BRIAN D. MCNOLDY

CONTACT

University of Miami, Rosenstiel School
4600 Rickenbacker Causeway
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EMPLOYMENT

- University of Miami, Department of Atmospheric Sciences, Miami, Florida
  - Senior Research Associate III, June 2018 – present
  - Senior Research Associate II, January 2012 – June 2018
- Colorado State University, Department of Atmospheric Science, Fort Collins, Colorado
  - Research Associate III, March 2006 – December 2011
  - Research Associate II, July 2002 – March 2006
  - Research Associate I, September 2001 – July 2002
- Colorado State University, Department of Atmospheric Science, Fort Collins, Colorado
  - Graduate Research Assistant, August 1998 – August 2001
- Lycoming College, Department of Astronomy and Physics, Williamsport, Pennsylvania
  - Laboratory Assistant and Tutor, January 1995 – May 1998

EDUCATION

- M.S., Atmospheric Science, 2001
  Colorado State University, Fort Collins, Colorado
  - Thesis: “Vertical Distribution of Water Vapor Using Satellite Sounding Methods with New Aircraft Data Validation”
  - Advisor: Thomas H. Vonder Haar
- B.A., Physics and Astronomy Double Major, Mathematics Minor, 1998
  Lycoming College, Williamsport, Pennsylvania
  - Senior Honors Project: “Planetary Atmospheres”
  - Advisor: Richard R. Erickson

COMPUTER EXPERIENCE

- Languages
  - HTML/XHTML, 28 years
  - IDL, 26 years
  - JavaScript, 23 years
  - SH/BASH, 21 years
  - PHP, 21 years
  - Fortran 90, 12 years
- Skills
  - Graphics and visualization
  - Operational real-time products
  - Data analysis
  - Scientific programming
  - Website creation and maintenance

REFEREED PUBLICATIONS

Fox, K. R., B. D. McNoldy, A. Morales, and D. S. Nolan, 2023: Sensitivity of surface rainfall in landfalling Hurricane Florence (2018) to sub-kilometer grid spacing and microphysics parameterizations. *Mon. Weather Rev.*, in review.

Millet, B., S. J. Majumdar, A. Cairo, B. D. McNoldy, S. D. Evans, and K. Broad, 2022: Exploring the impact of visualization design on non-expert interpretation of hurricane forecast path. *Int. J. Human Comp. Inter.*, 38, 16pp, https://doi.org/10.1080/10447318.2022.2121036.

Evans, S. D., K. Broad, A. Cairo, S. J. Majumdar, B. D. McNoldy, B. Millet, and L. Rauk, 2022: An interdisciplinary approach to evaluate public comprehension of the "Cone of Uncertainty" graphic. *B. Am. Meteorol. Soc.*, **103**, 2214-2221, https://doi.org/10.1175/BAMS-D-21-0250.1.

Molina, R., D. Letson, B. D. McNoldy, P. Mozumder, and M. Varkony, 2021: Striving for improvement: The perceived value of improving hurricane forecast accuracy. *B. Am. Meteorol. Soc.*, **102**, 41pp, https://doi.org/10.1175/BAMS-D-20-0179.1.

Nolan, D. S., B. D. McNoldy, J. Yunge, F. J. Masters, and I. M. Giammanco, 2021: Evaluation of the surface wind field over land in WRF simulations of Hurricane Wilma (2005): Part II: Surface winds, inflow angles, and boundary layer profiles. *Mon. Weather Rev.*, **149**, 697-713, https://doi.org/10.1175/MWR-D-20-0201.1.

Nolan, D. S., B. D. McNoldy, and J. Yunge, 2021: Evaluation of the surface wind field over land in WRF simulations of Hurricane Wilma (2005): Part I: Model initialization and simulation validation. *Mon. Weather Rev.*, **149**, 679-695, https://doi.org/10.1175/MWR-D-20-0199.1.

Annane, B., B. D. McNoldy, S. M. Leidner, R. Hoffman, R. Atlas, and S. J. Majumdar, 2018: A study of the HWRF analysis and forecast impact of realistically simulated CYGNSS observations assimilated at scalar wind speeds and as VAM wind vectors. *Mon. Weather Rev.*, **146**, 2221-2236, https://doi.org/10.1175/MWR-D-17-0240.1.

Leidner, S. M., B. Annane, B. D. McNoldy, R. Hoffman, and R. Atlas, 2018: Variational analysis of simulated ocean surface winds from the Cyclone Global Navigation Satellite System (CYGNSS) and evaluation using a regional OSSE. *J. Atmos. Ocean. Tech.*, **35**, 1571-1584, https://doi.org/10.1175/JTECH-D-17-0136.1.

McNoldy, B. D., B. Annane, S. Majumdar, J. Delgado, L. Bucci, and R. Atlas, 2017: Impact of assimilating CYGNSS data on tropical cyclone analyses and forecasts in a regional OSSE framework. *Marine Tech. Soc. J.,* **51**, 7-15, https://doi.org/10.4031/MTSJ.51.1.1.

Otkin, J. A., W. E. Lewis, A. Lenzen, B. D. McNoldy, and S. J. Majumdar, 2017: Assessing the accuracy of the cloud and water vapor fields in the Hurricane WRF (HWRF) model using satellite infrared brightness temperatures. *Mon. Weather Rev.*, **145**, 2027-2046, https://doi.org/10.1175/MWR-D-16-0354.1.

Trumbo, C., L. Peek, M. Meyer, H. Marlatt, E. Gruntfest, B. D. McNoldy, and W. H. Schubert, 2016: A cognitive-affective scale for hurricane risk perception. *Risk Analysis,* **36**, 14pp., https://doi.org/10.1111/risa.12575.

Williams, G. J., R. K. Taft, B. D. McNoldy, and W. H. Schubert, 2012: Shock-like structures in the tropical cyclone boundary layer. *J. Adv. Model. Earth Syst.,* **5**, 16pp., https://doi.org/10.1002/jame.20028.

Hendricks, E. A., B. D. McNoldy, and W. H. Schubert, 2012: Observed inner-core structural variability in Hurricane Dolly (2008). *Mon. Weather Rev.*, **140**, 4066-4077, https://doi.org/10.1175/MWR-D-12-00018.1.

Musgrave, K. D., R. K. Taft, J. L. Vigh, B. D. McNoldy, and W. H. Schubert, 2012: Time evolution of the intensity and size of tropical cyclones. *J. Adv. Model. Earth Syst.,* **4**, 15pp., https://doi.org/10.1029/2011MS000104.

