Lourdes B. Avilés

Professor of Meteorology lourdes.aviles@plymouth.edu

Plymouth State University, 17 High Street, MSC48, Plymouth, NH 03264

EDUCATION

- Ph.D. Atmospheric Sciences 2004 University of Illinois at Urbana-Champaign
- M.S. Physics 1997 University of Puerto Rico, Mayagüez
- B.S. Physics 1992 University of Puerto Rico, Mayagüez

WORK EXPERIENCE

- 2015-present Professor of Meteorology
 - o 2017-present Meteorology Program coordinator
- 2009-2015 Associate Professor of Meteorology
- 2004-2009 Assistant Professor of Meteorology

(2004-2006 - Faculty-in-Residence)

Meteorology and Physics Disciplines, Exploration and Discovery Cluster (2018-present)

Department of Atmospheric Science and Chemistry (2007-2018)

Department of Chemical, Earth, Atmospheric and Physical Sciences (2004-2007)

Plymouth State University, Plymouth, NH

- 1996-2004 - Teaching / Research Assistant (Atmospheric Sciences)

Department of Atmospheric Sciences

University of Illinois at Urbana-Champaign, Urbana, IL

- 1993-1995 – Adjunct Faculty (Mathematics, Physical Sciences)

Department of Mathematics and Sciences

Pontifical Catholic University of Puerto Rico, Mayagüez, PR

- 1992-1996 - Teaching/Research Assistant (Physics)

Department of Physics

University of Puerto Rico, Mayagüez, PR

- 1990-1992 – Summer Intern (Research Technician, Programmer, Data Analyst)

Research (1992), Computing (1991) and Physics (1990) Departments

Fermi National Accelerator Laboratory, Batavia, IL

TEACHING AREAS AND INTERESTS

- Have taught a variety of atmospheric science courses throughout the B.S. Meteorology core curriculum, as well as upper level elective and M.S. applied and specialized courses, and general education courses for non-majors
- Current course rotation:

Dynamic Meteorology I and II, Atmospheric Physics, Air Quality, Tropical Weather and Climate, Severe and Hazardous Weather, Undergraduate Research, Graduate Thesis Research, Scientific Writing Workshop

- Courses previously taught (atmospheric sciences and meteorology):
 - Introduction to Meteorology, Weather, Weather Laboratory, Climatology, Weather and Climate, Radio Forecasting Practicum, Multimedia Forecasting Practicum, Graduate Seminar
- Courses previously taught (physics and mathematics):

Physical Sciences, Physics Laboratory for Engineers, Physics Laboratory for Biologists, College Algebra, Pre-Calculus, Remedial Mathematics

- Course ideas for potential future development:

History of Meteorology (special topic: upper level elective for majors, or general education pastand-present course), Climate, Weather and Society (past and present direction for general education program), Weather for Teachers (scientific inquiry direction for general education program)

- Interested in curriculum revision and development
 - o Current with American Meteorological Society curricular guidelines
 - Fine-tune based on lessons learned, staffing resources, new general education program, new university guidelines

RESEARCH AREAS AND INTERESTS

History of Meteorology (currently active research)

Integrated history and science of atmospheric phenomena (atmospheric optics, etc.) Integrated history and science of past weather events (hurricanes, blizzards, etc.) Integrated history and science of weather folklore, sayings and myths History of hurricane knowledge, forecasting, monitoring and general practices History of forecasting, atmospheric monitoring (instrumentation) and data visualization Historical figures in meteorology and related sciences

Other areas of interest and past research

Atmospheric Optics

African easterly waves

Objective air quality forecasting methods

Air pollution meteorology case studies

Atmospheric Physics/Dynamics

Physical climatology and climate change

Societal impacts of weather and climate

Severe weather science and history

Pedagogy/best practices

Development/implementation of active learning activities

Appropriate use of technology in the classroom

SELECT PUBLICATIONS AND PRESENTATIONS

Avilés, L. B., 2018: Taken by Storm, 1938: A Social and Meteorological History of the Great New England Hurricane, 2nd Ed.. American Meteorological Society, 384 pp.

