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**BIOGRAPHICAL SUMMARY**

**George Spencer Young**

**PERSONAL DATA**

 Present Address: 2491 Buchenhorst Road

 State College, Pennsylvania 16801

 Telephone: (814) 234-9021

 Date of Birth: August 15, 1957

 Birthplace: Kansas City, Kansas

 Citizenship: USA

 Marital Status: Married

**EXPERIENCE AND EDUCATION**

9/1986-6/1992: Assistant Professor

7/1992-6/2000: Associate Professor

7/2000-present: Professor

 The Pennsylvania State University

 Department of Meteorology and Atmospheric Science,

 also affiliated with Department of Energy and Mineral Engineering

**Foci**

Conducting research and teaching in the fields of observational and predictive meteorology on size scales ranging from turbulence to synoptic disturbances. Observational research emphasis is on the interactions between buoyantly driven circulations and their environment. Research efforts include participation in the planning, execution, and data analysis of boundary layer and mesoscale experiments funded by the National Science Foundation, the Office of Naval Research, and the National Oceanic and Atmospheric Administration. Forecasting research emphasis is on the application of statistics, optimization and artificial intelligence to problems in weather forecasting, atmospheric transport/dispersion and weather risk management with funding from the National Science Foundation, the Defense Threat Reduction Agency and the Federal Aviation Administration.

**Field programs**

Participated in the Phoenix 84 boundary layer field program. Adapted flight patterns to meet scientific mission and flight safety requirements in changing weather conditions as scientist in charge aboard the National Center for Atmospheric Research Kingair Aircraft, N312D. Represented the Research Aviation Facility of the National Center for Atmospheric Research at the planning meetings and daily briefings. Coordinated operations of multiple aircraft and ground based radars.

Participated in the Prestorm 85 mesoscale convection field program. Controlled a Doppler radar and its supporting technicians as meteorologist in charge of the CP-3 remote site, cooperated with the personnel of the National Weather Service, Wichita, Kansas office to digitize data from their WSR-57 radar. Responsible for weather monitoring and short-range forecasting using radar, satellite, surface and upper air data obtained in real time via micro-computer system.

Participated in the Equatorial Mesoscale Experiment, including mission planning and resource allocation as Ground Mission Scientist. Directed the missions in Mesoscale Convective Systems and within the Convective Boundary Layer as Airborne Mission Scientist.

Participated in the FIRE experiment as an Airborne Mission Scientist on flights through the Cloud-Topped Marine Boundary Layer.

Participated in the installation and operation of boundary layer and tropospheric sensor systems on the RV Wecoma during the TOGA COARE Pilot Cruise, the RV Moana wave during the TOGA COARE IOP, and aboard the USNS Barlett and RV Oceanus during the HI-RES Gulf Stream Cruises.

Participated in planning and operations of the Atlantic Stratocumulus Experiment as co-chairman of the aircraft working group, member of the science team, and Airborne Mission Scientist. Senior meteorologist on one leg of the ASTEX/MAGE cruise of the RV Oceanus.

Participated in planning and aircraft operations for the Soaring Pelican Atmosphere Modeling Study, a multi-institution interdisciplinary study of the convective boundary layer and soaring bird flight over complex terrain. Served as Chief Meteorologist for the Soaring Pelican Atmospheric Modeling Study and the Saskatchewan Swainson’s Hawk Study.

Served as Aircraft Coordinator and NCAR Electra Principal Investigator for the Lake-ICE convective boundary layer growth experiment. Studied and supervised graduate research on the turbulence dynamics of the entrainment zone.

Served as on-board meteorologist for the Lockheed Martin / Penn State team developing the first ship-borne phased-array Doppler weather radar. Participated in the planning and analysis of meteorological tests of this new radar. Provided meteorological analysis and data collection during the at sea tests aboard the USS O’Kane.

Served as an official observer aboard the USS George Washington during the spring 2000 Joint Tactical Fleet Exercise (JTFEX 00-02). Monitored use of conventional weather data and experimental phased-array Doppler weather radar observations in the tactical environment.

Participated in the planning of the NSF funded SARJET field experiment of in situ and remote sensing of Alaskan coastal barrier jets.

Participated in the planning of the NSF funded OWLeS field experiment and in University of Wyoming KingAir airborne operations in lake effect convection in the vicinity of Lakes Erie and Ontario.

**Systems Development**

Participated in an in-depth review of the U.S. Marine Corps’ weather forecasting service and meteorological training program. Contributed expertise in meteorological instrumentation, operations, and education to the subsequent recommendations.

Participated in the development and testing of a mobile data assimilation system (MMS-P) for the U.S. Army and Marine Corps. Explored the interplay of terrain, synoptic setting, and system design in determining system performance.

**Prior experience**

9/1982 - 8/1986: Colorado State University

 Ph.D. (1986) Atmospheric Science

 Major Professor: Richard H. Johnson

 GPA: 4.00/4.00

Defended a dissertation on the structure and role of thermals in the convective boundary layer using aircraft data from Phoenix 78 field program. Expanded the use of mixed layer scaling to include temperature spectra. Invented a method for the conditional sampling of the turbulence data based on the dominant scales of convection. These scales were determined from horizontal spectra of temperature, vertical velocity and horizontal wind speed. Determined the mass, temperature and vertical velocity budgets for boundary layer convection. Related the scale dependence of turbulence statistics to these budgets.

6/1982 - 8/1982: Research Associate

 Colorado State University

 Department of Atmospheric Sciences

Created and used data analysis procedures to determine heat and moisture budgets of tropical anvil clouds from rawinsonde networks.

9/1979 - 5/1982: Florida State University

 M.S. (1982) Meteorology

 Major Professor: William Mach

 GPA: 4.00/4.00

Assumed responsibility for operations of a weather radar during the National Severe Storms Laboratory's observing program in the spring of 1981. Completed a thesis on the numerical modeling and radar observation of clear air longitudinal convective rolls in the planetary boundary layer.

6/1979 - 8/1979: Meteorologist

 National Hurricane and Experimental Meteorology Laboratory of the National Oceanic and Atmospheric Administration's Environmental Research Laboratories

 Coordinated airborne cloud seeding activities using weather radar as part of the Florida Area Cumulus Experiment. Participated in the statistical analysis of this precipitation enhancement experiment.

9/1975 - 6/1979: Florida State University

 B.S. (1979) Meteorology; Minor: Mathematics

 GPA: 3.82/4.00, Magna Cum Laude

Applied knowledge of the three-dimensional sea breeze circulation to explain periodic sulfate fumigation in the Tampa Bay region of Florida. Assisted in the analysis of particulate samples using proton induced x-ray emission techniques.

**Fellowships, Awards, Honor Societies**

 National Merit Scholarship, Florida State University (1975-1979)

 Phi Eta Sigma (Freshman Honor Society) (1977)

 Phi Beta Kappa (National Honor Society) (1978)

 Phi Kappa Phi (National Honor Society) (1978)

 Chi Epsilon Pi (Meteorology) (1979)

 Pi Mu Epsilon (Mathematics) (1979)

Sigma Xi (Scientific Research Society) (1981)

 Colorado Fellowship (1983)

 American Meteorological Society (Member) (1986-2013); (Fellow) (2013-present)

 National Weather Association (Member) (1989-present)

 ERL Outstanding Paper Award (co-winner) (1997)

 NASA Group Achievement Award (as FIRE Science Team Member) (1997)

 Earth and Mineral Sciences Faculty Mentoring Award (2005)

**Professional Service Activities**

Reviewer of proposals for:

National Science Foundation, National Aeronautics and Space Administration, U.S. Air Force, Army Research Office, Hong Kong Research Grants Council, National Oceanic and Atmospheric Administration, Department of Energy, Cambridge Press, Fonds zur Forderung der Wissenshaftsfonds (the Austrian Science Fund), Army Research Office, Deutsche Forschungsgemeinschaft (the German Science Foundation), Netherlands Organization for Scientific Research

Reviewer of articles for:

Acta Geophysica, Agriculture and Forest Meteorology, Annals of GIS, Applied Energy, Atmosphera, Atmospheric Environment, Boundary Layer Meteorology, Bulletin of The American Meteorological Society, Chinese Journal of Oceanography and Limnology, Dynamics of Atmospheres and Oceans, Environmental Fluid Dynamics, EOS, Geophysical Research Letters, Geoscience and Remote Sensing Letters, Journal of Applied Meteorology, Journal of Applied Meteorology and Climate, Journal of the Atmospheric Sciences, Journal of Climate, Journal of Geophysical Research, Journal of Atmospheric and Oceanic Technology. Journal of Hazardous Materials, Journal of Hazardous Materials, Journal of Hydrometeorology, Journal of Operational Meteorology, Johns Hopkins University Applied Physics Laboratory Technical Digest, Mathematical Problems in Engineering, Meteorologia, Meteorologische Zeitschrift, Meteorology and Atmospheric Physics, Monthly Weather Review, Ocean Dynamics, Quarterly Journal of the Royal Meteorological Society, Remote Sensing, Remote Sensing of the Environment, Science of the Total Environment, Sensors, Solar Energy, Technical Soaring, Weather and Forecasting

Reviewer of Field Programs for:

National Science Foundation, Austrian Science Fund (FWF), Bilateral Science Foundation (Israel, US), Deutsche Forschungsgemeinschaft (the German Science Foundation)

Member

American Meteorological Society (1986-present)

National Weather Association (1988-present)

TOGA Surface Processes Group (1991-1996)

UCAR University Relations Committee (1991-1995)

Program Committee, AMS 6th Conference on Mountain Meteorology (1992)

AMS, Mountain Meteorology Committee (1992-1995)

FIRE/ASTEX Science Team (1992-1997)

ARM Global Climate Modeling Group (1994-1997)

Lake-ICE Science Team (1995-2000)

Program Committee, AMS 7th Conference on Mountain Meteorology (1995)

Adjunct faculty member, University of Maryland (1996)

NSF Observing Facilities Advisory Panel (Fall 1997-Fall 2000)

Vice-Chair, NSF Observing Facilities Advisory Panel (Fall 1998-Fall 1999)

Chair, NSF Observing Facilities Advisory Panel (Fall 1999-Fall 2000)

Program Committee, AMS 14th Symposium on Boundary Layers and Turbulence (1999-2000)

AMS Committee on Boundary Layers and Turbulence (1999-2001)

NOAA Ocean Observer Satellite Team (2000)

Associate Editor, Journal of Applied Meteorology (2001-2003)

National Weather Association Information Technology Committee (2007-2009)

Associate Editor, Monthly Weather Review (2009-2012)

Associate Editor, Journal of the Atmospheric Sciences (2009-2015)

UCAR Membership Committee (2010-2015)

National Weather Association Membership and Marketing Committee (2011-2015)

National Weather Service Meteorological Development Laboratory High Level Advisory Committee (2012-2013)

UNIDATA Policy Committee (2013-2014)

**Publications** **(refereed)**

Young, G.S. and J.W. Winchester, 1980: Association of non-marine sulfate aerosol with sea breeze circulation in Tampa Bay. Journal of Applied Meteorology, 19, 419-425.