Lindsey, D. T., B. D. McNoldy, Z. O. Finch, D. S. Henderson, D. G. Lerach, R. B. Seigel, J. M. Steinweg-Woods, E. A. Stuckmeyer, G. J. Williams, D. T. Van Cleave, and M. E. Woloszyn, 2011: A high wind statistical prediction model for the Northern Front Range of Colorado. *Electron. J. Oper. Meteorol.*, **2011-EJ3**, 24pp.

Schubert, W. H., and B. D. McNoldy, 2010: Application of the concepts of Rossby length and Rossby depth to tropical cyclone dynamics. *J. Adv. Model. Earth Syst.*, **2**, 13pp, https://doi.org/10.3894/JAMES.2010.2.7.

Hendricks, E. A., W. H. Schubert, S. R. Fulton, and B. D. McNoldy, 2010: Spontaneous-adjustment emission of inertia-gravity waves by unsteady vortical motion in the hurricane core. *Q. J. Roy. Meteor. Soc.*, **136**, 537-548, https://doi.org/10.1002/qj.547.

Pielke Sr., R. A., K. E. Wolter, O. A. Bliss, N. J. Doesken, and B. D. McNoldy, 2007: July 2005 Denver heat wave: How unusual was it? *Natl. Wea. Dig.*, **31**, 24-35.

Johnson, R. H., P. E. Ciesielski, B. D. McNoldy, P. J. Rogers, and R. K. Taft, 2007: Multiscale variability of the flow during the North American Monsoon Experiment. *J. Climate*, **20**, 1628-1648, https://doi.org/10.1175/JCLI4087.1.

Schubert, W. H., C. M. Rozoff, J. L. Vigh, B. D. McNoldy, and J. P. Kossin, 2007: On the distribution of subsidence in the hurricane eye. *Q. J. Roy. Meteor. Soc.*, **133**, 595-605, https://doi.org/10.1002/qj.49.

Rozoff, C. M., W. H. Schubert, B. D. McNoldy, and J. P. Kossin, 2006: Rapid filamentation zones in intense tropical cyclones. *J. Atmos. Sci.*, **63**, 325-340, https://doi.org/10.1175/JAS3595.1.

McNoldy, B. D., 2004: Triple eyewall in Hurricane Juliette. *B. Am. Meteorol. Soc.*, **85**, 1663-1666, https://doi.org/10.1175/BAMS-85-11-1657.

Bordoni, S., P. E. Ciesielski, R. H. Johnson, B. D. McNoldy, and B. Stevens, 2004: The low-level circulation of the North American Monsoon as revealed by QuikSCAT. *Geophys. Res. Lett.*, **31**, L10109, https://doi.org/10.1029/2004GL020009.

McNoldy, B. D., P. E. Ciesielski, W. H. Schubert, and R. H. Johnson, 2004: Surface winds, divergence, and vorticity in stratocumulus regions using QuikSCAT and reanalysis winds. *Geophys. Res. Lett.*, **31**, L08304, https://doi.org/10.1029/2004GL019768.

McNoldy, B. D., A. Cheng, Z. A. Eitzen, R. W. Moore, J. J. Persing, K. Schaefer, and W. H. Schubert: Design and construction of an affordable rotating table for classroom demonstrations of geophysical fluid dynamics principles. *B. Am. Meteorol. Soc.,* **84**, 1827-1834, https://doi.org/10.1175/BAMS-84-12-1827.

Prieto, R., B. D. McNoldy, S. R. Fulton, and W. H. Schubert, 2003: A classification of binary tropical-cyclone-like vortex interactions. *Mon. Weather Rev.*, **131**, 2656-2666, https://doi.org/10.1175/1520-0493(2003)131<2656:ACOBTC>2.0.CO;2.

Kossin, J. P., B. D. McNoldy, and W. H. Schubert, 2002: Vortical swirls in hurricane eye clouds. *Mon. Weather Rev.*, **130**, 3144-3149, https://doi.org/10.1175/1520-0493(2002)130<3144:VSIHEC>2.0.CO;2.

◆*SEMINARS, LECTURES, & PRESENTATIONS*

- Nova Southeastern Univ. MSMS6203 guest lecture, Fort Lauderdale FL, February 2023
  - "The Ocean in Motion: Sea Level Rise and Tides"
- CoreLogic INTRCONNECT conference panelist, Los Angeles CA, January 2023
  - "A Look Back on the 2022 Hurricane Season"
- National Academy of Sciences' Board on Atmospheric Science & Climate forum panelist, Virtual, November 2022
  - "Hurricane Forecast Communications and Emergency Decision Making"
- Univ. of Miami ATM614 guest lecture, Miami FL, November 2022
  - "A Brief Survey of Weather Forecasting"
- Univ. of Miami ATM103 guest lecture, Coral Gables FL, November 2022
  - "A Brief Survey of Weather Forecasting"
- Univ. of Miami EVR674 guest lecture, Miami FL, October 2022
  - "A Brief Survey of Weather and Forecasting"
- Univ. of Miami EVR633 guest lecture, Miami FL, September 2022
  - "Communication and Perceptions of Hurricane Hazards"
- Univ. of Miami ATM303 guest lecture, Coral Gables, Florida, April 2022
  - "*A Journey in Science Communication*"
- Climate Resilience Academy Symposium, Miami, Florida, April 2022
  - "*A Novel 75-year Database and Climatology of Heat Index Values in Miami*"
- CYGNSS Science Team Meeting, Virtual, March 2022
  - "*The Benefits of Assimilating CYGNSS Data in the Early Stages of Tropical Cyclone Development*"
- Univ. of Miami MES674 guest lecture, Miami, Florida, October 2021
  - "*A Brief Survey of Weather and Forecasting*"
- The Weather Channel seminar series, Virtual, September 2021
  - "*Tides, Sea Level Rise, and Storm Surge: A Miami Perspective*"
- Univ. of Miami COMPASS seminar series, Miami, Florida, September 2021
  - "*Water Levels at Virginia Key: Past, Present, and Future*"
- 34th American Meteorological Society (AMS) Conference on Hurricanes and Tropical Meteorology, Virtual, May 2021
  - "*The Perceived Value of Improving Hurricane Forecast Accuracy*"
- Univ. of Miami MES674 guest lecture, Virtual, October 2020
  - "*A Brief Survey of Weather and Forecasting*"

• Miami Climate Symposium, Miami, Florida, January 2020
  - "*A Quarter-century of Tide Measurements at Virginia Key*"

