990: Exceptional Performance Award from CRREL
 - 1990: CRREL Research and Development Achievement Award
 - 1989: Exceptional Performance Award from CRREL
 - 1988: Exceptional Performance Award from CRREL

- 1986–87: National Research Council Associateship at NOAA
- 1986: Exceptional Performance Award from CRREL
- 1985: Nominated for Army Research and Development Achievement Award
- 1983: Sustained Superior Performance Award from CRREL
- 1973: Inducted into The Honor Society of Phi Kappa Phi
- 1967: Knox College Colorado Outward Bound Scholarship
- 1965–69: Illinois State Scholarship

PROFESSIONAL ACTIVITIES

- National Aeronautics and Space Administration, Member of review panel for proposals submitted to the Modeling, Analysis, and Prediction program in the Earth Science Division, November–December 2010
- American Meteorological Society's 17th Conference on Air-Sea Interaction, Member Program Committee, Co-Chair of Student Program, Judge in Best Student Paper Competition, and Session Chairperson, 2009–2010
- American Meteorological Society Committee on Air-Sea Interaction, Member 2005–2011, Chairman 2009–2011
- National Science Foundation, Office of Polar Programs, Member of review panel for proposals submitted to Arctic System Science and Arctic Natural Sciences, April 2009
- Society for Technical Communication, Special Interest Group (SIG) on Scientific Communication, Member of team for rechartering this SIG, 2008
- American Meteorological Society's 16th Conference on Air-Sea Interaction, Program Co-Chairperson, Session Chairperson, and Judge in Best Student Paper Competition, 2007–2009
- American Meteorological Society's Annual Meeting Oversight Committee, Member, 2007–2011
- American Meteorological Society's 15th Conference on Air-Sea Interaction, Program Co-Chairperson, Session Chairperson, and Judge in Best Student Paper Competition, 2006–2007
- American Meteorological Society's 14th Conference on Interaction of the Sea and Atmosphere, Member Program Committee, Session Chairperson, and Judge in Best Student Paper Competition, 2005–2006
- Polar Climate Working Group of the Community Climate System Model (CCSM), Member 2005–present
- World Climate Research Programme Working Group on Surface Fluxes, Member, 2004–2007
- American Meteorological Society's 7th Conference on Polar Meteorology and Oceanography, Member Program Committee and Session Chairperson, 2003.
- CRREL representative on Arctic Research Consortium of the United States, 2003–2006
- Short Course on Technical Writing presented at the Annual Meeting of the American Meteorological Society, February 2003, Organizer and Instructor
- American Meteorological Society Committee on Polar Meteorology and Oceanography, Member 2002–2005
- SHEBA Phase III Science Team, Member, 2000–2003

AGU/ASLO 2000 Ocean Sciences Meeting, Session Chairperson
Member Editorial Board of *Atmospheric Research*, 1998–2008
CRREL GS-14 Evaluation Panel, 1999
CRREL Seminar Coordinator, October 1995–February 1999
American Meteorological Society’s 13th Symposium on Boundary
Layers and Turbulence, Session Chairperson and Judge in
Best Student Paper Competition, 1999
SHEBA Phase II Science Team, Member, 1997–2000
American Meteorological Society’s 12th Symposium on Boundary
Layers and Turbulence, Session Chairperson and Judge in
Best Student Paper Competition, 1997
CRREL GS-12 Evaluation Panel, 1993, 1997
Guest editor of a special issue of *Atmospheric Research* (1996,
Vol. 40, Nos. 2–4) on tropospheric turbulence, 1994–1995
Second Workshop on Nonstationary Random Processes and Their
Applications, Member of Organizing Committee, 1994–
1995
American Meteorological Society’s 11th Symposium on Boundary
Layers and Turbulence, Program Chairman, 1994–1995
National Science Foundation, Office of Polar Programs, Member
of review panel for proposals submitted to Polar Oceans
and Climate Systems, September 1994
American Meteorological Society Scientific and Technological
Activities Commission, Member 1993–1995
American Meteorological Society Committee on Boundary Layers
and Turbulence, Member 1990–1996, Chairman 1993–
1995
American Meteorological Society’s Tenth Symposium on
Turbulence and Diffusion, Member of the Program
Committee, 1992
Army Research Office Technical Advisory Council that monitored
the Measurement, Analysis, and Prediction of Atmospheric
Boundary Layer Turbulence Center at Penn State
University, Member 1991–1997
Ice Station Weddell Science Committee, Member 1991–1993