Johnson, R.H. and G.S. Young, 1983: Heat and moisture budgets of tropical mesoscale anvil clouds. Journal of the Atmospheric Sciences, 40, 2138-2147.

Young, G.S. and R.A. Pielke, 1983: Application of terrain height variance spectra to mesoscale modeling. Journal of the Atmospheric Sciences, 40, 2555-2560.

Young, G.S., R.A. Pielke and R.C. Kessler, 1984: A comparison of the terrain height variance spectra of the Front Range with that of a hypothetical mountain. Journal of the Atmospheric Sciences, 41, 1249-1250.

Young, G.S. and R.H. Johnson, 1984: Meso- and microscale features of a Colorado cold front. Journal of Climate and Applied Meteorology, 23, 1315-1325.

Johnson, R.H., G.S. Young, J.J. Toth and R.M. Zehr, 1984: Mesoscale weather effects of variable snow cover over northeast Colorado. Monthly Weather Review, 112, 1141-1152.

Young, G.S., 1987: Mixed layer spectra from aircraft measurements. Journal of the Atmospheric Sciences, 44, 1251-1256.

Young, G.S., 1988: Turbulence structure of the convective boundary layer I: Variability of normalized turbulence statistics. Journal of the Atmospheric Sciences, 45, 719-726.

Young, G.S., 1988: Turbulence structure of the convective boundary layer II: PHOENIX 78 aircraft observations of thermals and their environment. Journal of the Atmospheric Sciences, 45, 727-735.

Young, G.S., 1988: Turbulence structure of the convective boundary layer III: The vertical velocity budgets of thermals and their environment. Journal of the Atmospheric Sciences, 45, 2039-2049.

Young, G.S., 1988: Convection in the atmospheric boundary layer. Earth Science Reviews, 25, 179-198.

Vislocky, R.L. and G.S. Young, 1988: Improving your weather forecasts through a better knowledge of skill scores. National Weather Digest, 13, No. 3, 15-17.

Vislocky, R.L. and G.S. Young, 1989: The use of perfect prog forecasts to improve model output statistics forecasts of precipitation probability. Weather and Forecasting, 4, 202-209.

Young, G.S. and J.M. Fritsch, 1989: A proposal for general conventions in analysis of mesoscale boundaries. Bulletin of the American Meteorological Society, 70, 1412-1421.

Alexander, G.D. and G.S. Young, 1990: The use of quantitative surface cyclone characteristics to determine systematic departures from mean nested grid model forecast errors. National Weather Digest, 15, 6-12.

Moyer, K.A. and G.S. Young, 1991: Observations of vertical velocity skewness within the marine stratocumulus-topped boundary layer. Journal of the Atmospheric Sciences, 48, 403-410.

Nucciarone, J.J. and G.S. Young, 1991: Aircraft measurements of turbulence spectra in the marine stratocumulus topped boundary layer. Journal of the Atmospheric Sciences, 48, 2382-2392.

Alexander, G.D. and G.S. Young, 1992: The relationship between EMEX mesoscale precipitation feature properties and their environmental characteristics. Monthly Weather Review, 120, 554-564.

Young, G.S. and L. Kristensen, 1992: Boundary layer gusts for aircraft operations. Boundary-Layer Meteorology, 59, 231-242.

Young, G.S., D.V. Ledvina, and C.W. Fairall, 1992: Influence of precipitating convection on the surface energy budget observed during a TOGA pilot cruise in the tropical Pacific ocean. Journal of Geophysical Research-Oceans, 97, 9595-9603.

Arritt, R.W., J.M. Wilczak, and G.S. Young, 1992: Generation of elevated mixed layers by mesoscale boundary layer dynamics over complex terrain. Monthly Weather Review, 120, 2870-2880.

Alexander, G.D., G.S. Young, and D.V. Ledvina, 1993: Principal component analysis of vertical profiles of Q1 and Q2 in the tropics. Monthly Weather Review, 121, 535-548.

Moyer, K.A. and G.S. Young, 1993: Buoyant forcing within the marine stratocumulus-topped boundary layer. Journal of the Atmospheric Sciences, 50, 2759-2771.

Sikora, T.D. and G.S. Young, 1993: Observations of planview flux patterns within convective structures of the marine atmospheric surface layer. Boundary-Layer Meteorology, 65, 273-288.

Ledvina, D.V., G.S. Young, R.A. Miller, and C.W. Fairall, 1993: The effect of averaging on bulk estimates of heat and momentum fluxes for the tropical western Pacific Ocean. Journal of Geophysical Research-Oceans, 98, 20,211-20,217.

Sikora, T.D. and G.S. Young, 1994: Observations and applications of the horizontal perturbation wind field within convective structures of the marine atmosphere surface layer. Boundary-Layer Meteorology, 68, 419-426.

Moyer, K.A. and G.S. Young, 1994: Observations of mesoscale cellular convection from the marine stratocumulus phase of FIRE. Boundary-Layer Meteorology, 71, 109-133.

Young, G.S., S.M. Perugini, and C.W. Fairall, 1995: Convective wakes in the equatorial western Pacific during TOGA. Monthly Weather Review, 123, 110-123.

Pavloski, C.F., W.H. Brune, and G.S. Young, 1995: Developing an undergraduate laboratory in atmospheric physics. Bulletin of the American Meteorological Society, 76, 235-240.

Sikora, T.D., G.S. Young, R.C. Beal, and J.B. Edson, 1995: Use of spaceborne synthetic aperture radar imagery of the sea surface in detecting the presence and structure of the convective marine atmospheric boundary layer. Monthly Weather Review, 123, 3623-3632.

Fairall, C.W., E.F. Bradley, D.P. Rogers, J.B. Edson, and G.S. Young, 1996: Bulk parameterization of air-sea fluxes for TOGA COARE. Journal of Geophysical Research-Oceans, 101, 3734-3764.

Fairall, C.W., E.F. Bradley, J.S. Godfrey, G.A. Wick, J.B. Edson, and G.S. Young, 1996: Cool skin and warm layer effects on sea surface temperature. Journal of Geophysical Research-Oceans, 101, 1295-1308.

Sublette, M.S. and G.S. Young, 1996: Warm-season effects of the Gulf Stream on mesoscale characteristics of the atmospheric boundary layer. Monthly Weather Review, 123, 653-667.

Rinker, D.K. and G.S. Young, 1996: Use of obliquely rotated principal component analysis to identify coherent structures. Boundary-Layer Meteorology, 80, 19-47.

Babin, S.M., G.S. Young, and J.A. Carton, 1997: A new model of the oceanic evaporation duct.

 Journal of Applied Meteorology, 36, 193-204.

Sikora, T.D., G.S. Young, H.N. Shirer, and R.D. Chapman, 1997: Estimating convective atmospheric boundary layer depth from microwave radar imagery of the sea surface, Journal of Applied Meteorology, 36, 833-845.

Young, G.S., J.A. Harlan, and T.M. Georges, 1997: Application of over-the-horizon radar observations to synoptic and mesoanalysis over the Atlantic, Weather and Forecasting, 12, 44-55.

Qian, L., G.S. Young, and W.M. Frank, 1998: A convective wake parameterization scheme for use in general circulation models. Monthly Weather Review, 126, 456-469.

Rozbicki, J.J., G.S Young, and L. Qian, 1999: Tests of a convective wake parameterization for the single column version of CCM3. Monthly Weather Review, 127, 1347-1361.

Young, G.S., 1999: Some SAR signatures of the marine atmospheric boundary layer: Implications for numerical forecasting. Johns Hopkins University Applied Physics Laboratory Technical Digest, 21, 27-32.

Kristovich, D.A.R., G.S. Young, J. Verlinde, P.J, Sousounis, P. Mourad, D. Lenschow, R.M. Rauber, M.K. Ramamurthy, B.F. Jewett, K. Beard, E. Cutrim, P.J. DeMott, E.W. Eloranta, M.R. Hjelmfelt, S.M. Kreidenweis, J. Martin, J. Moore, H.T. Ochs III, D.C. Rogers, J. Scala, G. Tripoli, J. Young, 2000: the lake-Induced Convection Experiment and the Snowband Dynamics Project. Bulletin of the American Meteorological Society 81, 519-542.

Young, G.S., B.K. Cameron, E.E. Hebble, 2000: Observations of the entrainment zone in a rapidly entraining boundary layer. Journal of the Atmospheric Sciences, 57, 3145-3160.

Young, G.S., T.D. Sikora, and N.S. Winstead, 2000: On inferring marine atmospheric boundary layer properties from the spectral characteristics of satellite-borne SAR imagery. Monthly Weather Review, 128, 1506-1520.

Sousounis, P.J., G. Mann, G.S. Young, B. Hoggatt, W. Bandini, R. Wagenmaker, 2000: Forecasting during the Lake-ICE/SNOWBANDS Field Experiment. Weather and Forecasting, 14, 955-975.

Fast, S.A., G.S. Young, J.N. Bode, and K. Pelman, 2000: A three-dimensional matching method for tropospheric features. Radio Science, 35, 1065-1073.

Winstead, N.S., and G.S. Young, 2000: An analysis of drainage flow exit jets over the Chesapeake Bay. Journal of Applied Meteorology., 39, 1269–1281.

Koval, J.P., and G.S. Young, 2001: Computer training for entrepreneurial meteorologists. Bulletin of the American Meteorological Society, 82, 875-888.

Sikora, T.D., G.S. Young, E. O'Marr, R.F. Garparovic, 2001: Anomalous cloud lines over the mid-Atlantic coast of the United States. Canadian Journal of Remote Sensing. 27, 320-327.

Mason, R.A., H.N. Shirer, R. Wells, G.S. Young, 2002: Improved description of fluxes by convective plumes within the marine atmospheric surface layer. Journal of the Atmospheric Sciences, 59, 1337-1355.