• 100th American Meteorological Society (AMS) Annual Meeting, Boston, Massachusetts, January 2020
  - "*Evaluation of Planetary Boundary Layer Schemes in Hurricanes Over Land Through Comparison of Surface Winds in Observations and Simulations of Hurricane Wilma (2005)*"

• Univ. of Miami MES674 guest lecture, Miami, Florida, October 2019
  - "*Forecasting the Weather With and Without Technology*"

• Miami Beach United panelist, Miami Beach, Florida, January 2019
  - "*Sea Level Rise and Flooding 101*"

• Univ. of Miami ATM662 guest lecture, Coral Gables, Florida, September 2018
  - "*Tropical Cyclone Climatology and Meteorology*"

• CallisonRTKL "Designing for Resilience" seminar series, Coral Gables, Florida, July 2018
  - "*Hurricanes, Sea Level Rise, and South Florida's Challenging Future*"

• 33rd American Meteorological Society (AMS) Conference on Hurricanes and Tropical Meteorology, Ponte Vedra Beach, Florida, April 2018
  - "*An Evaluation of Satellite-derived Atmospheric Motion Vector (AMV) Characteristics in Tropical Cyclones Using TCI HDSS Dropsondes*"

• NISAR Science Team Meeting, Miami, Florida, February 2018
  - "*Trends and Predictions of Tidal Flooding Hazards in Miami*"

• Univ. of Miami Computer Science Colloquium, Miami, Florida, February 2018
  - "*Ensemble Techniques Applied to Ocean Profiling Floats in an Observing System Simulation Experiment*"

• Univ. at Albany DAES/ASRC Joint Colloquium, Albany, New York, December 2017
  - "*CYGNSS: One Year In*"

• Univ. of Miami ATM243 guest lecture, Coral Gables, Florida, October 2017
  - "*Understanding, Observing, and Forecasting Hurricanes*"

• SOCCOM Annual Meeting, Princeton, New Jersey, May 2017
  - "*Analysis and Visualization of Large Ensembles of Model-simulated SOCCOM Float Trajectories*"

• Univ. of Miami ATM303 guest lecture, Coral Gables, Florida, February 2017
  - "*Project STORMFURY*"

• Lycoming College Physics Colloquium, Williamsport, Pennsylvania, August 2016
  - "*Advancing Hurricane Science from Space*"

• NASA JPL Tropical Cyclone Information System Workshop, Pasadena, California, June 2016
  - "*Evaluation of the Impact of CYGNSS Wind Speed Data on Tropical Cyclone Structure Analyses and Forecasts in a Regional OSSE*"

• 32nd American Meteorological Society (AMS) Conference on Hurricanes and Tropical Meteorology, San Juan, Puerto Rico, April 2016
  - *"Evaluation of the Impact of CYGNSS Wind Speed Data on Tropical Cyclone Structure Analyses Forecasts in a Regional OSSE"*

• Miami Design Preservation League seminar series, Miami Beach, Florida, February 2016
  - *"Observations and Projections of Sea Level Rise in Miami"*

• Florida International Univ. GEO6938 guest lecture, Virtual, January 2016
  - "*Observations and Trends of Sea Level in Southeast Florida*"

• 96th American Meteorological Society (AMS) Annual Meeting, 20th Conference on Integrated Observing and Assimilation Systems for the Atmosphere, Oceans, and Land Surface (IOAL-AOLS), New Orleans, Louisiana, January 2016
  - *"Impact of CYGNSS Data on Tropical Cyclone Analyses and Forecasts in a Regional OSSE Framework"*

• CYGNSS Science Team Meeting, Ann Arbor, Michigan, October 2015
  - *"CYGNSS OSSE Activities for Hurricane Analysis and Prediction"*

• 69th Interdepartmental Hurricane Conference, Jacksonville, Florida, March 2015
  - *"Impact of CYGNSS Data on Hurricane Analyses and Forecasts in a Regional OSSE Framework"*

- 31st American Meteorological Society (AMS) Conference on Hurricanes and Tropical Meteorology, San Diego, California, April 2014
  - *"Further Development and Applications of an Efficient and Configurable Vortex Initialization Technique"*
- 67th Interdepartmental Hurricane Conference, College Park, Maryland, March 2013
  - *"A Highly Configurable Vortex Initialization Method for Tropical Cyclones"*
- 30th American Meteorological Society (AMS) Conference on Hurricanes and Tropical Meteorology, Ponte Vedra Beach, Florida, April 2012
  - *"Diagnostics and Verification of the Tropical Cyclone Environment in Regional Models"*
- National Oceanographic Partnership Program (NOPP) TC Review, Miami, Florida, March 2012
  - *"Improving Tropical Cyclone Intensity Forecasting with Theoretically-Based Statistical Models"*
- National Oceanographic Partnership Program (NOPP) TC Review, Miami, Florida, February 2011
  - *"Impact of Vortex Structure on Tropical Cyclone Response to Diabatic Heating"*
- 29th American Meteorological Society (AMS) Conference on Hurricanes and Tropical Meteorology, Tucson, Arizona, May 2010
  - "*HWRF Performance Diagnostics from the 2009 Atlantic Hurricane Season.*"
- Interactions of Society and the Environment Seminar Series, Fort Collins, Colorado, February 2010
  - "*Human Dynamics of Hurricane Risk*"
- Town Hall Meeting and Public Forum on Hail Cannon Use, Center, Colorado, November 2006
  - "*Precipitation Characteristics of the San Luis Valley During Summer 2006*"
- 27th American Meteorological Society (AMS) Conference on Hurricanes and Tropical Meteorology, Monterey, California, April 2006
  - "*Diurnal cycle of oceanic surface winds and sea surface temperatures during the 2004 North American Monsoon Experiment*"
- 26th American Meteorological Society (AMS) Conference on Hurricanes and Tropical Meteorology, Miami Beach, Florida, May 2004
  - "*Multiple Eyewall Structure of Hurricane Juliette 2001*"
- U.S. CLIVAR Pan-American Workshop, Boulder, Colorado, September 2003
  - "*QuikSCAT Analysis of Surface Wind Fields in Stratocumulus Regions*"
- 25th American Meteorological Society (AMS) Conference on Hurricanes and Tropical Meteorology, San Diego, California, April/May 2002
  - "*A Multi-Platform View of Hurricane Erin*"
- American Geophysical Union (AGU) Meeting, San Francisco, California, December 2000
  - "*A Preliminary Observational Study of Hurricane Eyewall Mesovortices*"
- 2nd Annual Department of Defense Center for Geosciences / Atmospheric Research (DoD CG/AR) Review, Bellvue, Colorado, October 2000
  - "*Distribution of Water Vapor Using Satellite Sounding Methods with New Aircraft Data Validation*"
- Central Pennsylvania Section of the American Association of Physics Teachers (CPS-AAPT) Meeting, Williamsport, Pennsylvania, April 1998
  - "*Tropical Convection and Vertical Structure in the Atmosphere*"
- Lycoming College Physics Colloquium, Williamsport, Pennsylvania, March 1998
  - "*Planetary Atmospheric Dynamics*"
- Lycoming College Physics Colloquium, Williamsport, Pennsylvania, September 1997
  - "*Characteristics of Tropical Convective Systems*"
- NASA Goddard Space Flight Center TRMM Office seminar, Greenbelt, Maryland, August 1997
  - "*Tropical Convective Systems Observed by Infrared Satellite and Radar*"
- Lycoming College Physics Colloquium, Williamsport, Pennsylvania, October 1996
  - "*The Formation of Severe Weather*"