Member of these Ph.D. thesis committees:

James A. Mueller, College of Marine and Earth Studies, University
of Delaware, 2006–2009
Alexandra I. Weiss, Swiss Federal Technical Institute (ETH),
Zurich, Switzerland, 2001–2002
Magdalena D. Anguelova, College of Marine Studies, University
of Delaware, 1999–2002
Lionel P. Poggio, Swiss Federal Technical Institute (ETH), Zurich,
Switzerland, 1997–1998

PROFESSIONAL ACTIVITIES (Continued)

Invited seminars presented:

Lyndon State College, Atmospheric Sciences, April 2011
3rd Scintillometer Workshop, Wageningen, The Netherlands, April 2011
University of Rhode Island, Graduate School of Oceanography, Narragansett, April 2010
University of Delaware, College of Marine and Earth Studies, Newark, February 2007
NorthWest Research Associates, Bellevue, Washington, September 2005
Swiss Federal Institute for Snow and Avalanche Research, Davos, September 2005
British Antarctic Survey, Cambridge, England, May 2005
University of Reading, Department of Meteorology, Reading, England, May 2005
Stony Brook University, Marine Sciences Research Center, Stony Brook, New York, September 2004
University of Arizona, Department of Atmospheric Sciences, Tucson, April 2004
Oregon State University, College of Oceanic and Atmospheric Sciences, Corvallis, June 2003
Swiss Federal Technical Institute (ETH), Zurich, January 2002
University of Delaware, College of Marine Studies, Lewes, May 2001
University of Vermont, Department of Mechanical Engineering, Burlington, November 2000
NCAR Geophysical Turbulence Program workshop on Turbulence and the Air-Sea Interface, Boulder, Colorado, August 2000
Woods Hole Oceanographic Institution, Department of Applied Ocean Physics and Engineering, Woods Hole, February 2000
University of Delaware, College of Marine Studies, Newark, November 1999
Paul Scherrer Institute, Villigen, Switzerland, June 1998
Swiss Federal Technical Institute (ETH), Zurich, June 1998
Paul Scherrer Institute, Villigen, Switzerland, March 1996
Summer Institute on the Physics of Ice-Covered Seas, Savonlinna, Finland, June 1994
Oregon Graduate Institute, Beaverton, September 1992
The Pennsylvania State University, Department of Meteorology, University Park, March 1990
University of Connecticut, Marine Sciences Institute, Groton, November 1987

NOAA Wave Propagation Laboratory, Boulder, Colorado, January
1987
The Pennsylvania State University, Department of Meteorology,
University Park, November 1985

JOURNAL ARTICLES

Air-Sea Interaction

- Andreas, E. L., 1989: Comments on “A physical bound on the Bowen ratio.” *Journal of Applied Meteorology*, **28**, 1252–1254.
- Andreas, E. L., and B. A. Cash, 1996: A new formulation for the Bowen ratio over saturated surfaces. *Journal of Applied Meteorology*, **35**, 1281–1289.
- Andreas, E. L., 2002: Book review: *Wind Stress over the Ocean*. *Atmospheric Research*, **62**, 171–173.
- Andreas, E. L., and S. Wang, 2007: Predicting significant wave height off the northeast coast of the United States. *Ocean Engineering*, **34**, 1328–1335.
- Andreas, E. L., 2009: Relating the drag coefficient and the roughness length over the sea to the wavelength of the peak waves. *Journal of Physical Oceanography*, **39**, 3011–3020.
- Andreas, E. L., 2010: Reply. *Journal of Physical Oceanography*, **40**, 2563–2568.
- Andreas, E. L., L. Mahrt, and D. Vickers, 2011: A new drag relation for aerodynamically rough flow over the ocean. *Journal of the Atmospheric Sciences*, submitted.
- Mahrt, L., D. Vickers, E. L. Andreas, and D. Khelif, 2011: Sensible heat flux in near-neutral conditions over the sea. *Journal of Physical Oceanography*, submitted.