<u>Avilés</u>, L. B., 2015: *North Carolina's Hurricane History*, 4th Ed., by Jay Barnes. Book Review. Environmental History 19(2), 375-377 pp.

<u>Avilés</u>, L. B., 2014: *Fire Island Past, Present, and Future: The Environmental History of a Barrier Beach.* Book Review. Environmental History 19(2), 375-377 pp.

<u>Avilés</u>, L. B., 2013: *Taken by Storm, 1938: A Social and Meteorological History of the Great New England Hurricane*. American Meteorological Society, 384 pp.

Nielsen-Gammon, J. W., L. B. <u>Avilés</u> and E. Joseph, 2009: What Does it Take to Get Into Graduate School. *Bull. Amer. Meteor. Soc.*, 90, 1698-1705.

Mock, C. J., D. O. Mayes, J. Simmons, E. Rohland, and L. B. <u>Avilés</u>, 2015: A Temporal and Spatial Approach on the Memory of Hurricanes and Typhoons. 16th International Conference of Historical Geographers, London, UK.

<u>Avilés</u>, L. B., 2015: Taken by Nature: The Science, History and Art of the Great New England Hurricane of 1938. Force of Nature: Exploring the Power of the Feminine Juried Exhibition invited presentation. Women's Causcus for Art, Karl Drerup Gallery, Plymouth, NH

- Hoffman, E. G., L. B. <u>Avilés</u>, S. Miller, B. Hoch, and J. M. Cordeira, 2015: NOAA ESRL Snow Level Radar Observations of Mixed Precipitation Events in Plymouth, NH. 40thth Annual Northeastern Storm Conference, Saratoga Springs, NY.
- <u>Avilés</u>, L. B., 2014: Using Historical Data to Inform a General-Audience-Level Narrative of the Great New England Hurricane of 1938. 31st Conference on Hurricanes and Tropical Meteorology, San Diego, CA.
- <u>Avilés</u>, L. B., 2014: Finding the Storm: Resource and Archival Research on the Great New England Hurricane of 1938. 17th Conference of Atmospheric Science Librarians International, 94rd Annual Meeting of the American Meteorological Society, Atlanta, GA.
- <u>Avilés</u>, L. B., 2014: Seventy Five Years Later: Little Known, Updated and New Information Related to the Great New England Hurricane of 1938. 12th History Symposium, 94rd Annual Meeting of the American Meteorological Society, Atlanta, GA.
- <u>Avilés</u>, L. B., 2014: Introducing General Audiences to Atmospheric Science Topics through Historical Weather Events: The Great New England Hurricane of 1938. 23rd Symposium on Education, 94rd Annual Meeting of the American Meteorological Society, Atlanta, GA.
- <u>Avilés</u>, L. B., 2014: Seventy Five Years Later: Little Known, Updated, and New Information Related to the Great New England Hurricane of 1938. 39th Northeastern Storm Conference, Rutland, VT
- <u>Avilés</u>, L. B., D. Vallee, B. Avery and S.A. Jasko, 2014: The 1938 Hurricane, a Junior Forecaster, and Public Understanding. 105th Annual Eastern Communication Association Convention, Providence, FI.
- <u>Avilés</u>, L. B. (curator), 2013: The Great Blowdown: Effects of the 1938 Hurricane in Northern New England. Museum of the White Mountains panel exhibit.
- <u>Avilés</u>, L. B., 2013: 75 Years After the Great New England Hurricane. 14th Southern New England Weather Conference, Canton, MA
- <u>Avilés</u>, L. B., 2013: On the Nuances Associated with Analyzing Historical Rainfall Observations before and during the Great New England Hurricane of 1938. 11th History Symposium, 93rd Annual Meeting of the American Meteorological Society, Austin, TX.
- <u>Avilés</u>, L. B., 2013: On the Actions and Inaction of the U.S. Weather Bureau During the Great New England Hurricane of 1938. 38th Northeastern Storm Conference, Rutland, VT
- <u>Avilés</u>, L. B., 2012: On the Actions and Inaction of the U.S. Weather Bureau During the Great New England Hurricane of 1938. 10th History Symposium, 92rd Annual Meeting of the American Meteorological Society, New Orleans, LA.
- Nielsen-Gammon, J. W., L. B. <u>Avilés</u>, A. Hansen, A. Roebuck, J. Horel, 2010: Bachelor's Degree in Atmospheric Science: an Information Statement of the American Meteorological Society (adopted by the AMS Council on 22 September 2010). [Available online at http://www.ametsoc.org/policy/2010degree_atmosphericscience_amsstatement.html]
- Avilés, L. B., 2007: Integration of Lecture, Laboratory and Hands-On Activities in an Introductory Severe Weather Course for Non-Majors. 16th Symposium on Education, 87th Annual Meeting of the American Meteorological Society, San Antonio, TX.

