

# BRIAN D. McNOLDY

## ◆ CONTACT

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Colorado State University  
Department of Atmospheric Science  
1371 Campus Delivery  
Fort Collins, CO 80523-1371  
Ph: 970.491.8558  
Fax: 970.491.8449

mcnoldy@atmos.colostate.edu  
<http://einstein.atmos.colostate.edu/~mcnoldy/>  
Citizenship: United States

## ◆ EMPLOYMENT

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- Research Associate, Department of Atmospheric Science, September 2001 - present  
Colorado State University, Fort Collins, Colorado
  - Schubert Research Group
  - Johnson Research Group
  - Cooperative Institute for Research in the Atmosphere (CIRA) RAMM Branch
- Graduate Research Assistant, Department of Atmospheric Science, August 1998 - August 2001  
Colorado State University, Fort Collins, Colorado
  - Vonder Haar Research Group
- Laboratory Assistant and Tutor, Department of Astronomy and Physics, January 1995 - May 1998  
Lycoming College, Williamsport, Pennsylvania
  - Various courses in Astronomy, Physics, and Geology

## ◆ EDUCATION

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- M.S., Atmospheric Science, 2001 (3.773 GPA)  
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 (3.497 GPA)  
Lycoming College, Williamsport, Pennsylvania
  - Senior Project: "Planetary Atmospheres"
  - Advisor: Richard R. Erickson

## ◆ COMPUTER EXPERIENCE

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- Languages
  - HTML/XHTML, 14 years
  - IDL, 12 years
  - JavaScript, 9 years
  - SH/BASH, 7 years
  - PHP, 6 years
- Skills
  - Graphics and visualization
  - Operational real-time products
  - Data analysis
  - Programming
- Platforms
  - UNIX/Linux
  - PC/Windows

## ◆ PROFESSIONAL ACTIVITIES

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- Attendee: Developmental Testbed Center (DTC) Diagnostics Meeting, Boulder, Colorado, September 2009.
- Attendee: IDL User Group Meeting, Boulder, Colorado, October 2008.
- Presenter: Town Hall Meeting and Public Forum on Hail Cannon Use, Center, Colorado, November 2006  
- "*Precipitation Characteristics of the San Luis Valley During Summer 2006*"
- Presenter: 27<sup>th</sup> 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*"
- Attendee: National Science Board (NSB) Task Force on Hurricane Science and Engineering Workshop, Boulder, Colorado, February 2006.
- Presenter: 26<sup>th</sup> American Meteorological Society (AMS) Conference on Hurricanes and Tropical Meteorology, Miami Beach, Florida, May 2004  
- "*Multiple Eyewall Structure of Hurricane Juliette 2001*"
- Presenter: U.S. CLIVAR Pan-American Workshop, Boulder, Colorado, September 2003  
- "*QuikSCAT Analysis of Surface Wind Fields in Stratocumulus Regions*"
- Presenter: 25<sup>th</sup> American Meteorological Society (AMS) Conference on Hurricanes and Tropical Meteorology, San Diego, California, April/May 2002  
- "*A Multi-Platform View of Hurricane Erin*"
- Attendee: Battlespace Atmospheric and Cloud Impacts on Military Operations (BACIMO) Conference, Fort Collins, Colorado, July 2001
- Presenter: American Geophysical Union (AGU) Meeting, San Francisco, California, December 2000  
- "*A Preliminary Observational Study of Hurricane Eyewall Mesovortices*"
- Presenter: 2<sup>nd</sup> 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*"
- Attendee: Four Corners Section of the American Physical Society (4CS-APS) Meeting, Fort Collins, Colorado, September 2000
- Attendee: CloudSat Science Team Meeting, Boulder, Colorado, April 2000
- Attendee: Battlespace Atmospheric and Cloud Impacts on Military Operations (BACIMO) Conference, Fort Collins, Colorado, April 2000
- Attendee: 80<sup>th</sup> American Meteorological Society (AMS) Conference, Long Beach, California, January 2000
- Attendee: Earth Observing System Investigator's Working Group (EOS-IWG) Meeting, Vail, Colorado, June 1999
- Presenter: 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*"
- Presenter: Lycoming College Physics Colloquium, Williamsport, Pennsylvania, March 1998  
- "*Planetary Atmospheric Dynamics*"
- Presenter: Lycoming College Physics Colloquium, Williamsport, Pennsylvania, September 1997  
- "*Characteristics of Tropical Convective Systems*"
- Presenter: Lycoming College Physics Colloquium, Williamsport, Pennsylvania, October 1996  
- "*The Formation of Severe Weather*"