Air-Sea-Ice Interaction

- Andreas, E. L., 1982: Atmospheric boundary layer measurements in the Weddell Sea. *Antarctic Journal of the United States*, **17** (5), 113–115.
- Andreas, E. L., and S. F. Ackley, 1982: On the differences in ablation seasons of Arctic and Antarctic sea ice. *Journal of the Atmospheric Sciences*, **39**, 440–447.
- Andreas, E. L., 1983: Comment on “Water drag coefficient of first-year sea ice” by M.P. Langleben. *Journal of Geophysical Research*, **88**, 779–780.
- Andreas, E. L., W. B. Tucker III, and S. F. Ackley, 1984: Atmospheric boundary-layer modification, drag coefficient, and surface heat flux in the Antarctic marginal ice zone. *Journal of Geophysical Research*, **89**, 649–661.
- Andreas, E. L., 1985: Heat and moisture advection over Antarctic sea ice. *Monthly Weather Review*, **113**, 736–746.
- Andreas, E. L., and A. P. Makshtas, 1985: Energy exchange over Antarctic sea ice in the spring. *Journal of Geophysical Research*, **90**, 7199–7212.
- Makshtas, A. P., P. V. Bogorodskii, and E. L. Andreas, 1986: Small-scale air-sea interaction in the vicinity of Maud Rise (in Russian). *Information Bulletin of the Soviet Antarctic Expeditions*, **108**, Arctic and Antarctic Research Institute, Leningrad, 67–71.

- Andreas, E. L, 1987: A theory for the scalar roughness and the scalar transfer coefficients over snow and sea ice. *Boundary-Layer Meteorology*, **38**, 159–184.
- Andreas, E. L, 1987: Comment on “Atmospheric boundary layer modification in the marginal ice zone” by T.J. Bennett, Jr., and K. Hunkins. *Journal of Geophysical Research*, **92**, 3965–3968.
- Andreas, E. L, 1989: A year of Bowen ratios over the frozen Beaufort Sea. *Journal of Geophysical Research*, **94**, 12,721–12,724.
- Andreas, E. L, K. J. Claffey, A. P. Makshtas, and B. V. Ivanov, 1992: Atmospheric sciences on Ice Station Weddell. *Antarctic Journal of the United States*, **27** (5), 115–117.
- Andreas, E. L, K. J. Claffey, and A. P. Makshtas, 1993: Low-level atmospheric jets and inversions on Ice Station Weddell. *Antarctic Journal of the United States*, **28** (5), 274–276.
- Andreas, E. L, M. A. Lange, S. F. Ackley, and P. Wadhams, 1993: Roughness of Weddell Sea ice and estimates of the air-ice drag coefficient. *Journal of Geophysical Research*, **98**, 12,439–12,452.
- ISW Group, 1993: Weddell Sea exploration from ice station. *Eos, Transactions, American Geophysical Union*, **74**, 121–126.
- Andreas, E. L, and K. J. Claffey, 1994: Drifted snow affects momentum exchange over sea ice. *Antarctic Journal of the United States*, **29** (5), 89–91.
- Andreas, E. L, 1995: Air-ice drag coefficients in the western Weddell Sea: 2. A model based on form drag and drifting snow. *Journal of Geophysical Research*, **100**, 4833–4843.
- Andreas, E. L, and K. J. Claffey, 1995: Air-ice drag coefficients in the western Weddell Sea: 1. Values deduced from profile measurements. *Journal of Geophysical Research*, **100**, 4821–4831.
- Jones, K. F., J. Richter-Menge, D. S. Sodhi, and E. L. Andreas, 1996: Book review: *Ice and Construction*. *Quarterly Journal of the Royal Meteorological Society*, **112**, 792–793.
- Makshtas, A. P., V. F. Timachev, and E. L. Andreas, 1998: Structure of the atmospheric lower layer over the Weddell Sea ice (in Russian). *Meteorologija i Gidrologija*, **10**, 92–102. English translation in Makshtas, A. P., V. F. Timachev, and E. L. Andreas, 1998: Structure of the lower atmospheric layer over ice cover of the Weddell Sea. *Russian Meteorology and Hydrology*, **10**, 68–75.
- Jordan, R. E., E. L. Andreas, and A. P. Makshtas, 1999: The heat budget of snow-covered sea ice at North Pole 4. *Journal of Geophysical Research*, **104**, 7785–7806.
- Makshtas, A. P., E. L. Andreas, P. N. Svyaschennikov, and V. F. Timachev, 1999: Accounting for clouds in sea ice models. *Atmospheric Research*, **52**, 77–113.
- Perovich, D. K. E. L. Andreas, J. A. Curry, H. Eiken (sic), C. W. Fairall, T. C. Grenfell, P. S. Guest, J. Intrieri, D. Kadko, R. W. Lindsay, M. G. McPhee, J. Morison, R. E. Moritz, C. A. Paulson, W. S. Pegau, P. O. G. Persson, R. Pinkel, J. A. Richter-Menge, T. Stanton, H.