Bixby, B., K. Franceour, L. Landry, L. B. <u>Avilés</u>, E. G. Hoffman, J. K. Koermer, S. T., Miller and J. Zabransky, 2007: Development of Regional Ozone Case Studies as Tools for Air Quality Forecasting. 8th Conference in Atmospheric Chemistry, 87th Annual Meeting of the American Meteorological Society, San Antonio, TX.

Hoch, B. and L. B. <u>Avilés</u>, 2007: Using Podcasts to Distribute Real Time Multimedia Meteorological Products. 16th Symposium on Education, 87th Annual Meeting of the American Meteorological Society, San Antonio, TX.

<u>Avilés</u>, L. B., 2006: The Pakistani Teachers Institute 2005-2006. 7th International Conference on School and Popular Meteorological and Oceanographic Education, Boulder, CO.

<u>Avilés</u>, L. B., 2006: Meteorology Week – Pakistani Teachers Institute 2005. 15th Symposium on Education, 86th Annual Meeting of the American Meteorological Society, Atlanta, GA.

<u>Avilés</u>, L. B., 2006: Why So Many Hurricanes? Is Global Warming to Blame? Plymouth Magazine, XXII, 14-15.

<u>Avilés</u>, L. B., 2004: *African Easterly Waves: Their Evolution and Their Role in Tropical Cyclone Formation*. Ph.D. Dissertation, University of Illinois, 211 pp.

Bramer, D. J., D. Charlevoix, G. McFarquhar, R. Herman, L. B. <u>Avilés</u>, L. DiGirolamo, M. Ramamurthy, R. Wilhelmson, 2003: Developing Interactive Models to Support a Digital Collection of Earth System Science Resources. 12th Symposium on Education, 83rd Meeting of the American Meteorological Society, Long Beach, CA.

Charlevoix, D. and L. B. <u>Avilés</u>: 2003: Assessment of Interactive, Hands-On Meteorology Exercises in a Course of Undergraduate Non-Majors. Extended abstract, 12th Symposium on Education, 83rd Meeting of the American Meteorological Society, Long Beach, CA.

<u>Avilés</u>, L. B., 2000: The Energetics of the African Easterly Wave Life Cycle: A Case Study. Extended Abstract, 24th Conference on Hurricanes and Tropical Meteorology, Fort Lauderdale, FL.

<u>Avilés</u>, L. B., 1999: Tropical Easterly Wave Activity Observed Using NCEP/NCAR Reanalysis Data. Extended Abstract, 23rd Conference on Hurricanes and Tropical Meteorology, 79th Annual Meeting of the American Meteorological Society, Dallas, TX.

<u>Avilés</u>, L. B., 1997: *Evaluation of the Quasielastic Dynamic Structure Factor for Anharmonic Potentials*. M.S. Thesis, University of Puerto Rico, Mayagüez, 151 pp.

HONORS AND AWARDS

2013 Atmospheric Science Librarians International History Choice Award *Taken by Storm, 1938: A Social and Meteorological History of the Great New England Hurricane* Citation: "ASLI's Choice for its comprehensive account of this major storm, from its inception to aftermath."