◆ ACADEMIC ADVISING

- Cameron Pine, 2022-2023, undergraduate senior thesis committee member
  - "*Evaluation of Over-land Surface Winds in WRF Simulations of the Landfall of Hurricane Laura (2020)*"
- Nathan Taminger, 2020-2022, undergraduate senior thesis co-advisor
  - "*Dynamic Short-term Adjustments to NOAA Tide Predictions Using a Multiple Linear Regression Model*"
- Savannah Olivas, 2021-2022, undergraduate senior thesis committee member
  - "*Identifying Public Response and Uncertainty to Hurricane Ida's Remnants (2021) in the Northeastern United States*"
- George Rizzuto, 2019-2020, undergraduate senior thesis committee member
  - "*The Influence of El Nino Southern Oscillation on Tropical Cyclogenesis from African Easterly Waves*"
- Jimmy Yunge, 2018-2019, undergraduate senior thesis co-advisor
  - "*Validation of WRF Landfall Simulations of Hurricane Maria (2017) over Puerto Rico with Surface Wind Observations*"
- Nicholas Kedzuf, 2017-2018, undergraduate senior thesis co-advisor
  - "*Seasonal Variability and Trends of the Miami Urban Heat Island*"
- Jessica Taheri, 2011, undergraduate internship co-advisor
  - "*Comparing Model Precipitation Forecasts for Hurricane Ida (2009)*"
- Christopher Alston, 2010, undergraduate internship co-advisor
  - "*The influence of the North Atlantic Oscillation on hurricane landfalls from Virginia to Maine*"
- Stormy Stevens, 2010, undergraduate internship co-advisor
  - "*The Impact of Tropical Cyclone Rainfall on Drought in Alabama*"

◆ CONFERENCE PREPRINTS

Evans, S. D., B. Millet, A. Cairo, B. D. McNoldy, S. J. Majumdar, and K. Broad, 2023: Utilizing the design charette for informing forecast product redesign. Preprints, *Amer. Met. Soc. 103rd Ann. Meeting*, Denver, CO.

McNoldy, B. D., and R. Molleda, 2022: A novel 75-year database and climatology of heat index values in Miami. Preprints, *Univ. of Miami Climate Resilience Academy Symposium*, Miami, FL.

Taminger, N. H., B. D. McNoldy, B. J. Soden, 2022: Dynamic adjustments to short-term NOAA tide predictions using a multiple linear regression model. Preprints, *Univ. of Miami Climate Resilience Academy Symposium*, Miami, FL.

Majumdar, S. J., B. Millet, K. Broad, A. Cairo, S. Evans, and B. D. McNoldy, 2022: Graphical communication of hurricane risk for vulnerable populations. Preprints, *Univ. of Miami Climate Resilience Academy Symposium*, Miami, FL.

Olivas, S., S. J. Majumdar, B. D. McNoldy, and A. Cairo, 2022: Identifying public response and uncertainty to Hurricane Ida's remnants (2021) in the northeastern United States. Preprints, *Univ. of Miami Climate Resilience Academy Symposium*, Miami, FL.

Amendola, J., B. Millet, S. J. Majumdar, A. Cairo, B. D. McNoldy, S. D. Evans, and K. Broad, 2022: Research-based guidelines for designing forecast products. Preprints, *Univ. of Miami Climate Resilience Academy Symposium*, Miami, FL.

Nebylitsa, S., S. J. Majumdar, B. D. McNoldy, C. Masiello, Z. R. Michael, and D. S. Nolan, 2022: Revisiting environmental wind and moisture computations in tropical cyclones. Preprints, *Amer. Met. Soc. 102nd Ann. Meeting*, Virtual.

Millet, B., S. J. Majumdar, A. Cairo, B. D. McNoldy, K. Broad, and S. D. Evans, 2022: Use of eye tracking to evaluate viewers' understanding of the National Hurricane Center's Cone of Uncertainty graphic. Preprints, *Amer. Met. Soc. 102nd Ann. Meeting*, Virtual.

McNoldy, B. D., R. Molina, D. Letson, P. Mozumder, and M. A. Varkony, 2021: The perceived value of improving hurricane forecast accuracy. Preprints, *Amer. Met. Soc. 34th Conf. on Hurricanes and Tropical Meteorology*, Virtual.

Fox, K. R., B. D. McNoldy, and D. S. Nolan, 2021: The impact of microphysics on flooding resulting from landfalling hurricanes. Preprints, *Amer. Met. Soc. 34th Conf. on Hurricanes and Tropical Meteorology*, Virtual.

Majumdar, S. J., B. Millet, K. Broad, A. Cairo, S. Evans, and B. D. McNoldy, 2021: Graphical hurricane risk communication for vulnerable populations. Preprints, *Amer. Met. Soc.* 34th Conf. on Hurricane and Tropical Meteorology, Virtual.

Marks, F., B. D. McNoldy, M-C. Ko, and A. B. Schumacher, 2021: Development of a probabilistic tropical cyclone rainfall model. Preprints, *Amer. Met. Soc. 34th Conf. on Hurricanes and Tropical Meteorology*, Virtual.

Annane, B., S. M. Leidner, R. N. Hoffman, R. M. Atlas, L. Cucurull, B. D. McNoldy, and S. J. Majumdar, 2021: Impacts of CYGNSS v2.1, v3.0, and NOAA L2 winds on analyses and forecasts of tropical cyclones in regional OSEs. Preprints, *Amer. Met. Soc. 34th Conf. on Hurricanes and Tropical Meteorology*, Virtual.