Shannon, H.D., G.S. Young, M.A. Yates, M.R. Fuller, and W.S. Seegar, 2002: Measurements of thermal updraft intensity over complex terrain using American white pelicans and a simple boundary-layer forecast model.  Boundary-Layer Meteorology, 104, 167-199.

Shannon, H.D., G.S. Young, M. A. Yates, M.R. Fuller, and W.S. Seegar, 2002: American white pelican soaring flight times and altitudes relative to changes in thermal depth and intensity.  Condor, 104, 679-683.

Young, G.S., D.A.R. Kristovich, M.R. Hjelmfelt, R.C. Foster, 2002: Rolls, streets, waves, and more: A review of quasi-two dimensional structures in the atmospheric boundary layer. Bulletin of the American Meteorological Society, 83, 997-1001. Also, an extended electronic supplement.

Young, G.S., and T.D. Sikora, 2003: Mesoscale stratocumulus bands caused by Gulf Stream meanders. Monthly Weather Review, 131, 2177–2191.

Young, G.S., T.D. Sikora, N.S. Winstead, 2005: Use of synthetic aperture radar in fine-scale surface analysis of synoptic-scale fronts at sea. Weather and Forecasting, 20, 311-32.

Loescher, K.A., G.S. Young, B.A. Colle, and N.S. Winstead, 2006: Climatology of barrier jets along the Alaskan coast, Part 1: Spatial and temporal distributions. Monthly Weather Review, 134, 437-453.

Colle, B.A., Loescher, K.A., G.S. Young, and N.S. Winstead, 2006: Climatology of barrier jets along the Alaskan coast, Part II: Large-scale and sounding composites, Monthly Weather Review, 134, 454-477.

Haupt, S.E., G.S. Young, and C. T. Allen, 2006: Validation of a receptor–dispersion model coupled with a genetic algorithm using synthetic data. Journal of Applied Meteorology and Climate, 45, 476-490.

McGrady, M.J., G.S. Young, W.S. and Seegar, 2006: Migration of a Peregrine falcon Falco peregrinus over water in the vicinity of a hurricane. Ringing and Migration, 23, 80-84.

Schroeder, A.J., D.R. Stauffer, N.L. Seaman, A. Deng, A.M. Gibbs, G.K. Hunter, and G.S. Young, 2006: An automated high-resolution, rapidly relocatable meteorological nowcasting and prediction system. Monthly Weather Review, 134, 1237-1265.

Sikora, T.D., G.S. Young, and N.S. Winstead, 2006: A novel approach to marine wind speed assessment using synthetic aperture radar, Weather and Forecasting, 21, 109-115.

Watkins, R.R., and G.S. Young, 2006: A synoptic climatology for those heavy snowfall events spanning the East Coast megalopolis: Insights from Northeast Snowstorms. National Weather Digest, 30, 45-48.

Winstead, N.S., B.A. Colle, N.A. Bond, G.S. Young, J. Olson, K.A. Loescher, F.M. Monaldo, D.R. Thompson, and W. Pichel, 2006: Using SAR remote sensing, field observations and models to better understand coastal flows in the Gulf of Alaska. Bulletin of the American Meteorological Society, 87, 787-800.

Young, G.S., and J. Zawislak, 2006: An observational study of vortex spacing in island wake vortex streets.Monthly Weather Review, 134, 2285-2294.

Allen, C.T., G.S. Young, and S.E. Haupt, 2007: Improving pollutant source characterization by optimizing meteorological data with a genetic algorithm. Atmospheric Environment, 41, 2283-2289.

Allen, C.T., S.E. Haupt, and G.S. Young, 2007: Source characterization with a genetic algorithm–coupled dispersion–backward model incorporating SCIPUFF, Journal of Applied Meteorology and Climate, 46, 273–287.

Nicholls, S.D., and G.S. Young, 2007: Dendritic patterns in tropical cumulus: An observational analysis. Monthly Weather Review, 135, 1994-2005.

Young, G.S., T.D, Sikora, and N.S. Winstead, 2007: Manual and semi-automated wind direction editing for use in the generation of synthetic aperture radar wind speed imagery. Journal of Applied Meteorology and Climatology, 46, 776–790.

Young, G.S., 2007: Development of empirical Weather Forecasting techniques for soaring flight. Technical Soaring, 31, 62-67.

Young, G.S., T.D. Sikora, and C.M. Fisher, 2007: Use of MODIS and synthetic aperture radar wind speed imagery to describe the morphology of open cell convection, Canadian Journal Remote Sensing, 33, 357-367.

Frank, W.M., and G.S. Young, 2007: The interannual variability of tropical cyclones, Monthly Weather Review, 135, 3587-3598.

Hilliker, J.L., G.S. Young, and J.M. Fritch, 2007: An objective, statistical forecast system for short-term probabilistic forecasts of thunderstorms. National Weather Digest. 31, 9-23.

Root, B., P. Knight, G.S. Young, S. Greybush, R. Grumm, R. Holmes, and J. Ross, 2007: A fingerprinting technique for major weather events. Journal of Applied Meteorology and Climatology, 46, 1053–1066.

Haupt, S.E., G.S. Young, and C.T. Allen, 2007: A genetic algorithm method to assimilate sensor data for a toxic contaminant release. Journal of Computers, 2, 85-93.

Fisher, C.M., G.S. Young, N.S. Winstead, and J.D. Haqq-Misra, 2008: Comparison of synthetic aperture radar–derived wind speeds with buoy wind speeds along the mountainous Alaskan coast.Journal of Applied Meteorology and Climatology. 47, 1365–1376.

Greybush, S.J., S.E. Haupt, G.S. Young, 2008: The regime dependence of optimally weighted ensemble model consensus forecasts of surface temperature. Weather and Forecasting*,* 23, 1146-1161.

Young, G.S., T.D. Sikora, and N.S. Winstead, 2008: Mesoscale near-surface wind speed variability mapping with synthetic aperture radar. Sensors, 8, 7012-7034.

Germi, F., G.S. Young, A. Salim, W. Pangimangen, M. Schellekens, 2009: Over-ocean raptor migration in a monsoon regime: spring and autumn 2007 on Sangihe, North Sulawesi. Indonesia. *Forktail*, 25, 105-117.

Haupt, S.E., K.J. Long, A. Beyer-Lout, and G.S. Young, 2009: Assimilating concentration observations for transport and dispersion modeling in a meandering wind field. Atmospheric Environment. 43, 1329-1338.

Haupt, S.E., R.L. Haupt, and G.S. Young, 2009: A mixed integer genetic algorithm used in chem-bio defense applications, Journal of Soft Computing. invited paper, DOI 10.1007/s00500-009-0516-z.

Hilliker, J.L., G. Akasapu, and G.S. Young, 2010: Assessing the short-term forecast capability of nonstandardized surface observations using the National Digital Forecast Database (NDFD). Journal of Applied Meteorology, **49**, 1397-1411.

Kuroki, Y., G.S. Young, and S.E. Haupt, 2010: UAV navigation by an expert system for contaminant mapping with a genetic algorithm. Expert Systems with Applications, **37**, 4687-4697.

Long, K.J., S.E. Haupt, and G.S. Young, 2010: Assessing sensitivity of source term estimation. Atmospheric Environment, **44**, 1558-1567.

Sikora, T.D., G.S. Young, and M.J. Bettwy, 2010: Analysis of the western shore Chesapeake Bay bay-breeze. National Weather Digest, **3**4, 55-65.

Rodriguez, L.M., S.E. Haupt, and G.S. Young, 2010: Impact of sensor characteristics on source characterization for dispersion modeling. Measurement, **44**, 802-814.

McCandless, T., S.E. Haupt, and G.S. Young, 2011: [Statistical guidance methods for predicting snowfall accumulation in the northeast United States](http://member.nwas.org/). National Weather Digest, **35**, 149-162.

Sikora, T.D., G.S. Young, C.M. Fisher, and M.D. Stepp, 2011: A synthetic aperture radar-based climatology of open cell convection over the Northeast Pacific Ocean. Journal of Applied Meteorology and Climatology, 50, 594-603.

Annunzio, A.J., G.S. Young, S.E. Haupt, 2012: Utilizing state estimation to determine the source location for a contaminant. Atmospheric Environment, **46**, 580-589.

Annunzio A.J., G.S. Young, S.E. Haupt, 2012: A Multi-Entity Field Approximation to determine the source location of multiple atmospheric contaminant releases. Atmospheric Environment, **62**, 593-604.

Lei L., Stauffer D.R., Haupt S.E., Young G.S. 2012: A hybrid nudging-ensemble Kalman filter approach to data assimilation. Part I: Application in the Lorenz system. Tellus A, **64**, 18484-18497.

Swales, D.J., G.S. Young, T.D. Sikora, N.S. Winstead, H.N. Shirer, 2012: Synthetic aperture radar remote sensing of shear-driven atmospheric internal gravity waves in the vicinity of warm fronts, Monthly Weather Review, **140**, 1872-1882.

Winstead, N.S., G.S. Young and T.D, Sikora, 2012: Demonstration of the use of synthetic aperture radar-determined wind speed in numerical weather prediction error detection, National Weather Digest, **36**, 69-80.

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Beyer, A., G.S. Young, and S.E. Haupt, 2007: On using Data Assimilation in Dispersion Modeling. Proceedings of the American Meteorological Society’s 11th Symposium on Integrated Observing and Assimilation Systems for the Atmosphere, Oceans, and Land Surface. at AMS Annual Meeting, San Antonio, TX, Jan. 16, Paper 3.13

Belmonte, R.S., B. Katz, S.A. Fast, K, Keefe, G.S. Young, 2007: Clustering analysis of refractive index profiles: Toward a ducting climatology. Proceedings of the 2007 IEEE Radar Conference. Boston, MA, 17-20 April, pp. 906-909

Haupt, S.E., R.L. Haupt, G.S. Young, 2007: Using genetic algorithms in chem-bio defense applications. Proceedings of the 2007 ECSIS Symposium on Bio-inspired, Learning, and Intelligent Systems for Security. (BLISS-2007), Edinburgh, UK, Aug. 9-10, pp. 151-154.