Minorities Graduate Incentive Program Fellowship 1997-2000 – Illinois Board of Higher Education

PROFESSIONAL ASSOCIATION MEMBERSHIP AND PARTICIPATION

American Meteorological Society (AMS)
 AMS Committee on the History of Atmospheric and Related Sciences (2017-2020 – Committee Chair)
 AMS Board on Higher Education (former member)
 AMS Board on Women and Minorities (former liaison)

- University Corporation for Atmospheric Research (UCAR)
 Plymouth State University UCAR member representative
 UCAR Membership Committee (former member)
 UCAR Nominating Committee (former member)
- National Weather Association
- American Geophysical Union
- National Association of Science Teachers
- Phi Kappa Phi Honor Society

OTHER PROFESSIONAL ACTIVITIES AND SERVICE

Invited Local and Regional Talks ********

- 2009-2015 - Great New England Hurricane of 1938

Women's Caucus for Art New Hampshire

Newfound Audobon

Squam Lakes Natural Science Center

Eastern Communication Association Convention

Plymouth Rotary Club

Campton Public Library

Northeastern Storm Conference

Pease Public Library

Mount Washington Observatory Weather Discovery Center

Southern New England weather conference

Thornton Historical Society

Quincy Bog association

Mount Washington Observatory - summit

Campton Historical Society

Taylor retirement community

Environmental Science Colloquium

2013 Keynote speaker at President's Commission on the Status of Women awards ceremony
 One of the Boys: Reflections, Experiences and Historical Tidbits on being a Woman in Male-dominated Science Fields

- Historical Meteorology Research
- Tropical Meteorology Research

Edward Dixon – Environmental characteristics in tornado-forming hurricanes 2012-2014

Richard Giard – Characteristics of cyclogenic African easterly waves - 2008-2010

David Roache – Analysis of the effects of the ENSO neutral phases on Atlantic tropical cyclone activity - 2007-2008

Edward Dixon – Environmental characteristics in tornado-forming hurricanes 2012-2013

- Atmospheric Optics
- Air Quality Research

Laura Landry – Evaluation of air quality forecasting thresholds used by the New Hampshire Department of Environmental Services - 2008

Gregory Garner – Development of regression trees for air quality forecasting in New Hampshire - 2006-2007

Kimberly Jeffs – New Hampshire air quality climatology and development of criteria and regression equations for air quality forecasting - 2005-2006

Teacher Workshop planning

- Weather Workshop for Teachers - 2007

NASA Space Grant

Planning and Presentation

Pakistani Teachers Institute – 2005, 2006

Meteorology/Physics/Pedagogy week instructor Curriculum design and general planning – 2006

Indian Ocean Institute 2004

Other Collaborative Activities

- Stormy Weather

Workshop on hurricanes and tsunamis***********

National Meteorology-Related Service and other Activities

- UCAR (University Corporation for Atmospheric Research) Activities

Member program representative – 2014-present

Nominating Committee - 2014-2017

Membership Committee - 2010-2014

Early career faculty guest - 2006

- Various AMS committees 2009-present

History Committee - 2017-2020 Chair

Edward Lorentz Award for Excellence in Teaching Committee

Board on Higher Education

Board on Women and Minorities

Committee on the History of Atmospheric Sciences

Education Symposium planning committee

History Symposium planning committee

Curricular guidelines drafting committee

Children's book award committee

History fellowship evaluation committee

- Session chair for AMS annual meeting symposia

History Symposium - program chair

Education Symposium – University Education session

- Anonymous reviewer NSF atmospheric science program grant proposals
- Anonymous reviewer BAMS (Bulletin of the American Meteorological Society)
- Feedback to Severe and Hazardous Weather textbook authors 2004-present
- University of Puerto Rico presentation 2005

Easterly wave characteristics

The Plymouth State Meteorology program

- NSF summer research programs for undergraduate students (informal and REU)
- Environmental History Journal book reviewer
- Panelist ****communications, Hoffstra******

PROFESSIONAL DEVELOPMENT ACTIVITIES

- Professional Conferences

American Meteorological Society Annual Meeting

National Weather Association Annual Meeting

Conference on Hurricanes and Tropical Meteorology

International Conference on School and Popular Meteorological and Oceanographic Education