Annane, B., L. Cucurull, R. Atlas, S. M. Leidner, S. J. Majumdar, R. N. Hoffman, and B. D. McNoldy, 2021: Optimizing the utilization of CYGNSS wind observations for numerical prediction of tropical cyclones. Preprints, *Amer. Met. Soc. 101st Ann. Meeting*, Virtual.

McNoldy, B. D., D. S. Nolan, and J. Yunge, 2020: Evaluation of planetary boundary layer schemes in hurricanes over land through comparison of surface winds in observations and simulations of Hurricane Wilma (2005). Preprints, *Amer. Met. Soc. 100th Ann. Meeting*, Boston, MA.

Marks, F. D., *B. D. McNoldy*, M.-C. Ko, and A. B. Schumacher, 2020: Development of a probabilistic tropical cyclone rainfall model: P-Rain. Preprints, *Amer. Met. Soc. 100th Ann. Meeting*, Boston, MA.

Leidner, S. M., S. J. Majumdar, J. Hegarty, and B. D. McNoldy, 2020: CYGNSS data impact on global analyses of ocean surface winds. Preprints, *Amer. Met. Soc. 100th Ann. Meeting*, Boston, MA.

Annane, B., S. M. Leidner, R. N. Hoffman, R. Atlas, B. D. McNoldy, S. J. Majumdar, and L. Cucurull, 2020: Optimizing the utilization of CYGNSS wind observations for numerical prediction of tropical cyclones. Preprints, *Amer. Met. Soc. 100th Ann. Meeting*, Boston, MA.

Nolan, D. S., B. D. McNoldy, and J. Yunge, 2019: Evaluation of planetary boundary layer schemes in hurricanes over land through comparison of surface winds in observations and simulations of Hurricane Wilma (2005). Preprints, *AGU 52nd Fall Meeting*, San Fransisco, CA.

Annane, B., S. M. Leidner, B. D. McNoldy, R. Atlas, S. J. Majumdar, and R. N. Hoffman, 2019: Forecast impact experiments to optimize utilization of CYGNSS wind observations. Preprints, *IGARSS 2019*, Yokohama, Japan.

Ge, J. Y., D. S. Nolan, and B. D. McNoldy, 2019: A detailed dataset of surface winds over Puerto Rico from a WRF simulation of Hurricane Maria (2017). Preprints, *Amer. Met. Soc. 99th Ann. Meeting*, Phoenix, AZ.

Knievel, J. C., D. S. Nolan, G. H. Bryan, B. D. McNoldy, J. A. Hlywiak, J. Y. Ge, E. A. Hendricks, R. Rotunno, and C. M. Rozoff, 2018: Toward better simulations of hurricane winds in urban canopies. Preprints, *AGU 51st Fall Meeting*, Washington, DC.

McNoldy, B. D., C. S. Velden, and S. J. Majumdar, 2018: An evaluation of satellite-derived atmospheric motion vector (AMV) characteristics in tropical cyclones using TCI HDSS dropsondes. Preprints, *Amer. Met. Soc. 33rd Conf. on Hurricanes and Tropical Meteorology*, Ponte Vedra Beach, FL.

Dunion, J. P., C. D. Thorncroft, C. S. Velden, and B. D. McNoldy, 2018: The TC diurnal cycle: The landfall before the landfall. Preprints, *Amer. Met. Soc. 33rd Conf. on Hurricanes and Tropical Meteorology*, Ponte Vedra Beach, FL.

Annane, B., S. M. Leidner, B. D. McNoldy, R. Atlas, S. J. Majumdar, and R. N. Hoffman, 2018: Impact of CYGNSS data on tropical cyclone analyses and forecasts using the operational HWRF. Preprints, *Amer. Met. Soc. 33rd Conf. on Hurricanes and Tropical Meteorology*, Ponte Vedra Beach, FL.

Kedzuf, N. J., P. Zuidema, and B. D. McNoldy, 2018: An analysis of the Miami urban heat island and its potential influence on precipitation distribution in South Florida. Preprints, *Amer. Met. Soc. 98th Ann. Meeting*, Austin, TX.

Annane, B., S. M. Leidner, S. J. Majumdar, B. D. McNoldy, R. N. Hoffman, R. Atlas, J. A. Sippel, and Z. Zhang, 2018: Impact of CYGNSS wind speeds and variational analysis wind vectors on HWRF analyses and forecasts. Preprints, *Amer. Met. Soc. 22nd Conf. on Satellite Meteorology and Oceanography*, Austin, TX.

Leidner, S. M., S. J. Majumdar, B. D. McNoldy, R. N. Hoffman, and R. Atlas, 2018: CYGNSS gridded global wind vectors: Variational analysis with GFS backgrounds. Preprints, *Amer. Met. Soc. 22nd Conf. on Satellite Meteorology and Oceanography*, Austin, TX.

Majumdar, S. J., B. D. McNoldy, B. Annane, S. M. Leidner, R. Atlas, and R. N. Hoffman, 2017: Evaluation of the impact of synthetic CYGNSS wind speed data on tropical cyclone analyses and forecasts in a regional OSSE. Preprints, OFCM 71st Interdepartmental Hurricane Conf., Miami, FL.

Annane, B., S. M. Leidner, B. D. McNoldy, R. N. Hoffman, and R. Atlas, 2017: Assimilation of CYGNSS ocean surface winds in HWRF: Preparing for post-launch assessment of impact on hurricane analyses and forecasts. Preprints, *Amer. Met. Soc. 97th Ann. Meeting*, Seattle, WA.

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Annane, B, B. D. McNoldy, S. M. Leidner, R. Atlas, R. N. Hoffman, and S. J. Majumdar, 2016: Impact of CYGNSS data on tropical cyclone analyses and forecasts in a regional OSSE framework. Preprints, *AGU Fall Meeting*, San Francisco, CA.

McNoldy, B. D., B. Annane, J. Deldago, L. Bucci, R. Atlas, S. J. Majumdar, 2016: Evaluating the impact of CYGNSS wind speed data on tropical cyclone structure analyses and forecasts in a regional OSSE. Preprints, *AMS 32nd Conf. on Hurricanes and Tropical Meteorology*, San Juan, PR.

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Musgrave, K. D., M. DeMaria, and B. D. McNoldy, 2016: Global expansion of a statistical-dynamical ensemble for tropical cyclone intensity prediction. Preprints, *AMS 32nd Conf. on Hurricanes and Tropical Meteorology*, San Juan, PR.