Haupt, S.E., G.S. Young, K.J. Long, A. Beyer, 2007: Data Requirements from Evolvable Sensor Networks for Homeland Security Problems. Proceedings of the NASA/ESS Conference on Adaptive Hardware and Systems. (AHS-2007), Edinburgh, UK, Aug. 5-9, pp. 58-66

Haupt, S.E., G.S. Young, and L.J. Peltier, 2007: Assimilating Monitored Data into Dispersion Models. Proceedings of the American Meteorological Society’s 5th Conference on Artificial Intelligence Applications to Environmental Science. AMS Annual Meeting, San Antonio, TX, Jan. 15-16, Paper 4.2

Holmes, R, R.H. Grumm, G.S. Young, 2007: A neural network to aid forecasters in identifying significant weather events.Proceedings of the American Meteorological Society’s 5th Conference on Artificial Intelligence Applications to Environmental Science. AMS Annual Meeting, San Antonio, TX, Jan. 15-16, Paper 3.4

Long, K.J., C.T. Allen, S.E. Haupt, and G.S. Young, 2007: Characterizing Contaminant Source and Meteorological Forcing using Data Assimilation with a Genetic Algorithm. Proceedings of the American Meteorological Society’s 5th Conference on Artificial Intelligence Applications to Environmental Science*.* AMS Annual Meeting, San Antonio, TX, Jan. 16, Paper 4.3.

Young, G.S and S.E. Haupt, 2007: Going Nonlinear: Towards Automated Puff Intercept. Proceedings of the American Meteorological Society’s 5th Conference on Artificial Intelligence Applications to Environmental Science*.* AMS Annual Meeting, San Antonio, TX, Jan. 15-16, Paper P1.1.

Annunzio, A.J., S.E. Haupt, and G.S. Young, 2008: Comparison of Data Assimilation and Multi-sensor Data Fusion Techniques in Atmospheric Transport and Dispersion, Chemical and Biological Defense Physical Science and Technology Conference, New Orleans, LA, Nov. 17-21.

Annunzio, A.J., S.E. Haupt, and G.S. Young, 2008: Source Characterization and Meteorology Retrieval Including Atmospheric Boundary Layer Depth using a Genetic Algorithm, Proceedings 15th Joint Conference on the Applications of Air Pollution Meteorology with the A&WMA. New Orleans, LA, Jan. 20-24, Paper J6.2.

Beyer-Lout, A., G.S. Young, and S.E. Haupt, 2008: Concentration Assimilation into Wind Field Models for Dispersion Modeling, Proceedings of the 15th Joint Conference on the Applications of Air Pollution Meteorology with the A&WMA. New Orleans, LA, Jan. 20-24, Paper J6.3

Gaudet, B.J., G.S. Young, D.R. Stauffer, S.L. Kang, N.L. Seaman, J. Hacker, and A. Wyszogrodzki, 2008: Developing lateral boundary conditions for heterogeneous LES simulations of the convective boundary layer, Proceedings of the Chemical and Biological Defense Physical Science and Technology Conference, New Orleans, LA, Nov 17-21, 4 pp.

Haupt, S.E., and G.S. Young, and K.J. Long, 2008: A Paradigm for Source Term Estimation, Proceedings of the Chemical and Biological Defense Physical Science and Technology Conference, New Orleans, LA, Nov. 17-21.

Haupt, S.E., G.S. Young, K.J. Long, A. Beyer-Lout, and A. Annunzio, 2008: Data Fusion and Prediction for CBRN Transport and Dispersion for Security, Proceedings of the 2008 IEEE Aerospace Conference with AIAA, Big Sky, MT, March 1-8, IEEEAC paper 1195.

Haupt, S.E. and G.S. Young, 2008: Paradigms for Source Characterization, Proceedings of the 15th Joint Conference on the Applications of Air Pollution Meteorology with the A&WMA. New Orleans, LA, Jan. 20-24, Paper J6.1

Haupt, S.E., K.J. Long, G.S. Young, and A. Beyer-Lout, 2008: Data Requirements for Assimilating Concentration Data with a Genetic Algorithm, Proceedings of the Sixth Conference on Artificial Intelligence Application to Environmental Science. New Orleans, LA, Jan. 20-24, Paper J4.1.

Long, K.J., S.E. Haupt, G.S. Young, and A. Beyer-Lout, 2008: Data Assimilation to Improve the Forecast of Chemical and Biological Contaminant Transport and Dispersion, Proceedings of the Chemical and Biological Defense Physical Science and Technology Conference, New Orleans, LA, Nov. 17-21.

Reen, B.P., G.S. Young, D.P. Tyndall, and D.R. Stauffer, 2008: Idealized mesoscale simulations of surface-heterogeneity driven circulations, Preprints of the WRF Users’ Workshop*,* Poster P9.24.

Reen, B.P., G.S. Young, D.P Tyndall, and D.R. Stauffer, 2008: Idealized mesoscale simulations of surface-heterogeneity driven circulations, Proceedings of the Chemical and Biological Defense Physical Science and Technology Conference, New Orleans, LA, Nov 17-21, 3 pp.

Rodriguez, L.M., S.E. Haupt, and G.S. Young, 2008: Source Term Estimation with Realistic Sensor Data, Proceedings of the Chemical and Biological Defense Physical Science and Technology Conference, New Orleans, LA, Nov. 17-21.

Rodriguez, L.M., S.E. Haupt, and G.S. Young, 2008: Adding Realism to Source Characterization with a Genetic Algorithm, Proceedings of the 15th Joint Conference on the Applications of Air Pollution Meteorology with the A&WMA. New Orleans, LA, Jan. 20-24, Paper P1.7

Annunzio, A.J., S.E. Haupt, and G.S. Young, 2009: Sheared Gaussian Coupled with Hybrid Genetic Methods of Mitigating Uncertainty in Contaminant Dispersion in a Turbulent Flow: Data Assimilation vs. Multisensor Data Fusion, Proceedings of the [13th Conference on Integrated Observing and Assimilation Systems for Atmosphere, Oceans, and Land Surface](http://ams.confex.com/ams/89annual/13ioas/papers/index.cgi). at AMS Annual Meeting, Phoenix, AZ, Jan. 11-15, Paper 7B.3

Haupt, S.E., K.J. Long, A. Beyer-Lout, G.S. Young, 2009: Assimilating Concentration Data into Dispersion Models with a Genetic Algorithm, Proceedings of the [Seventh Conference on Artificial Intelligence and its Applications to the Environmental Sciences](http://ams.confex.com/ams/89annual/7ai/papers/index.cgi). at AMS Annual Meeting, Phoenix, AZ, Jan. 11-15, J1.1

Haupt, S.E., J.C. Wyngaard, G.S. Young, K.J. Long, J.A. Lee, D.R. Stauffer, A. Deng, and F.J. Zajaczkowski, 2009: Modeling the Stable Boundary Layer for Dispersion, Preprints of the 13th GMU Conference on Atmospheric Transport & Dispersion Modeling, Fairfax, VA, Jul 14.

Long, K.J., S.E. Haupt, G.S. Young, and L.M. Rodriguez, 2009: Source Characterization using a Genetic Algorithm and SCIPUFF, Preprints of the Seventh Conference on Artificial Intelligence and its Applications to the Environmental Sciences. at AMS Annual Meeting, Phoenix, AZ, Jan. 11-15, Paper J1.2

McCandless, T.C., S.E. Haupt, and G.S. Young, 2009: Replacing Missing Data for Ensemble Systems, Proceedings of the [Seventh Conference on Artificial Intelligence and its Applications to the Environmental Sciences](http://ams.confex.com/ams/89annual/7ai/papers/index.cgi). at AMS Annual Meeting, Phoenix, AZ, Jan. 11-15, Paper 1.2.

Reen, B.P., D. Tyndall, G.S. Young, and D.R. Stauffer, 2009: Idealized simulations of circulations forced by land surface heterogeneity, Proceedings of the 23rd Conference on Weather Analysis and Forecasting/19th Conference on Numerical Weather Prediction, Omaha, NE, Jun 1-5.

Rodriguez, L.M., A.J. Annunzio, S.E. Haupt, and G.S. Young, 2009: Sheared Gaussian Coupled with Hybrid Genetic Algorithm for Source Characterization using CFD and FFT07 Data, Proceedings of the [Seventh Conference on Artificial Intelligence and its Applications to the Environmental Sciences](http://ams.confex.com/ams/89annual/7ai/papers/index.cgi). at AMS Annual Meeting, Phoenix, AZ, Jan. 11-15, Paper J1.3

Young, G.S., B.J. Gaudet, N.L. Seaman, and D.R. Stauffer, 2009: Interaction of a mountain lee wave with a basin cold pool, P1.22, Preprints of the 13th Conference on Mesoscale Processes, Salt Lake City, UT, Aug 17.

Young, G.S., J. Limbacher, S.E. Haupt, and A.J. Annunzio, 2009: Back Trajectories for Hazard Origin Estimation: BackHOE, Proceedings of the Seventh Conference on Artificial Intelligence and its Applications to the Environmental Sciences at AMS Annual Meeting, Phoenix, AZ, Jan. 11-15, Paper J1.4.

Young, G.S., Y. Kuroki, and S.E. Haupt, 2009: UAV Navigation by Expert System for Contaminant Mapping, Proceedings of the [Seventh Conference on Artificial Intelligence and its Applications to the Environmental Sciences at AMS Annual Meeting, Phoenix, AZ, Jan. 11-15, Paper 2.5.](http://ams.confex.com/ams/89annual/7ai/papers/index.cgi)

Haupt, S.E., K.J. Long, A.J. Annunzio, L.M. Rodriguez, and G.S. Young, 2010: Predicting Realizations versus Averages: Applying Assimilation to Improve Dispersion Modeling for Security Analysis, Proceedings of the Fifth International Symposium on Computational Wind Engineering, Charlotte, NC, May 23-27.

Haupt, S.E., G.S. Young, and A.J. Annunzio, 2010: Inverting Surface Observations: Convective and Stable Boundary Layer Depth Estimation Methods, Proceedings of the Fifth International Symposium on Computational Wind Engineering, Charlotte, NC, May 23-27.

Annunzio, A.J., S.E. Haupt, and G.S. Young, 2010: Determining Turbulence Scaling Variables and Source Characteristics from Contaminant Concentration Data, 16th Proceedings of the Conference on Air Pollution Meteorology, January 18-21.

Annunzio, A.J., S.E. Haupt, G.S. Young, and L.M. Rodriguez, 2010: Combined Methods from Entity and Field Frameworks to Determine the Source Characteristics of a Contaminant, Proceedings of the 16th Conference on Air Pollution Meteorology joint session with 8th Conference on Artificial Intelligence Applications to Environmental Science, January 18-21.

Haupt, S.E., J.C. Wyngaard, G.S. Young, and K.J. Long, 2010: Modeling the Stable Boundary Layer Depth and its Uncertainty for Dispersion, Proceedings of the 16th Conference on Air Pollution Meteorology, January 18-21.