- Stern, M. Sturm, W. B. Tucker III, and T. Uttal, 1999: Year on ice gives climate insights. *Eos, Transactions, American Geophysical Union*, **41**, 481–486.
- Perovich, D. K., E. L. Andreas, J. A. Curry, H. Eiken (sic), C. W. Fairall, T. C. Grenfell, P. S. Guest, J. Intrieri, D. Kadko, R. W. Lindsay, M. G. McPhee, J. Morison, R. E. Moritz, C. A. Paulson, W. S. Pegau, P. O. G. Persson, R. Pinkel, J. A. Richter-Menge, T. Stanton, H. Stern, M. Sturm, W. B. Tucker III, and T. Uttal, 1999: Year on ice gives climate insights. *Earth in Space*, **12**, 8–12.
- Andreas, E. L., K. J. Claffey, and A. P. Makshtas, 2000: Low-level atmospheric jets and inversions over the western Weddell Sea. *Boundary-Layer Meteorology*, **97**, 459–486.
- Beesley, J. A., C. S. Bretherton, C. Jakob, E. L. Andreas, J. M. Intrieri, and T. A. Uttal, 2000: A comparison of cloud and boundary layer variables in the ECMWF forecast model with observations at the Surface Heat Budget of the Arctic Ocean (SHEBA) ice camp. *Journal of Geophysical Research*, **105**, 12,337–12,349.
- Overland, J. E., S. L. McNutt, J. Groves, S. Salo, E. L. Andreas, and P. O. G. Persson, 2000: Regional sensible and radiative heat flux estimates for the winter Arctic during the Surface Heat Budget of the Arctic Ocean (SHEBA) experiment. *Journal of Geophysical Research*, **105**, 14,093–14,102.
- Andreas, E. L., 2002: Parameterizing scalar transfer over snow and ice: A review. *Journal of Hydrometeorology*, **3**, 417–432.
- Andreas, E. L., P. S. Guest, P. O. G. Persson, C. W. Fairall, T. W. Horst, R. E. Moritz, and S. R. Semmer, 2002: Near-surface water vapor over polar sea ice is always near ice saturation. *Journal of Geophysical Research*, **107** (C10), SHE 8-1–SHE 8-15. (DOI: 10.1029/2000JC000411).
- Intrieri, J. M., C. W. Fairall, M. D. Shupe, P. O. G. Persson, E. L. Andreas, P. S. Guest, and R. E. Moritz, 2002: An annual cycle of Arctic surface cloud forcing at SHEBA. *Journal of Geophysical Research*, **107** (C10), SHE 13-1–SHE 13-14. (DOI: 10.1029/2000JC000439).
- Persson, P. O. G., C. W. Fairall, E. L. Andreas, P. S. Guest, and D. K. Perovich, 2002: Measurements near the Atmospheric Surface Flux Group tower at SHEBA: Near-surface conditions and surface energy budget. *Journal of Geophysical Research*, **107** (C10), SHE 21-1–SHE 21-35. (DOI: 10.1029/2000JC000705).
- Makshtas, A. P., S. V. Shoutilin, and E. L. Andreas, 2003: Possible dynamic and thermal causes for the recent decrease in sea ice in the Arctic Basin. *Journal of Geophysical Research*, **108** (C7), 25-1–25-13. (DOI: 10.1029/2001JC000878).
- Andreas, E. L., R. E. Jordan, and A. P. Makshtas, 2004: Simulations of snow, ice, and near-surface atmospheric processes on Ice Station Weddell. *Journal of Hydrometeorology*, **5**, 611–624.
- Semiletov, I., A. Makshtas, S.-I. Akasofu, and E. L. Andreas, 2004: Atmospheric CO₂ balance: The role of Arctic sea ice. *Geophysical Research Letters*, **31** (L05121), 4 pp. (DOI: 10.1029/2003GL017996).