Otkin, J., W. E. Lewis, A. L. Lenzen, B. D. McNoldy, and S. J. Majumdar, 2016: Evaluation of microphysics and cumulus parameterization schemes in the HWRF model using satellite observations. Preprints, *AMS 32nd Conf. on Hurricanes and Tropical Meteorology*, San Juan, PR.

McNoldy, B. D., B. Annane, J. Deldago, L. Bucci, R. Atlas, S. J. Majumdar, M. Leidner, and R. Hoffman, 2016: Impact of CYGNSS data on tropical cyclone analyses and forecasts in a regional OSSE framework. Preprints, *AMS 20th Conf. on Integrated Observing and Assimilation Systems for the Atmosphere, Oceans, and Land Surface*, New Orleans, LA.

McNoldy, B. D., B. Annane, J. Deldago, L. Bucci, R. Atlas, and S. J. Majumdar, 2015: Impact of CYGNSS data on hurricane analyses and forecasts in a regional OSSE framework. Preprints, *OFCM 69th Interdepartmental Hurricane Conf.*, Jacksonville, FL.

Annane, B., B. D. McNoldy, J. Delgado, L. Bucci, R. Atlas, and S. J. Majumdar, 2015: Impact of CYGNSS data on hurricane analyses and forecasts in a regional OSSE framework. Preprints, *Amer. Met. Soc. 95th Ann. Meeting*, Phoenix, AZ.

McNoldy, B. D., E. A. Hendricks, E. D. Rappin, S. J. Majumdar, D. S. Nolan, and J. D. Doyle, 2014: Further development and applications of an efficient and configurable vortex initialization technique. Preprints, *Amer. Met. Soc. 31St Conf. on Hurricanes and Tropical Meteorology*, San Diego, CA.

Abarca, S. F, Y. T. Yang, H.-C. Kuo, B. D. McNoldy, and M. T. Montgomery, 2014: Tertiary eyewalls: Observations and boundary layer response. Preprints, *Amer. Met. Soc. 31St Conf. on Hurricanes and Tropical Meteorology*, San Diego, CA.

Annane, B. and B. D. McNoldy, 2014: CYGNSS data and H*Wind surface wind analysis: A data denial experiment. Preprints, *Amer. Met. Soc. 31St Conf. on Hurricanes and Tropical Meteorology*, San Diego, CA.

McNoldy, B. D., E. D. Rappin, D. S. Nolan, and S. J. Majumdar, 2013: A highly configurable vortex initialization method for tropical cyclones. Preprints, *OFCM 67th Interdepartmental Hurricane Conf.*, College Park, MD.

Musgrave, K. D., M. DeMaria, B. D. McNoldy, Y. Jin, and M. Fiorino, 2013: Further development of a statistical ensemble for tropical cyclone intensity prediction. Preprints, *OFCM 67th Interdepartmental Hurricane Conf.*, College Park, MD.

Trumbo, C. W., L. Peek, M. Lueck, H. Marlatt, B. D. McNoldy, E. Gruntfest, and W. H. Schubert, 2012: A multi-dimensional examination of hurricane preparedness and evacuation intention. Preprints, *Soc. Risk Anal. 32nd Ann. Meeting*, San Fransisco, CA.

Trumbo, C. W., L. Peek, M. Lueck, H. Marlatt, and B. D. McNoldy, 2012: Beyond the cone of uncertainty: Effect of alternate hurricane forecast maps on evacuation intent. Preprints, *Soc. Risk Anal. 32nd Ann. Meeting*, San Fransisco, CA.

McNoldy, B. D., K. D. Musgrave, and M. DeMaria, 2012: Diagnostics and verification of the tropical cyclone environment in regional models. Preprints, *Amer. Met. Soc. 30th Conf. on Hurricanes and Tropical Meteorology*, Ponte Vedra Beach, FL.

Musgrave, K. D., B. D. McNoldy, and M. DeMaria, 2012: Creation of a statistical ensemble for tropical cyclone intensity prediction. Preprints, *Amer. Met. Soc. 30th Conf. on Hurricanes and Tropical Meteorology*, Ponte Vedra Beach, FL.

Williams, G. J., R. K. Taft, B. D. McNoldy, and W. H. Schubert, 2012: Shock-like structures in the tropical cyclone boundary layer. Preprints, *Amer. Met. Soc. 30th Conf. on Hurricanes and Tropical Meteorology*, Ponte Vedra Beach, FL.

Musgrave, K. D., M. DeMaria, B. D. McNoldy, Y. Jin, and M. Fiorino, 2012: Creation of a statistical ensemble for tropical cyclone intensity prediction. Preprints, *OFCM 66th Interdepartmental Hurricane Conf.*, Charleston, SC.

Musgrave, K. D., M. DeMaria, B. D. McNoldy, and R. T. DeMaria, 2011: On the display of tropical cyclone model ensemble structure information. Preprints, *Amer. Met. Soc. 91st Ann. Meeting*, Seattle, WA.

Marlatt, H., C. W. Trumbo, L. Peek, M. Lueck, E. Gruntfest, B. D. McNoldy, W. H. Schubert, 2011: Dynamics of hurricane risk perception. Preprints, *Amer. Met. Soc. 91st Ann. Meeting*, Seattle, WA.

Trumbo, C. W., L. Peek, B. D. McNoldy, W. H. Schubert, E. Gruntfest, H. Marlatt, and M. Lueck, 2011: Dynamics of hurricane risk perception. Preprints, *NSF Engineering Research and Innovation Conf.*, Atlanta, GA.

Trumbo, C. W., H. Marlatt, L. Peek, M. Lueck, B. D. McNoldy, W. H. Schubert, E. Gruntfest, and J. Demuth, 2010: Changes in risk perception for hurricane evacuation among gulf coast residents, 2006-2008. Preprints, *Soc. For Risk Anal. 30th Ann. Meeting*, Salt Lake City, UT.

McNoldy, B. D., M. DeMaria, V. Tallapragada, and T. Marchok, 2010: HWRF performance diagnostics from the 2009 Atlantic hurricane season. Preprints, *Amer. Met. Soc. 29th Conf. on Hurricanes and Tropical Meteorology*, Tucson, AZ.

Schubert, W. H., and B. D. McNoldy, 2010: The concepts of Rossby length and Rossby depth and their application to hurricane dynamics. Preprints, *Amer. Met. Soc. 29th Conf. on Hurricanes and Tropical Meteorology*, Tucson, AZ.