Northeastern Storm Conference

Southern New England Weather Conference

- NSF workshop Proposal preparation Geosciences programs
- AMS workshop Scientific Inquiry in the Classroom
- Unidata workshop Integrated Data Viewer
- Unidata workshop Unidata users workshop use of data in teaching
- Several local workshops

(Advising undergraduate students, scholarship at a teaching institution, students with disabilities, critical thinking, writing across the curriculum, integral theory in the classroom, plagiarism, grant writing and submission, academic expectations and assessment, classroom technologies, promotion and tenure guidelines, Mahara online portfolio, Degree Works advising tool, using iPad for teaching/grading, etc)

- Reflective Practice groups

Created/led hybrid Facebook/face-to-face group – 2011-2015 Member (general, science) – 2007-2011, 2016-present

DEPARTMENT, COLLEGE AND UNIVERSITY SERVICE

Faculty Governance

- Meteorology Program Coordinator 2017-present
- Atmospheric Science and Chemistry Department Promotion and Tenure Committee Chair – 2010-present
- Faculty Speaker 2013-2014, 2016-2017

Speaker Elect with responsibilities - 2012-2013, 2015-2016

Faculty Parlamentarian – 2014-2015, 2017-2018

- Faculty Steering Committee - 2012-2014, 2015-2017

Chair - 2012-2013, 2015-2016

- Faculty Representative to the USNH Board of Trustees 2014-2015
- Faculty Representative PAT (Professional/Academic/Technology staff) Senate Elected for several one-year terms 2005-2010, 2014-2015
- General Education Committee 2007-2011

Appointed 2007

Elected for three-year term - 2008-2011

President's Commission on Diversity

Appointed 2004-2008

Faculty Welfare Committee – New Faculty Observer
 Appointed for academic year 2004-2005

Academic Searches

- ******
- Tenure track faculty Computer Science 2013
- Three tenure track faculty Mathematics 2013
- Tenure track faculty Meteorology 2012
- Three Contract Faculty Mathematics 2012
- Chief Information Officer 2011
- Tenure track faculty Mathematics 2008
- Director Center for the Environment 2007
- Tenure track faculty Meteorology 2007
- Tenure track faculty Computer Science 2007
- Contract faculty Computer Science 2006
- Contract faculty Meteorology 2005

Promotion and Tenure Committees

Meteorology (2), Chemistry, Biology, Center for the Environment, Computer Science (2), Environmental Science and Policy

Student-related Service

- Schedule Planning New Student Orientation 2005-present
- Individual orientation meetings and tours for prospective students 2004-present
- Academic Life Presentation "First Class" New Student Orientation 2006-20089

Class Guest Visits

- Integrated Art Education 2017
- Hispanic Culture in the U.S. 2006, 2007, 2008, 2010

Personal experiences as a Hispanic professional woman in the U.S. – informal presentation (Course Instructor: Wilson Garcia)

Weather – 2009

The Great New England Hurricane of 1938

(Course Instructor: Lisa Doner)

Weather – 2008

Basics of Tropical Meteorology (Course Instructor: Sam Miller)

- Composition – 2006

Expectations for papers in science courses – informal presentation (Course Instructor: Liz Ahl)

Other University Service

- As Faculty Speaker (2014)

President's extended cabinet

Distinguished PAT staff award selection committees

Distinguished OS award selection committee

- Faculty Week

Teaching, Scholarship and Service aspects of Hurricane Research – 2014

The Great New England Hurricane - 2009

Using PowerPoint in the Classroom workshops - 2007, 2008

Effective Teaching - discussion group leader - 2006

New Faculty orientation support 2005, 2006, 2007 – "Our Academic Lives" activity – lunch

- Yellow Jacket volunteer Spring Fling 2008
- Pakistani Teachers Institute

Curriculum and general planning - 2006

- Out of WAC (Writing across the curriculum) newsletter article

"What I Learned from Assigning Papers to Non-Majors" - Vol. 14, No. 2 - 2006-2007

- Diversity panel participant - 2006

Discussions about diversity in America following showing of the movie "Crash"