## ◆ PROFESSIONAL MEMBERSHIPS

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

## ◆ REFEREED PUBLICATIONS

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- Hendricks, E. A., W. H. Schubert, S. R. Fulton, and B. D. McNoldy, 2009: Spontaneous-adjustment emission of inertia-gravity waves by unsteady vortical motion in the hurricane core. *Quart. J. Roy. Met. Soc.*, **submitted**.
- Pielke Sr., R. A., K. Wolter, O. Bliss, N. Doesken, and B. D. McNoldy, 2007: July 2005 Denver heat wave: How unusual was it? *Nat'l 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.
- 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. *Quart. J. Roy. Met. Soc.*, **133**, 595-605.
- 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.
- McNoldy, B. D., 2004: Triple eyewall in Hurricane Juliette. *Bull. Amer. Met. Soc.*, **85**, 1663-1666.
- 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. *Geo. Res. Let.*, **31**, L10109, doi: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. *Geo. Res. Let.*, **31**, L08304, doi:10.1029/2004GL019768.
- McNoldy, B. D., A. Cheng, Z. A. Eitzen, R. W. Moore, J. Persing, K. Schaefer, and W. H. Schubert: Design and construction of an affordable rotating table for classroom demonstrations of geophysical fluid dynamics principles. *Bull. Amer. Met. Soc.*, **84**, 1827-1834.
- Prieto, R., B. D. McNoldy, S. R. Fulton, and W. H. Schubert, 2003: A classification of binary tropical-cyclone-like vortex interactions. *Mon. Wea. Rev.*, **131**, 2656-2666.
- Kossin, J. P., B. D. McNoldy, and W. H. Schubert, 2002: Vortical swirls in hurricane eye clouds. *Mon. Wea. Rev.*, **130**, 3144-3149.

## ◆ CONFERENCE PREPRINTS

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- 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, 17<sup>th</sup> Conf. on Atmospheric and Oceanic Fluid Dynamics, Stowe, VT, Amer. Met. Soc.
- DeMaria, M., and B. D. McNoldy, 2009: Statistical evaluation of the response of intensity to large-scale forcing in the 2008 operational HWRFmodel. 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, 87<sup>th</sup> AMS Ann. Meeting, San Antonio, TX, Amer. Met. Soc., CD-ROM.
- McNoldy, B. D., R. H. Johnson, and P. E. Ciesielski, 2006: Diurnal cycle of sea surface winds and temperatures during NAME 2004. Preprints, 1<sup>st</sup> Climate Prediction Program for the Americas Workshop, Tucson, AZ, Nat'l Atmos. and Ocean Admin.
- 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, 27<sup>th</sup> Conf. on Hurricanes and Tropical Meteorology, Monterey, CA, Amer. Met. Soc., CD-ROM.
- 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, 27<sup>th</sup> Conf. on Hurricanes and Tropical Meteorology, Monterey, CA, Amer. Met. Soc., CD-ROM.

- 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, *30<sup>th</sup> Ann. Climate. Diag. and Prediction Workshop*, State College, PA, Nat'l Atmos. and Ocean. Admin.
- 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, *26<sup>th</sup> Conf. on Hurricanes and Tropical Meteorology*, Miami Beach, FL, Amer. Met. Soc., 126-127.
- Rozoff, C. M., W. H. Schubert, B. D. McNoldy, and J. P. Kossin, 2004: Rapid filamentation zones in intense tropical cyclones. Preprints, *26<sup>th</sup> Conf. on Hurricanes and Tropical Meteorology*, Miami Beach, FL, Amer. Met. Soc., 443-444.
- McNoldy, B. D., W. H. Schubert, and J. P. Kossin, 2002: A multi-platform view of Hurricane Erin. Preprints, *25<sup>th</sup> Conf. on Hurricanes and Tropical Meteorology*, San Diego, CA, Amer. Met. Soc., 545-546.
- 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, *25<sup>th</sup> Conf. on Hurricanes and Tropical Meteorology*, San Diego, CA, Amer. Met. Soc., 293-294.
- Kossin, J. P., W. H. Schubert, and B. D. McNoldy, 2002: Hurricane near-core mixing processes: A mechanism for intensification? Preprints, *56<sup>th</sup> Interdepartmental Hurricane Conf.*, New Orleans, LA.

## ◆ RELATED EXPERIENCE

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- Hurricane Expert for New York Times, Summer 2007 - present
  - One of four invited hurricane experts to contribute to daily blog on tropical Atlantic activity
- 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
- Tropical Weather Briefer, Summer 1999 - present
  - Colorado State University, Department of Atmospheric Science and CIRA
  - Present briefings on global tropical cyclone activity with an emphasis on satellite imagery interpretation
- 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

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- 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

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- Research Staff Representative, Summer 2004 – present
  - Colorado State University, Department of Atmospheric Science
  - Attend faculty meetings, serve on Search and Hiring Committee
- Mile-High Hurricane Society, Spring 2001 - present
  - 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 - present
  - Storm chasing applied to research, education, and safety
  - Webmaster, Summer 1998 - present
  - President, Fall 1999 - Winter 2006
  - Vice-president, Summer 2007 – Winter 2007
  - Science Director, Summer 1998 - Fall 1999, Winter 2006 - Summer 2007
  - 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 and 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
- Interface: A Computer User's Group, Fall 1995 - Spring 1996
  - Treasurer, Fall 1995 - Spring 1996
- Lycoming College English Society, Fall 1994 - Fall 1995

## ◆ **RELEVANT COURSEWORK**

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### ***Graduate:***

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

### ***Undergraduate:***

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|---|-----------------------------|
| • Nuclear and Particle Physics            | • Stellar Evolution         |
| • Quantum Mechanics                       | • Electricity and Magnetism |
| • Computational Physics                   | • Optics                    |
| • Relativity and Cosmology                | • Classical Dynamics        |
| • Atomic and Molecular Physics            | • Differential Equations    |
| • Thermodynamics                          | • Linear Algebra            |
| • Planetary Science                       | • Multivariable Calculus    |
| • Stellar Dynamics and Galactic Structure | • Set and Group Theory      |