Hendricks, E. A., W. H. Schubert, S. R. Fulton, and B. D. McNoldy, 2009: Spontaneous inertia-gravity wave radiation from unsteady vortical motion in the hurricane core. Preprints, *Amer. Met. Soc. 17th Conf. on Atmospheric and Oceanic Fluid Dynamics*, Stowe, VT.

DeMaria, M., and B. D. McNoldy, 2009: Statistical evaluation of the response of intensity to large-scale forcing in the 2008 operational HWRF model. Preprints, *Tropical Cyclone Model Diagnostics Workshop*, Miami, FL.

Masarik, M. T., W. H. Schubert, and B. D. McNoldy, 2007: Potential vorticity aspects of the MJO. Preprints, *Amer. Met. Soc. 87th AMS Ann. Meeting*, San Antonio, TX.

McNoldy, B. D., R. H. Johnson, and P. E. Ciesielski, 2006: Diurnal cycle of sea surface winds and temperatures during NAME 2004. Preprints, *Nat'l Atmos. and Ocean Admin. 1st Climate Prediction Program for the Americas Workshop*, Tucson, AZ.

McNoldy, B. D., P. E. Ciesielski, and R. H. Johnson, 2006: Diurnal cycle of sea surface winds and temperatures during the 2004 North American Monsoon Experiment. Preprints, *Amer. Met. Soc. 27th Conf. on Hurricanes and Tropical Meteorology*, Monterey, CA.

Schubert, W. H., R. K. Taft, C. M. Rozoff, B. D. McNoldy, J. P. Kossin, and S. R. Fulton, 2006: Potential vorticity rings and eye subsidence. Preprints, *Amer. Met. Soc. 27th Conf. on Hurricanes and Tropical Meteorology*, Monterey, CA.

Rogers, P. J., R. H. Johnson, P.E. Ciesielski, and B. D. McNoldy, 2005: An observational analysis of two gulf surge events during the 2004 North American Monsoon Experiment. Preprints, *Nat'l Atmos. and Ocean. Admin. 30th Ann. Climate. Diagnostic and Prediction Workshop*, State College, PA.

Johnson, R. H., P. J. Rogers, P. E. Ciesielski, B. D. McNoldy, and R. K. Taft, 2005: Gulf surges, the diurnal cycle, and convective outflows as revealed by the NCAR ISSs in NAME. Preprints, *NAME Data Analysis Meeting*, Mexico City, Mexico.

McNoldy, B. D., M. D. Eastin, C. M. Rozoff, and W. H. Schubert, 2004: Multiple eyewall structure of Hurricane Juliette 2001. Preprints, *Amer. Met. Soc. 26th Conf. on Hurricanes and Tropical Meteorology*, Miami, FL.

Rozoff, C. M., W. H. Schubert, B. D. McNoldy, and J. P. Kossin, 2004: Rapid filamentation zones in intense tropical cyclones. Preprints, *Amer. Met. Soc. 6th Conf. on Hurricanes and Tropical Meteorology*, Miami, FL.

McNoldy, B. D., W. H. Schubert, and J. P. Kossin, 2002: A multi-platform view of Hurricane Erin. Preprints, *Amer. Met. Soc. 25th Conf. on Hurricanes and Tropical Meteorology*, San Diego, CA.

Schubert, W. H., B. D. McNoldy, R. Prieto, J. Vigh, S. R. Fulton, and R. M. Zehr, 2002: A case study of tropical cyclone merger. Preprints, *Amer. Met. Soc. 25th Conf. on Hurricanes and Tropical Meteorology*, San Diego, CA.

Kossin, J. P., W. H. Schubert, and B. D. McNoldy, 2002: Hurricane near-core mixing processes: A mechanism for intensification? Preprints, *OFCM 56th Interdepartmental Hurricane Conf.*, New Orleans, LA.

McNoldy, B. D., and T. H. Vonder Haar, 2000: A preliminary observational study of hurricane eyewall mesovortices. Preprints, *AGU 33rd Fall Meeting*, San Francisco, CA.

◆ PROFESSIONAL MEMBERSHIPS

- American Geophysical Union (AGU), 2000-present
- American Meteorological Society (AMS), 1998-present
- Sigma Pi Sigma (ΣΠΣ), 1998-present
- American Physical Society, (APS), 1995-present
- American Institute of Physics (AIP), 1995-present

◆ RELATED EXPERIENCE

- Operational Forecaster for TCRI, Summer 2021 – Summer 2022
  - Make short-term and long-term operational forecasts for the Tropical Cyclone Rapid Intensification field program
- Science Advisory Board member for Coastal Risk Consulting, Summer 2016 – present
  - Provide scientifically-sound advice and feedback on the business' products and development
- Tropical Weather Expert for the Washington Post, Summer 2012 – present
  - Contribute frequent posts on tropical Atlantic activity for the Capital Weather Gang blog
- Operational Forecaster for TCI, July 2015 - October 2015
  - Make short-term and long-term operational forecasts for the Tropical Cyclone Intensity field program
- Hurricane Expert for the New York Times, Summer 2007 – Summer 2010
  - One of four invited hurricane experts to contribute to daily blog on tropical Atlantic activity
- Tropical Weather Briefer, Summer 1999 – Summer 2011
  - Colorado State University, Department of Atmospheric Science and CIRA
  - Present briefings on global tropical cyclone activity with an emphasis on satellite imagery interpretation
- Created operational website for DYNAMO, Fall 2011
  - DYNAMO was a field campaign focused on better understanding the MJO in the Indian Ocean
  - Created, designed, and maintained a real-time operational website for forecasters in the Indian Ocean region
  - Developed and archived numerous meteorological operational products for use on the website
- Created operational website for TIMREX, Spring 2008
  - TIMREX was a field campaign focused on better understanding terrain influences and the Asian Monsoon
  - Created, designed, and maintained a real-time operational website for use by forecasters in Taiwan
  - Developed and archived numerous meteorological operational products for use on the website
- Created operational website for NAME, Spring 2004
  - NAME was a field campaign focused on better understanding the North American Monsoon
  - Created, designed, and maintained a real-time operational website for use by forecasters in US, Mexico
  - Developed and archived numerous meteorological operation products for use on the website

• One Sky Many Voices, October 2000
  - Participated in the “Hurricanes 2000” Program hosted by University of Michigan
  - A national online mentoring and teaching program for grade school students

• Operational Forecaster for CLEX-5, November 1999 - December 1999
  - Made short-term and long-term operational forecasts for the Fifth Cloud Layer Experiment over the ARM-CART site in Oklahoma