Journal Articles, Continued

- Andreas, E. L., R. E. Jordan, and A. P. Makshtas, 2005: Parameterizing turbulent exchange over sea ice: The Ice Station Weddell results. *Boundary-Layer Meteorology*, **114**, 439–460.
- Brunke, M. A., M. Zhou, X. Zeng, and E. L. Andreas, 2006: An intercomparison of bulk aerodynamic algorithms used over sea ice with data from the SHEBA experiment. *Journal of Geophysical Research*, **111** (C9, C09001), 20 pp. (DOI: 10.1029/2005JC002907).
- Andreas, E. L., P. O. G. Persson, R. E. Jordan, T. W. Horst, P. S. Guest, A. A. Grachev, and C. W. Fairall, 2010: Parameterizing turbulent exchange over sea ice in winter. *Journal of Hydrometeorology*, **11**, 87–104.
- Andreas, E. L., T. W. Horst, A. A. Grachev, P. O. G. Persson, C. W. Fairall, P. S. Guest, and R. E. Jordan, 2010: Parametrizing turbulent exchange over summer sea ice and the marginal ice zone. *Quarterly Journal of the Royal Meteorological Society*, **136**, 927–943.
- Andreas, E. L., 2011: A relationship between the aerodynamic and physical roughness of winter sea ice. *Quarterly Journal of the Royal Meteorological Society*, **137**, 1581–1588.
- Andreas, E. L., 2011: The fallacy of drifting snow. *Boundary-Layer Meteorology*, **141**, 333–347.

Leads and Polynyas

- Andreas, E. L., and C. A. Paulson, 1979: Velocity spectra and cospectra and integral statistics over Arctic leads. *Quarterly Journal of the Royal Meteorological Society*, **105**, 1053–1070.
- Andreas, E. L., C. A. Paulson, R. M. Williams, R. W. Lindsay, and J. A. Businger, 1979: The turbulent heat flux from Arctic leads. *Boundary-Layer Meteorology*, **17**, 57–91.
- Andreas, E. L., 1980: Estimation of heat and mass fluxes over Arctic leads. *Monthly Weather Review*, **108**, 2057–2063.
- Andreas, E. L., R. M. Williams, and C. A. Paulson, 1981: Observations of condensate profiles over Arctic leads with a hot-film anemometer. *Quarterly Journal of the Royal Meteorological Society*, **107**, 437–460.
- Andreas, E. L., and B. Murphy, 1986: Bulk transfer coefficients for heat and momentum over leads and polynyas. *Journal of Physical Oceanography*, **16**, 1875–1883.
- Schnell, R. C., R. G. Barry, M. W. Miles, E. L. Andreas, L. F. Radke, C. A. Brock, M. P. McCormick, and J. L. Moore, 1989: Lidar detection of leads in Arctic sea ice. *Nature*, **339**, 530–532.
- Andreas, E. L., M. W. Miles, R. G. Barry, and R. C. Schnell, 1990: Lidar-derived particle concentrations in plumes from Arctic leads. *Annals of Glaciology*, **14**, 9–12.
- Serreze, M. C., J. A. Maslanik, M. C. Rehder, R. C. Schnell, J. D. Kahl, and E. L. Andreas, 1992: Theoretical heights of buoyant convection above open leads in the winter Arctic pack ice cover. *Journal of Geophysical Research*, **97**, 9411–9422.

Journal Articles, Continued

Andreas, E. L, and B. A. Cash, 1999: Convective heat transfer over wintertime leads and polynyas. *Journal of Geophysical Research*, **104**, 25,721–25,734.