Long, K.J., D. Truesdell, S.E. Haupt, G.S. Young, 2010: Using a Genetic Algorithm to Estimate Source Term Parameters of Volcanic Ash Clouds, Proceedings of the 8th Conference on Artificial Intelligence Applications to Environmental Science, January 18-21.

McCandless, T.C., S.E. Haupt, and G.S. Young, 2010: Improving Snowfall Accumulation Predictions by Post-Processing Ensemble Forecasts with an Artificial Neural Network, Proceedings of the 8th Conference on Artificial Intelligence Applications to Environmental Science, January 18-21.

Rodriguez, L.M. S.E. Haupt, G.S. Young, A.J. Annunzio, and K.J. Long, 2010: Source Term Characterization of FFT07 Data using a Genetic Algorithm, Proceedings of the 16th Conference on Air Pollution Meteorology joint session with 8th Conference on Artificial Intelligence Applications to Environmental Science, January 18-21.

Young, G.S., A.J. Annunzio, and S.E. Haupt, 2010: Inverting Surface Observations to Find Boundary Layer Depth, Proceedings of the 16th Conference on Air Pollution Meteorology, January 18-21.

Choudhary, P., S. Blumsack, G.S. Young, 2010: Variance Minimization Site Selection Process for Interconnected Wind Farms. Proceedings of the Hawaii International Conference on System Science, Honolulu, HI, January 4-7, 2011. Sponsored by Shidler College of Business, University of Hawaii at Manoa.

Haupt, S.E., K.J. Long, A.J. Annunzio, L.M. Rodriguez, and G.S. Young, 2010: Predicting Realizations versus Averages: Applying Assimilation to Improve Dispersion Modeling for Security Analysis, Proceedings of the Fifth International Symposium on Computational Wind Engineering, Charlotte, NC, May 23-27.

Haupt, S.E., G.S. Young, and A.J. Annunzio, 2010: Inverting Surface Observations: Convective and Stable Boundary Layer Depth Estimation Methods, Proceedings of the Fifth International Symposium on Computational Wind Engineering, Charlotte, NC, May 23-27.

Sikora, T. D., G. S. Young and M. J. Bettwy, 2010: Analysis of the western shore Chesapeake Bay bay-breeze. Preprints, Seventeenth Conference on Air-Sea Interaction, American Meteorological Society (AMS), Annapolis, MD, 27-30 September 2010, online publication.

Young, G. S., N. S. Winstead, and T. D. Sikora, 2010: A SAR-based error warning product. Preprints, Seventeenth Conference on Satellite Meteorology and Oceanography, AMS, Annapolis, MD, 27-30 September 2010, online publication.

Sikora, T. D., G. S. Young, C. M. Fisher, and M. D. Stepp, 2010:  SAR remote sensing of open mesoscale cellular convection.  Spaceborne Ocean Intelligence Workshop, Defense Research and Development Canada, Halifax, Canada, December 14-15.

Annunzio, A., P. Bieringer, S.E. Haupt, L.M. Rodriguez, and G.S. Young, 2011: A Multi-Entity Field Approximation for Hazard Origin Estimation, 15th Annual George Mason University Conference on Atmospheric Transport and Dispersion Modeling, Fairfax, VA, July 12-14.

Annunzio, A.J., S.E. Haupt, G.S. Young, and L.M Rodriguez, 2011: Multi-Entity Field Approximation for Hazard Origin Estimation, Joint Session between Ninth Conference on Artificial Intelligence and its Applications to the Environmental Sciences and Special Symposium on Applications of Air Pollution Meteorology, Seattle, WA, January 23-27. Honorable Mention in Paper Contest.

Lee, J.A., S.E. Haupt, G.S. Young, W.C. Kolczynski, and T.C. McCandless, 2011: Statistical post-processing methods for down-selecting numerical weather prediction multiphysics ensembles for wind forecasting. 2011 AGU Fall Meeting, San Francisco, CA, December 5.

Rodriguez, L.M., S.E. Haupt, G.S. Young, A.J. Annunzio, and K.J. Schmehl, 2011: Source Term Estimation Uncertainty Analysis using a Genetic Algorithm Coupled with Dispersion Models, Joint Session between Ninth Conference on Artificial Intelligence and its Applications to the Environmental Sciences and Special Symposium on Applications of Air Pollution Meteorology, January 23-27.

Rodriguez, L.M., S.E. Haupt, G.S. Young, and A.J. Annunzio, 2011: Genetic Algorithm Variational (GA-Var) Technique with Limited Information, George Mason University Conference on Atmospheric Transport and Dispersion, Fairfax, VA, July 11.

Rodriguez, L.M., A.J. Annunzio, K.J. Schmehl, S.E. Haupt and G.S. Young, 2011: Coupling a Genetic Algorithm with an Atmospheric Transport and Dispersion Model. Ninth Conference on Artificial Intelligence and its Applications to the Environmental Sciences at AMS 91st Annual Meeting, January 23-27.

Sikora, T. D., G. S. Young, C. M. Fisher, and M. D. Stepp, 2011:  SAR remote sensing of open mesoscale cellular convection.  International Ocean Vector Wind Science Team Meeting, Annapolis, MD, May 9-11.

Kosović, B., G.Young, K.J. Schmehl, D. Truesdell, S.E. Haupt, A. Annunzio, L.Rodriguez, R.D. Aines, R. D. Belles, K. M. Dyer, W.G. Hanley, G. Johannesson, S.C. Larsen, A. A. Mirin, J. J. Nitao, G. A. Sugiyama, P.J. Vogt, F. K. Chow, J.K. Lundquist, L. Delle Monache: Survey of Evolutionary and Probabilistic Approaches for Source Term Estimation. International Workshop on Source Term Estimation (STE) Methods for Estimating the Atmospheric Radiation Release from the Fukushima Daiichi Nuclear Power Plant. NCAR, Boulder, Colorado, February 22-23.

Rayl, J., G.S. Young, Jeffrey R.S. Brownson, 2012: Climate-Regime Cospectrum Analysis: Shortwave Solar Irradiance for Regionally Spaced Locales. World Renewable Energy Forum, American Solar Energy Society, Denver, CO, May 13-17,

Rodriguez, L.M., P.E. Bieringer, G. Bieberbach, F. Vandenberghe, J. Hurst, S.E. Haupt, G.S. Young, 2012: The Use of Ensemble-derived Background Error Covariance Matrices to Improve Gradient Descent Performance in Source Term Estimation. DTRA/NSF/NGA 2012 Algorithm Workshop, San Diego, CA, November 26-29.

Rodriguez, L. M., P. E. Bieringer, G. Bieberbach, F. Vandenberghe, J. Hurst, S.E. Haupt, G. S. Young, 2012: Background Error Covariance Matrices to Improve Gradient Descent Performance in Source Term Estimation. 2012 Conference on Intelligent Data Understanding (CIDU). Boulder, CO, October 24-26.

McCandless, T.C., Haupt, S.E., Young, G.S., and A.J. Annunzio, 2015: A Regime Dependent Bayesian Approach to Short-Term Solar Irradiance Forecasting. 13th Conference on Artificial Intelligence: Applications of Artificial Intelligence Methods for Energy-Part II, Phoenix, AZ, Amer. Meteor. Soc. J6.5.

## Conference and Seminar Presentations

Convective Rolls in the Planetary Boundary Layer, presented at Department of Meteorology, Florida State University, Tallahassee, Florida, Spring Semester, 1982.

Terrain Height Variance Spectra, presented at Department of Atmospheric Science, Colorado State University, Fort Collins, Colorado, Spring Semester, 1983.

Seagulls, Scaling and Similarity, presented at Department of Atmospheric Science, Colorado State University, Fort Collins, Colorado, Fall Semester, 1983.

Mesoscale and Microscale Features of a Cold Front in Complex Terrain, presented at the 3rd Conference on Mountain Meteorology, Portland, Oregon, October 15-19, 1984.

Advances in Measurement Techniques and the Resultant Advances in Boundary Layer Theory, presented at Department of Atmospheric Sciences, Colorado State University, Fort Collins, Colorado, Fall Semester, 1984.

Theory and Techniques of Similarity Analysis and Dimensional Analysis, presented at Department of Atmospheric Sciences, Colorado State University, Fort Collins, Colorado, Fall Semester, 1985.

Mesoscale and Microscale Interactions in the Planetary Boundary Layer, presented at Department of Atmospheric Science, State University of New York at Albany, Albany, New York, Spring Semester, 1986.

Mesoscale and Microscale Interactions in the Planetary Boundary Layer, presented at the Department of Atmospheric and Ocean Science, University of Michigan, Ann Arbor, Michigan, Spring Semester, 1986.

Mesoscale and Microscale Interactions in the Planetary Boundary Layer, presented at Department of Marine, Earth and Atmospheric Science, North Carolina State University, Raleigh, North Carolina, Spring Semester, 1986.

Mesoscale and Microscale Interactions in the Planetary Boundary Layer, presented at Department of Geosciences, Purdue University, West Lafayette, Indiana, Spring Semester, 1986.

The Dynamics of Thermals and Their Contribution to Mixed Layer Processes, presented at the Department of Meteorology, The Pennsylvania State University, University Park, Pennsylvania, Summer Semester, 1986.

Measurement Systems and Scientific Advancement: A Boundary Layer Example, presented at the Department of Meteorology, The Pennsylvania State University, University Park, Pennsylvania, Spring Semester, 1987.

Qualitative Precipitation Forecasting, presented at the Department of Atmospheric Sciences, Colorado State University, Fort Collins, Colorado, Spring Semester, 1987.

Techniques for Severe Storm Interception, presented at the Department of Meteorology, The Pennsylvania State University, University Park, Pennsylvania, Spring Semester, 1987.

The Effects of Weather on Hawk Migration, presented at the State College Bird Club, State College, Pennsylvania, Summer Semester, 1987.

Forecaster Training by Operational Simulation, presented at the Department of Meteorology, The Pennsylvania State University, University Park, Pennsylvania, Fall Semester, 1987.

Techniques for Severe Storm Interception, presented at the Department of Meteorology, The Pennsylvania State University, University Park, Pennsylvania, Spring Semester, 1988.

The Role of Entrainment and Pressure Forcing in Thermals, presented at the Department of Meteorology, The Pennsylvania State University, University Park, Pennsylvania, Spring Semester, 1988.

Diagnosis of the Effects of Lateral Mixing and Pressure Forcing on Convective Elements, presented at the 8th Turbulence and Diffusion Symposium, San Diego, California, April 26-29, 1988.