• Internship, Summer 1997
  - NASA: "Summer Institute on Atmospheric and Hydrospheric Sciences" at Goddard Space Flight Center (TRMM Office).
  - Presented a paper on “*Characteristics of Tropical Convective Systems*”

• ACM International Collegiate Programming Contest (Mid-Atlantic Region), 1996, 1997
  - Competed against twenty teams in rapid and accurate programming (C++)

◆ *HONORS AND AWARDS*

• Governor's Award for High-Impact Research: Colorado Federal Research Labs, 2012
  - contributions to improved tropical cyclone track and intensity forecasting

• CAMEX-4 Group Achievement Award: NASA/MSFC, Fall 2002
  - outstanding accomplishments and contributions to the CAMEX-4 field experiment

• Q.E.D. Award: Lycoming College Department of Astronomy and Physics, Spring 1998
  - Graduate who has performed outstanding departmental service over four years

• Φυσικα Award: Lycoming College Department of Astronomy and Physics, Spring 1998
  - Graduate with highest departmental grade point average

• J.W. Feree Award: Lycoming College Department of Mathematical Sciences, Spring 1998
  - Student most active in the mathematical sciences over four years

• Departmental Honors: Lycoming College Department of Astronomy and Physics, 1997 - 1998
  - Completed a year-long independent research project on “*Planetary Atmospheric Dynamics*”
  - A comparative study of various planets and their atmospheric characteristics
  - Wrote a computer program to model the temperature and pressure profiles of Earth’s atmosphere

• Lycoming College Scholars Program, Fall 1994 - Spring 1998
  - A program "designed to meet the needs and aspirations of highly motivated students of superior intellectual ability", more demanding core course requirements
  - Presented a lecture on “*Planetary Atmospheric Dynamics*” in Spring 1998
  - Created website for organization in Spring 1997

◆ *MISCELLANEOUS ACTIVITIES*

• Research Staff Representative, Summer 2004 – Summer 2010
  - Colorado State University, Department of Atmospheric Science
  - Attend faculty meetings, serve on Search and Hiring Committee

• Mile-High Hurricane Society, Spring 2001 - Fall 2011
  - Colorado State University, Department of Atmospheric Science
  - Founder
  - Seminar series designed to increase collaboration among tropical cyclone research groups in the area
  - Coordinate schedules of speakers, members, and meetings
  - Created website for organization in Spring 2001

• Multi-community Environmental Storm Observatory (MESO), Spring 1998 – Winter 2009
  - Storm chasing applied to research, education, and safety
  - President, Fall 1999 - Winter 2006
  - Vice-president, Summer 2007 – Winter 2007
  - Science Director, Summer 1998 - Fall 1999, Winter 2006 - Summer 2007
  - Webmaster, Summer 1998 - Winter 2009
  - Created website for organization in Summer 1998

- Student Representative, Summer 1999 - Fall 2000
  - Colorado State University, Department of Atmospheric Science
  - Volunteer time for prospective students, plan departmental activities, attend faculty meetings

- Student Advisory Council, Fall 1996 - Spring 1998
  - Lycoming College, Department of Mathematical Sciences
  - Assist in new faculty hiring, decide future departmental policies, attend faculty meetings

- Academic Computing Committee, Fall 1997 - Spring 1998
  - Lycoming College, Office of Communications Technology
  - Recommended policies and procedures on matters regarding on-campus academic computing
  - Promoted wider use and integration of computers in the academic program

- Society of Physics Students (SPS), Fall 1995 – Fall 2001
  - $1,000 National SPS Leadership Scholarship (1 of 8 recipients worldwide), 1997
  - President (Lycoming College Student Chapter), Fall 1997 - Spring 1998
  - Vice-president (Lycoming College Student Chapter), Fall 1996 - Spring 1997
  - Member (Lycoming College Student Chapter), Fall 1995 - Spring 1998
  - Member (Colorado State University Student Chapter), Fall 1998 - Fall 2001
  - Conducted tours of Astronomy and Physics Department and campus for prospective students
  - Organized activities for students in grade school, high school, and college related to physics/astronomy
  - Created website for Lycoming College Student Chapter in Spring 1996

- Association of Mathematically Interested Students (AMIS), Spring 1994 - Spring 1998
  - Historian, Fall 1996 - Spring 1997
  - Math Awareness Day Committee, Spring 1996 - Spring 1998
  - Organized math-related activities for grade school children
  - Created website in Spring 1996

- Association for Computing Machinery (ACM), Fall 1996 - Fall 2001
  - Secretary/Treasurer (student chapter), Fall 1996 - Spring 1998
  - Member, Lycoming College Student Chapter, Fall 1996 - Spring 1998
  - Presented programs for Boy Scouts designed to help them earn a Computer Science Badge
  - Organized activities for prospective and current students in the Mathematical Sciences Department
  - Created website for Lycoming College Student Chapter in Fall 1996

◆ *RELEVANT COURSEWORK*

Online COMET® Courses:

- Conceptual Models of Tropical Waves
- Tropical Met: Tropical Cyclones
- Tropical Met: Observations, Analysis, Prediction
- Tropical Met: Tropical Variability
- Tropical Met: Tropical Remote Sensing Applications
- Topics in Tropical Meteorology
- Tropical Cyclone Forecast Uncertainty
- Communicating Wind Risk Through Watches & Warnings
- Microwave Remote Sensing
- Microwave Analysis of Tropical Cyclones
- Remote Sensing of Ocean Wind Speed and Direction
- Analyzing Ocean Swell
- Winds in the Marine Boundary Layer
- Community Hurricane Preparedness
- Climate Change and Sea Level Rise

Graduate:

- Thermodynamics and Cloud Physics
- Remote Sensing of the Lower Atmosphere
- Atmospheric Radiation
- Radiative Transfer
- Tropical Atmosphere
- Planetary Circulations
- Geophysical Vortices
- Atmospheric Dynamics I
- Atmospheric Dynamics II
- Climatology
- General Circulation
- Satellite Meteorology
- Radar Meteorology
- GPS Meteorology

Undergraduate:

- Nuclear and Particle Physics
- Quantum Mechanics
- Computational Physics
- Relativity and Cosmology
- Atomic and Molecular Physics
- Stellar Evolution
- Electricity and Magnetism
- Optics
- Classical Dynamics
- Differential Equations

- Thermodynamics
- Planetary Science
- Stellar Dynamics and Galactic Structure
- Linear Algebra
- Multivariable Calculus
- Set and Group Theory

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