College Learning Assessment test proctor – 2008

Departmental Service

- Meteorology program coordinator 2017-present
- P&T committee chair 2011-present
- P&T guidelines revision 2005, 2010
- Meteorology program curriculum revision 2010, 2015-present
- Meteorology program work load plan 2010, 2017
- Meteorology presentations and facility tours *******

Various elementary schools - 2004-2010

Child Development and Family Center - Pre-K class - 2005

- Other Service - 2004-preent

Curriculum/Catalog updates

General Education course proposals,

Meteorology program review

Graduate student thesis committees

OUTREACH AND MEDIA INTERVIEWS

- Women in Science and Technology Forum for high school girls 2004, 2005, 2006 panelist
- Meteorology Girls Night for meteorology seniors and juniors 2007

Informal chat about being a female in a male-dominated field and about balancing family and career

North Country Professional Development Day for teachers – 2006
 Understanding Hurricanes and Tsunamis - workshop

Weather Workshop for teachers – 2007

Amazing Hurricanes! - lunch presentation

- Weather Balloon Launches support

Spacetacular/Aerospacefest - McAuliffe-Shepard Discovery Center - 2005-2014

- TV interviews/appearances

TWC (The Weather Channel) skype interview – 2013

Great New England Hurricane of 1938

WMUR live streaming presentation – 2013

Science and History Stories of the Great New England Hurricane of 1938

NECN (New England Cable News) interview – 2008

Historical Perspective of July 24, 2008 tornado

WMUR-TV interview - 2006

Effects of Weather on fall foliage

Radio Interviews

WPCR - Plymouth State Radio - Philosophy 4 Life - Maria Sanders - 2014

Great New England Hurricane of 1938

NHPR – New Hampshire Public Radio - Chris Jensen – 2013

Great New England Hurricane of 1938

WCBS - New York City Newsradio 880 - 2013

Great New England Hurricane of 1938

WNTK - Encore89 news and entertainment news show - 2013

Great New England Hurricane of 1938

WBUR - Boston Public Radio - Radio Boston news show - 2011

Hurricane Irene

Newspaper interviews

Associated Press - (The Great New England Hurricane of 1938 - published nationally under many different titles

Lynne Touhy - September 20-25, 2013

New Hampshire Union Leader – "PSU professor chronicles 1938 hurricane and how it laid claim to New England"

Dan Seufert - September 24, 2013

Boston Globe - "Survivors, scientists recall 'Great Hurricane'"

Jeremy C. Fox - September 21, 2013

New Hampshire Union Leader - "Lightning strike at Scout camp was 'ground current,' expert says"

Dan Seufert - June 26, 2013

Foster's Daily Democrat – "Fall Foliage Expected to Dazzle on Time" Robert M. Cook - September 14, 2008

The Laker – "Deadly Tornado Strikes Central NH: Is This Part of a New Weather Pattern" Christine H. Randall – August 11, 2008

The Laconia Citizen – "Storm, Funnel Clouds Eyed as Possible Tornadoes" Jason G. Howe, John Koziol - July 25, 2008

The Eagle Tribune – "Debate Swirls Over Chance of Hurricane Making Landfall in New England this Season"

Courtney Paquette – July 30, 2006

The Eagle Tribune – "Storm Helps Shed Light on Danger of Lightning Strikes" Courtney Paquette - July 13 2006

Foster's Daily Democrat – "Experts Say Northeast to Face More Hurricane Risk in Future" Robert - M. Cook - March 26, 2006

Story picked up by Associated Press

Boston Globe – "Meteorologists Say New England Could Get a Big One" Clarification published March 29, 2006 - "Clarification: Northeast Hurricane Story"

The Laconia Citizen - "More to Snowflakes than Meets the Eye" Bethany Gordon - December 16, 2004

Other media appearances

WeatherBrains - video/audio podcast - Episode 411 - December 9, 2013

General and Great New England Hurricane conversations

The Barometer Bob Show – video/audio podcast – September 19, 2013

Hurricanes and Great New England Hurricane

Front Page – AMS Blog – YouTube channel - September 20, 2013

Great New England Hurricane