A Convective Cloud Line Without an Extensive Stratiform Precipitation Region, presented at the International Conference on Tropical Meteorology, Brisbane, Australia, July 4-8, 1988.

Verification of Large Eddy Simulations: Coherent Structures, Diffusion and the Flux/Gradient Relationships, invited presentation at the workshop on Large Eddy Simulation, Breckenridge, Colorado, November 2-4, 1988.

Terrain Effects on Climatology and Flowering Plants, presented at the State College Bird Club, State College, Pennsylvania, Spring Semester, 1989.

Influence of an EMEX Convective Line on Boundary Layer Structure, presented at the 18th Conference on Hurricanes and Tropical Meteorology, San Diego, California, May 16-19, 1989.

Three Dimensional Sketch Pad, presented at the IBM Academic Computing Conference, Anaheim, California, June 22-25, 1989.

Turbulence Spectra of the FIRE Stratocumulus-topped Boundary Layers, presented at the National Center for Atmospheric Research, Boulder, Colorado, July 6, 1989.

Turbulence Spectra of the FIRE Stratocumulus-topped Boundary Layers, presented at the FIRE Science Meeting, Monterey, California, July 10-14, 1989.

Studies of the Transition Between Stratocumulus and Trade-Cumulus Convection Using an Instrumented Aircraft, presented at the ASTEX Workshop, Monterey, California, July 12-13, 1989.

Applications of a Three-dimensional Sketch Pad to Meteorology, presented at the Department of Meteorology, The Pennsylvania State University, University Park, Pennsylvania, Fall Semester, 1989.

On the Role of Vertical Wind Shear in Determining the Structure of Tropical Mesoscale Convective Systems, presented at the 4th US/PRC Monsoon Workshop, State College, Pennsylvania, October 2-4, 1989.

Elevated Stable Layers Generated by Mesoscale Boundary-Layer Dynamics over Complex Terrain, presented at the 5th Conference on Mountain Meteorology, Boulder, Colorado, June 25-29, 1990.

Air-Sea Flux Studies during the COARE Pilot Cruise, presented at the International TOGA Scientific Conference, Honolulu, Hawaii, July 16-20, 1990.

Beyond Norway: Ongoing Evolution in Thought on Weather Analysis, presented at the Department of Meteorology, The Pennsylvania State University, University Park, Pennsylvania, Fall Semester, 1991.

Analysis of Convective Structures using Principal Component Analysis, presented at the ONR Marine Boundary Layer ARI Workshop, Monterey, California, March 2-4, 1992.

Observing the Surface Flux Patterns Caused by MABL Convection, presented at the High-Resolution Remote Sensing Workshop, Applied Physics Laboratory, Johns Hopkins University, Columbia, Maryland, April 14-16, 1992.

The Impact of Precipitating Convection on the Surface Energy Budget of the Tropical Pacific Ocean, invited presentation at the 30th Anniversary Symposium, Department of Atmospheric Sciences, Colorado State University, Fort Collins, Colorado, May 5-6, 1992.

The Impact of Precipitating Convection on the Surface Radiation Budget of the Tropical Pacific Ocean, invited presentation at the ARM Tropical Western Pacific Workshop, Santa Fe, New Mexico, May 18-19.

Electra Meteorological Observations, presented at the ASTEX Debrief Workshop, Santa Maria, Azores, Portugal, June 29, 1992.

Avoiding the Pitfalls of Regression in Data Analysis and Forecasting, presented at the Department of Meteorology, The Pennsylvania State University, University Park, Pennsylvania, Fall Semester, 1992.

TOGA Ship Operations, presented at the Department of Meteorology, The Pennsylvania State University, University Park, Pennsylvania, Spring Semester, 1993.

Contributions of Coherent Structures to Intermittency of Air/Sea Fluxes, presented at the Second Marine Boundary Layer Accelerated Research Initiative Workshop, Scripps Oceanographic Institute, La Jolla, California, March 17-19, 1993.

Coherent Structure Identification Using Obliquely Rotate Principal Component Analysis, presented at the Second Marine Boundary Layer Accelerated Research Initiative Workshop, La Jolla, California, March 17-19, 1993.

Air/Sea Interaction in Convective Wakes in the Tropical Warm Pool, invited presentation at the TOGA/COARE Data Workshop, Toulouse, France, August 2-11, 1994.

Air/Sea Flux Datasets, Needs and Availability, invited presentation at the TOGA/COARE Data Workshop, Toulouse, France, August 2-11, 1994.

Meteorology of the Convective Boundary Layer, invited seminar presented at the Physical Oceanography Department of the Woods Hole Oceanographic Institution, Woods Hole, Massachusetts, Summer Semester 1994.

Meteorology of Thunderstorms, invited seminar presented at the Physical Oceanography Department of the Woods Hold Oceanographic Institution, Woods Hole, Massachusetts, Summer Semester 1994.

Air/Sea Interaction in Convective Wakes, invited seminar presented at the Ocean Engineering Department of the Woods Hole Oceanographic Institution, Woods Hole, Massachusetts, Summer Semester 1994.

Statistical Approaches to Quantifying Coherent Structures, invited seminar presented at Risoe National Laboratory, Roskilde, Denmark, Fall Semester 1994.

Genetic Algorithms for Global Optimization, invited seminar presented at the Risoe National Laboratory, Roskilde, Denmark, Spring Semester 1995.

Interactive Cloud Ensemble and Boundary Layer Parameterization for Global Models, joint workshop of the TOGA COARE Flux and Atmosphere Working Groups, Boulder, Colorado, July 11-13, 1995.

Analysis of Marine Atmospheric Boundary Layer Phenomena from Synthetic Aperture Radar Signatures, invited presentation at 1996 National Radio Science Meeting, URSI, Boulder, Colorado, January 9-13, 1996.

Principal Component-Based Composite Analysis of Coherent Structures, presented at the ONR MBL ARI Workshop, University of California, Irvine, California, September 1996.

Genetic Algorithms: Optimization for Difficult Problems, presented at the Department of Meteorology, The Pennsylvania State University, University Park, Pennsylvania, Fall Semester, 1996.

Stability Correction of Surface Winds Derived from Synthetic Aperture Radar, presented at the 12th Symposium on Boundary Layers and Turbulence, Vancouver, BC, Canada, July 28-August 1, 1997.

The Potential of SPY for Minimizing the Bird Strike Threat, invited presentation at Lockheed, Technical Interchange Meeting I of the Tactical Environmental Processor at Sea Demonstration Program, Moorestown, NJ, Summer 1998

Forecasting Bird Migration using Numerical and Statistical Weather Prediction, invited briefing presented at the Office of the Under Secretary of Defense for Environmental Security, Crystal City, VA, March 17, 1999.

Some SAR Signatures of the Marine Atmospheric Boundary Layer: Implications for Numerical Forecasting, invited keynote speech presented at the Applied Physics Laboratory of Johns Hopkins University, Emerging Coastal and Marine Applications of Wide Swath Synthetic Aperture Radar Symposium. Laurel, MD. March 23-25, 1999.

Using Weather Radar to Monitor Bird Migration, presented at the State College Bird Club, State College, Pennsylvania, Spring Semester, 2001.

Situational awareness via statistical methods, at Federal Aviation Administration Ceiling and Visibility Forecasting Workshop at the Pennsylvania State University, University Park, Pennsylvania, March 3, 2001.

A similarity theory for interpolating refractivity over terrain, presented at the Battlespace Atmospheric Conference, Fort Collins, CO, July 10-12, 2001.

Supercritical flow phenomena in regions of coastal orography, presented at the Department of Meteorology, The Pennsylvania State University, University Park, Pennsylvania, Fall Semester, 2001

Predicting songbird migration, invited presentation in the “Falconer Natural History Series” at the Atmospheric Science Research Center of the State University of New York at Albany, Albany, NY, April 14, 2003.

Computer Languages: Choices for Accelerating Research, presented at the Department of Meteorology, The Pennsylvania State University, University Park, Pennsylvania, November 4, 2004

Predicting songbird migration, invited seminar at the Department of Earth Sciences, Millersville University, Millersville, Pennsylvania, Spring Semester 2005

Synthetic Aperture Radar Observations of Coastal Orographic Flows, invited seminar at the College of Marine Studies, University of Delaware, Newark, Delaware, September 21, 2006.

Going Nonlinear: Toward Automated Storm Chasing, invited seminar at the Department of Meteorology, The Pennsylvania State University, University Park, Pennsylvania, November 16, 2006

Forecast system development in Weka, Invited presentation to visiting group from Slovakia Hydromet Service, University Park, Pennsylvania, January 16, 2006.

Birding the Charleston, SC Area, invited talk to State College Bird Club, State College, Pennsylvania, November 15, 2006, invited presentation

Synthetic aperture radar: Mesoscale meteorology from space, Penn State University Branch of the American Meteorological Society, Fall Semester 2007, invited presentation.

Birding Pennsylvania’s Reclaimed Stripmines, State College Bird Club, State College Pennsylvania, 2008, invited presentation.

Wind Speed Variability Mapping with SAR, invited presentation at the SAR Ocean Intelligence Network Workshop, Halifax, NS, Canada, June 10-12, 2009.

The Use of Synthetic Aperture Radar-Derived Wind Speed in Numerical Weather Prediction Error Detection. 20th Symposium on Boundary Layers and Turbulence, American Meteorological Society, Boston, MA, July 9-13, 2012.