Measurements Physics

Andreas, E. L, 1979: Analysis of crossed hot-film velocity data. *DISA Information*, **24**, 15–23.

Andreas, E. L, 1979: The calibration of cylindrical hot-film velocity sensors. *Journal of Applied Mechanics*, **46**, 15–20.

Andreas, E. L, 1981: The effects of volume averaging on spectra measured with a Lyman-alpha hygrometer. *Journal of Applied Meteorology*, **20**, 467–475.

Andreas, E. L, J. H. Rand, and S. F. Ackley, 1984: A simple boom assembly for the shipboard deployment of air-sea interaction instruments. *Ocean Engineering*, **11**, 227–237.

Andreas, E. L, 1986: A new method of measuring the snow-surface temperature. *Cold Regions Science and Technology*, **12**, 139–156.

Andreas, E. L, and B. Murphy, 1986: Calibrating cylindrical hot-film anemometer sensors. *Journal of Atmospheric and Oceanic Technology*, **3**, 283–298.

Andreas, E. L, J. R. Gosz, and C. N. Dahm, 1992: Can long-path FTIR spectroscopy yield gas flux measurements through a variance technique? *Atmospheric Environment*, **26A**, 225–233.

Moon

Andreas, E. L, 2007: New estimates for the sublimation rate for ice on the Moon. *Icarus*, **186**, 24–30.

On Writing

Andreas, E. L, 2007: A new world record. *the Exchange*, **14** (2), 8. (Newsletter of STC's Scientific Communication community.)

Scintillation

Andreas, E. L, 1988: Atmospheric stability from scintillation measurements. *Applied Optics*, **27**, 2241–2246.

Andreas, E. L, 1988: Estimating C_n^2 over snow and sea ice from meteorological data. *Journal of the Optical Society of America A*, **5**, 481–495.

Andreas, E. L, 1989: The refractive index structure parameter, C_n^2 , for a year over the frozen Beaufort Sea. *Radio Science*, **24**, 667–679.

Andreas, E. L, 1989: Two-wavelength method of measuring path-averaged turbulent surface heat fluxes. *Journal of Atmospheric and Oceanic Technology*, **6**, 280–292.

Journal Articles, Continued

- Andreas, E. L, 1990: Three-wavelength method of measuring path-averaged turbulent heat fluxes. *Journal of Atmospheric and Oceanic Technology*, **7**, 801–814.
- Andreas, E. L, 1991: Using scintillation at two wavelengths to measure path-averaged heat fluxes in free convection. *Boundary-Layer Meteorology*, **54**, 167–182.
- Andreas, E. L, 1992: Uncertainty in a path-averaged measurement of the friction velocity u_* . *Journal of Applied Meteorology*, **31**, 1312–1321.
- Andreas, E. L, 2000: Obtaining surface momentum and sensible heat fluxes from crosswind scintillation. *Journal of Atmospheric and Oceanic Technology*, **17**, 3–16.
- Poggio, L. P., M. Furger, A. S. Prévôt, W. K. Graber, and E. L. Andreas, 2000: Scintillometer wind measurements over complex terrain. *Journal of Atmospheric and Oceanic Technology*, **17**, 17–26.
- Andreas, E. L, C. W. Fairall, P. O. G. Persson, and P. S. Guest, 2003: Probability distributions for the inner scale and the refractive index structure parameter and their implications for flux averaging. *Journal of Applied Meteorology*, **42**, 1316–1329.
- Andreas, E. L, 2011: Two experiments on using a scintillometer to infer the surface fluxes of momentum and sensible heat. *Journal of Applied Meteorology and Climatology*, submitted.

Sea Spray

- Andreas, E. L, 1990: Time constants for the evolution of sea spray droplets. *Tellus*, **42B**, 481–497.
- Andreas, E. L, 1992: Sea spray and the turbulent air-sea heat fluxes. *Journal of Geophysical Research*, **97**, 11,429–11,441.
- Andreas, E. L, 1994: Comments on “On the contribution of spray droplets to evaporation” by Lutz Hasse. *Boundary-Layer Meteorology*, **68**, 207–214.
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