SUPERVISED THESES TOPICS

(year, degree, topic)

m = Masters d = Doctoral

Completed

 Graduation Date Thesis Title

Robert L. Vislocky 1988m On the use of perfect prog forecasts to improve model output statistics forecasts

Paul H. Lewis 1989m (Research paper) A meteorological model for use on micro-computers

Jeffery L. Peters 1989m A case study of a quasi-stationary tropical convective line

Kerry A. Moyer 1989m The turbulence structure of the marine stratocumulus‑topped boundary layer

Scott A. Mandia 1990m A detailed analysis of the EMEX 3 tropical convective line determined by aircraft observation

Jeffrey J. Nucciarone 1990m Aircraft measurements of turbulence spectra and variance dissipation in a marine stratocumulus‑topped boundary layer

Stephen L. Brueske 1990m Forecasting atmospheric particulate sulfur concentrations using National Weather Service synoptic charts

David V. Ledvina 1991m A study of the tropical Pacific Ocean surface energy balance during various convective and large scale wind regimes

George D. Alexander 1991m The relationship between EMEX mesoscale precipitation feature properties and their environmental characteristics

Todd D. Sikora 1992m Air/sea flux patterns within convective structures of the marine atmospheric surface layer

Douglas S. Clark 1993m The use of the Air Force Academy high wind alert system in forecasting moderate intensity wind events for military basis in the Colorado Springs area

Samuel M. Perugini 1993m Convective wakes in the western tropical Pacific warm pool during TOGA

Kerry A. Moyer 1993d Observations of mesoscale cellular convection from the marine stratocumulus phase of FIRE

Michael S. Sublette 1994m Warm‑season effects of the Gulf Stream on mesoscale characteristics of the atmospheric boundary layer

Donald K. Rinker, Jr. 1995m Use of obliquely rotated principal component analysis to identify coherent structures

Harlan D. Shannon 1996m Relating satellite observed convection to moist and dry static energy budgets during TOGA‑COARE

Joseph W. Rohrbach, 1996m The dynamics and three‑dimensional structure of the coherent eddies of the boundary layer investigated through principal component analysis

Todd D. Sikora 1996d An investigation of the convective marine atmospheric boundary layer using real and synthetic aperture radar

Giang Nong 1997m Vertical structure of convective wakes

John J. Rozbicki 1997m Tests of a convective wake parameterization in the single column version of CCM3

Mark P. Fitzgerald 1998m Warm-season statistical verification of the Pennsylvania State University real-time mesoscale model version 5

Bradley K. Cameron 1998m Observations of the entrainment zone in a rapidly growing boundary layer

Christopher A. Juckins 1998m Examining the potential use of statistics to improve cumulus parameterizations

Nathaniel S. Winstead 1999d Using synthetic aperture radar to remotely sense mesoscale and submesoscale processes in the marine atmospheric boundary layer

Eric Hebble 2000m Mesoscale structures in the entrainment zone of a rapidly entraining boundary layer.

Joseph Koval 2000m Computer training for entrepreneurial meteorologists

Harlan Shannon 2001d Measurement of thermal intensity over complex terrain using American White Pelicans and a simple boundary layer model

Ken Pelman 2002m An investigation of nocturnal radar ducts that lead to non-line of sight propagation over mountainous terrain

Matthew Kucas 2003m Forecasting the nighttime evolution of radio wave ducting in complex terrain using the MM5 numerical weather model

Kenneth Loescher 2004m Coastal barrier jet distributions in the Gulf of Alaska

Xuguang Wang 2004d Ensemble forecasting with the ensemble transform Kalman filter

Matthew Coleman 2005m Reducing financial impacts on the reinsurance industry: Economic valuation of seasonal hurricane forecasts

Chris Allen 2006m Source characterization and meteorological data optimization with a genetic algorithm-coupled dispersion/backward model

Caren Fisher 2007m Remote Sensing of High Latitude Open Cell Convection

Anke Beyer 2007m Concentration Assimilation into Wind Field Models for Dispersion Modeling

Benjamin Root 2007m TINT: A Data Archive Management and Extraction System

Addison Sears-Collins 2007m An Analysis of the Robustness and Relevance of Meteorological Triggers for Catastrophe Bonds

Kerry Long 2007m Improving Contaminant Source Characterization and Meteorological Data Forcing with a Genetic Algorithm

Andrew Annunzio 2008m Source Characterization with Atmospheric Boundary Layer depth

Yuki Kuroki 2008m Source Characterization with Autonomous Aircraft

Luna Rodriquez 2008m Source Characterization using a Genetic Algorithm and Incorporating Sensor Characteristics

Daniel Alexander 2009m Wind Speed Prediction via Time Series Modeling

Dustin Swales 2009m Shear Driven Gravity Waves on Sloping Front

Marikate Ellis 2010m Improving the Convective Forecasts of the Federal Aviation Administration

Luna Rodriguez 2011d Uncertainty Propagation within Source Term Estimation

Andrew Annunzio 2011d Lagrangian Framework for the Source Term Estimation of a Contaminant

Michael Lowe 2011m Sensitivity Analysis of Hurricane Evacuation Casualties and Costs in Florida

Robert Manion 2011m Transition of Convection from the Mountains to the Plains along the Colorado Front Range as Detected by TDWR

Josh Boden 2012m Regime Dependent Bias Correction of Ensemble Output

Kyle Imhoff 2014m ENSO Influence on Tropical Cyclone Regional Landfall Counts

Anna Schneider 2015m Use of Spatial Statistics in Precipitation Climatology and Model Evaluation

Brittany Recker 2015m Statistical Post-Processing of SPC Outlooks to Add Value for the Insurance Industry

Tyler McCandless 2015d Artificial Intelligence Techniques for Short-Range Solar Irradiance Prediction (co-Advised with Sue Ellen Haupt)

Chris Hanlon 2015d Field Campaign Decision Making in Atmospheric Science using an Automated Decision Algorithm. (co-Advised with Hans Verlinde)

Nikolai Balashov 2016d Probabilistic Surface Ozone Forecasting with a Novel Statistical Approach (co-Advised with Anne Thompson)

Daniel Eipper 2017d Inland Structure and Penetration of Lake Ontario Lake-Eff3ect Dominant Bands in Baroclinic Environments.

MEMBERSHIP ON DEGREE CANDIDATES’ COMMITTEES

Completed

 Graduation Date Thesis Title

Wei Wang 1987m On the improvement of very short‑range numerical quantitative precipitation forecasts: a case study

Michael T. Emlaw 1988m The influence of soil moisture on the nested grid model forecasts

Tracy Haack Hirshberg 1988m Boundary layer roll circulations in a stratified atmosphere

Robert Medred 1989m Dynamically driven roll circulations in an inversion‑capped boundary layer

Jeffrey A. Yuhas 1989m On mountain wave drag over complex terrain

Peter, J. Sousounis 1990d The mesoscale responses of a locally heated lanetary boundary layer

Kevin A. Kloesel 1990d Observational study of the above‑inversion structure and marine stratocumulus cloud clearing episodes during FIRE

Christopher A. Peters 1991m The viscous Sawyer‑Eliassen Equation

Steven S. Fine 1991d A new pattern recognition technique, with an example of locating fronts in model output and an example of identifying incorrect velocities in Doppler wind profiler data

Mercedes N. Lakhtakia 1991d A comparison of simple and complex treatments of surface hydrology and thermodynamics suitable for mesoscale atmospheric models

David A. Valler 1992m Wind profiling in a cloudy convective atmospheric boundary layer over land

Patricia C. Elkins 1992m Stratocumulus convection in the planetary boundary layer in the presence of latent heating, a capping inversion, and wind shear

Mark J. Laufersweiler 1993d A theoretical model of multiple regimes in a stratocumulus‑topped boundary layer

Qing Wang 1993d Turbulent mixing and transport in marine stratocumulus‑topped boundary layers, an observational study

Robert A. Thomas 1994d Horizontal and vertical structure of cross-equatorial wave propagation

Mark A. Miller 1994d Surface‑based remote sensing of marine boundary‑layer mesoscale cloud structure during ASTEX

Stephen F. Corfidi 1994m On the movement of mid‑latitude mesoscale convective complexes

Robert E. Shemo 1994m Precipitation signatures of various classes of organized convection in the Atlantic Ocean

George A. Gayno 1995m Development of a higher-order, fog-producing boundary layer model suitable for use in numerical weather prediction

Jeffrey E. Hare 1995d A similarity analysis of the structure of the wave‑induced flow fields

Jon M. Flatley 1995m Objective analysis and error assessment of radiosonde data in varying meteorological situations

Steven M. Babin 1995d A new model of the oceanic evaporation duct and its comparison with current models (Young as University of Maryland Adjunct Faculty Member)

Robert L. Vislocky 1996d An advanced model output statistics guidance system

Thomas A. Kovacs 1996m Diurnal variation in the movement and structure of the quiescent dryline

Allen B. White 1996d Radar remote sensing of scalar and velocity microturbulence in the convective boundary layer

Daniel P. Guertin 1997m Potential vorticity diagnostics of observed tropical cyclones

Robert T. Williams, Jr. 1997m Mesoscale atmospheric simulations of marine‑layer structure and refractivity in the southern California bight

Aric Rogers 1997m Coherent structures in the MABL

Sarah E. Labance 1997m Evaluation and implementation of microporous covers for the reduction of mushroom substrate preparation odors (Agricultural. Engineering)

Christopher A. Juckins 1998m Examining the potential use of statistics to improve cumulus parameterization

Rebecca L. Allen 1998m A continuous-in-space MOS system for maximum temperature forecasts

Michael Pontrelli 1998m The ingredients of a devastating terrain-induced flash flood along the eastern slopes of the central Appalachians: the Madison County, Virginia, flood of 27 June 1995

Justin P. Bobak 1998d Modeling the effects of turbulence on water vapor radiometer measurements (Electrical Engineering)

Robert F. Rogers 1998d Amplification of warm-core vorticities by convective redevelopment; a key component of tropical cyclogenesis

Edi Santoso 1999d Surface fluxes and vertical profiles in the RADIX layer (Geography, University of British Columbia)

Laura Hinkelman 1999m An evaluation of NCEP Eta model predictions of surface energy budget and cloud properties by comparison to measured ARM data

Joseph A. Santanello 1999m Parameterization of fractional vegetation cover and near-surface soil water content in a coupled model and its related short-term forecast implications

Neil P. McGillis 1999m Use of a precipitation verification methodology in the evaluation of ETA-29 quantitative precipitation forecasts

Mark A. Taylor 2001m A meteorological explanation for differences between precipitation and chemistry data collected from two neighboring NADP/NTN sites in central Pennsylvania

Elizabeth Wood 2001m The analysis and prediction of tropical cyclone rainfall

Emily Grover 2002m An objective, rapid-update system for forecasting surface temperature, dew-point depression, and wind speed utilizing surface weather observations and radar data

Stephen Leyton 2002m Short-term probabilistic forecasts of ceiling and visibility utilizing high-density and high-frequency surface weather observations

Anthony Schroeder 2002m Evaluation and testing of a high-resolution rapidly relocatable meteorological nowcasting and prediction system

Natasha L. Miles 2002d Observations of transient linear organization and nonlinear scale interactions in lake-effect clouds

Ricardo Munoz 2002d Development and testing of physical sub-grid parameterizations for the study of shallow convection interactions over land

Joby Hilliker 2002d An objective, statistical system for short-term probabilistic forecasts of thunderstorms

David Robertson 2003m The effect of model forecast track errors on quantitative precipitation forecasts in tropical cyclones

Glenn Auslander 2003m Dryline Bulge Evolution in a two-dimensional mixed-layer model

Paul Roundy 2003d Analysis of the climatology and interactions of waves in the equatorial region

Aaron Pratt 2004m Tropical cyclogenesis forecasting skill of the Global Forecasting System (GFS) during the 2002 and 2003 Atlantic hurricane seasons

John Siewert, Jr. 2004m Mass and water fluxes in Florida area cumulus

Charles Pavloski, Jr. 2005d An operational shortwave cloud optical depth retrieval for broken cloud fields

Jessica Higgs 2005m A study of the evolution of the radius of gale force winds using principle component analysis and sliced inverse regression.

John Stonitsch 2005m Evolution of boundary layer wind and thermodynamic fields along a front

Daniel Veren 2007m Verification of Ensemble Forecasts of Cyclone Structure during Extratropical Transition

Stephanie Zick 2008m Effects of the Madden-Julian Oscillation on the Cyclogenesis of Hurricanes Emily (2005) and Fausto (2002)

Jeffery Grabon 2008m Airborne Lidar Observations of the Transition Zone Between the Convective Boundary Layer and Free Atmosphere during IHOP 2002

Kathleen Walls 2009m Northern Hemispheric Flood Footprints

Eric Wertz 2009m Are Load Forecasts Predictable? An Analysis of Electricity Load Forecasts Issued by the New York Independent System Operator

Laurie Goodrich 2010d Stopover Ecology of Migrating Raptors in the Central Appalachians

Kyle Howe 2010m An Analysis of Weather Forecasts in the Context of Electricity Use

Tyler McCandless 2010m Statistical Guidance Methods for Predicting Snow Accumulation

Holly Hamilton 2010m Observations of Tropical Cyclone Boundary Layer Winds in the Core of Hurricane Ike

Shuang Chen 2011d Global Sensitivity Analysis of Chemical Mechanisms Based on Field Data

Jared Lee 2011d Techniques for Down-Selecting Numerical Weather Prediction Ensembles

Lili Lei 2011d A Hybrid Nudging-Ensemble Kalman Filter Approach to data Assimilation

Caroline Normile 2011m Ozonesonde Climatology and Satellite Product Evaluation: Tropospheric Ozone in the Mid-Atlantic from 2005-2010

Raphael Rogers 2011m Application of the Weather Research and Forecasting Model for Air Quality Forecasting Applications in Central California

Walter Kolczynski 2012d ` Evaluation of Linear Variance Calibration for Use in Atmospheric Transport and Dispersion Forecasting

Trish Miller 2012d Movement ecology of Golden Eagles (aquila chrysaetos) in eastern North America (Ecology)

Jeff Rayl 2012m Climate-regime cospectrum analysis: shortwave solar irradiance with other meteorological parameters for regionally spaced locales (Energy and Mineral Engineering)

Tiffany Samuelson 2013m Quantifying Net Hydroxyl Radical Consumption from the Oxidation of Volatile Organic Compounds and Subsequent Oxidation Products using a Potential Aerosol Mass Chamber

Greg Garner 2013d Enhancing the value of air quality forecasts in the mid-atlantic region through use of ensemble statistical post-processing

Xu Chen 2013d Demand Response and Generation Capacity Investments in the Electricity market (Energy and Mineral Engineering)

David Miller 2014d Application of Image-processing Techniques for Determining Convective Boundary-layer Depth from Aerosol-lidar Measurements

Katrina Kumpf 2014m Portfolio Analysis of Solar Photovoltaics: Quantifying the Contribution of Locational Marginal Pricing and Solar Irradiation Power on Overall Revenue and Investment Risk (Energy and Mineral Engineering)

Vivek Srikrishnan 2015m Using Multi-Pyranometer Arrays and Neural Networks to Estimate Direct Normal Irradiance. (Energy and Mineral Engineering)

Eric Wendoloski 2015m A Sub-km-grid Ensemble for Representing Mesogamma Hazard-Prediction Uncertainty in the Stable Boundary Layer over Complex Terrain

Joohyun Cho 2015d Four Essays on Economic Analysis on Increased Wind Power and Battery Energy Storage System in Restructured Markets – In South Korea and Electric Reliability Council of Texas (Energy and Mineral Engineering)

Holly Hamilton 2015d Topographic Influence on African Easterly Wave Energetics and Convective Interactions

Astrid Suarez-Mullens 2015d Observations and Modeling of the Effects of Waves and Rotors on Submeso and Turbulence Variability within the Stable Boundary Layer over Central Pennsylvania

Kyle Elliott 2016m Combining Radar and Aircraft Observations to Investigate the Kinematic and Microphysical Properties of the 20 May 2011 Squall Line

Glen Hanson 2016m Impact of Assimilating Surface Pressure Observations from Smartphones: Observing System Simulation Experiments with the PSU WRF-EnKF

Ryan Stauffer 2016d Linkages Among U.S. Ozonesonde Profile Variability, Meteorology, and Surface Ozone Measurements Based on Self-Organizing Map Clustering

Hannah Halliday 2016d Atmospheric Benzene Measurements and Analysis Conducted Within a Heavily Developed Oil and Gas Field

Alexander Kolwaleski 2017d Novel tools for improving understanding of tropical cyclone intensity and track

Vivek Srikrishnan 2017d Markov-Switching Models for Solar Irradiance Component Series (Energy and Mineral Engineering)

Katherine Wunsch 2018m Analyzing tropical cyclone structures during secondary eyewall formation using aircraft in-situ observations

John Banghoff 2019m Using Dual-Polarization Radar Information to Investigate Clear-Air Boundary Layer Atmospheric Phenomena (Meteorology and Atmospheric Science)

Laura Clemente-Harding 2019d Extension of the Analog Ensemble Technique to the Spatial Domain (Geography)

John Bird 2019d Atmospherically Aware Aircraft Guidance Using In Situ Observations (Aeronautical Engineering)

Sean Santellanes 2019m Environmental Conditions Associated with Horizontal Convective Rolls and Cellular Convection Meteorology and Atmospheric Science

Work in Progress

Advised

Kelly Nunez-Ocasio – Co-Advisor – Meteorology and Atmospheric Science

Dylan Steinkruger – Co-Advisor – Meteorology and Atmospheric Science

Committee Membership

Ph.D. James Limbacher – Meteorology and Atmospheric Science

Ph.D. Steven Naegele – Meteorology and Atmospheric Science

Ph.D. Yue Pan – Meteorology and Atmospheric Science

Ph.D. Andrew Polasky – Meteorology and Atmospheric Science

Ph.D. Seth Saslo – Meteorology and Atmospheric Science

Ph.D. Weiming Hu – Geography

SUPERVISED UNDERGRADUATE PROJECTS

 (Meteo 413H, 480W, 496, 497, and GeoEnvironmental Engineering Senior Theses)

Work Completed

 Date Topic

George D. Alexander 1987u Schematic errors in cyclone forecasts of the nested grid model (Meteorology)

Kevin Manning 1989u Development of an artificial intelligence technique for thunderstorm forecasting (Meteorology)

Joel Torcolini 1997u (GeoEnvironmental Engineering)

John Giampetro 1997u TV Forecasting Internship Report (Meteorology)

Adam Breo 1997u NWS Internship Report (Meteorology)

Jaimie Simonds 1997u (GeoEnvironmental Engineering)

Elizabeth Yaeger 1998u FAA Internship Report (Meteorology)

Neil McCaffrey 1998u (GeoEnvironmental Engineering)

Joseph Gallo 1998u (GeoEnvironmental Engineering)

Matthew Beam 1998u (GeoEnvironmental Engineering)

John Celenza 1999u On verification of quantitative precipitation forecasts produced by the Buffalo office of the National Weather Service using their in-house version of MM-5 (Meteorology)

David Kuharchik 1999u TV Forecasting Internship Report (Meteorology)

Travis Koshko 1999u TV Forecasting Internship Report (Meteorology)

Joshua Ralph 1999u (GeoEnvironmental Engineering)

Kristen Delack 2002u Radar Signatures Associated with Atypical Tornado-Producing Thunderstorms in Oklahoma (Meteorology)

Dayna Sherwood 2003u Operational versus Broadcast Meteorology, a Comparison (Meteorology)

Matthew Greenstein 2004u A statistical study of numerical model accuracy for Northeast coastal storms during 2002-3 winter season (Meteorology)

Michael Rager 2004u Statistical analysis of meteorological variables related to football scoring (Meteorology)

Matthew Welshans 2004u TV Forecasting Internship Report (Meteorology)

Stephen Nicholls 2005u Application of MODIS cloud imagery, QuikSCAT surface wind vectors, and AVHRR sea surface temperature maps to determine the geographic and synoptic conditions required for dendritic cumulus convection (Meteorology)

Jonathan Zawislak 2005u An observational study of vortex spacing in island wake vortex streets (Meteorology)

Nick Bender 2006u The Development of an Artificial Intelligence System to Forecast Tornadoes in the United States

Brian Clark 2006u An Internship at the Mount Washington Weather Observatory

Mark Iannelli 2006u Artificial Intelligence System Design for Weather Forecasting

Mark Iannelli 2006u Single-Station Lightning Stroke Locator

Alexis Phillips 2006u Summer in the City

Dan Pontoriero 2006u Statistical Weather Prediction Model Using WEKA to Forecast the Rain/Snow Decision

Richard Lam 2007u Synoptic Climatology of Cutoff Lows

Elizabeth Russell 2007u An Investigation of Multi-Period Forecast Skill for the Summer of 2005 in Chattanooga, Tennessee

Jared Plushnick 2007u Weather Bug: Experiences and Insights

Sean McPhadden 2008u East Coast Snow Storms

Lindsey Pope 2008u AIG Weather Forecast Internship

Elizabeth Baugher 2008u Channel 9 Television Forecasting Internship

Jared Plushnick 2008u AccuWeather Television Forecasting Internship

Nikki Kinney 2009u Numerical Modeling of Hurricane Intensification

Andrew Tuna 2009u KYW Television Internship

Robert Lydick 2009u WTAE Television Internship

David Cavaceci 2010u Realtime Analysis of Climate Trends

Colin M. Witman. 2012u Pricing Block and Index Products in the

 Electricity Industry

Kaytelyn E. Ernst 2012u Research on Leadership Development in Military

 Meteorological Organizations

Steven Sellers 2013u WFMZ Television Internship

Harrison Sincavage 2016u Summer Broadcast Meteorology Internship

Ally Debicki 2016u My Internship Experience

Miles Kelley 2017u Manned Aircraft vs Unmanned Aircraft for Strike Operations