

MARGARET A. HOLZER
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EDUCATION

- PhD in Science Education** **2016**
Rutgers University Graduate School of Education, New Brunswick, NJ
Dissertation Title: Building Bridges to Climate Literacy through the Development of Systems and Spatial Thinking Skills
Committee: Rebecca Jordan (Chair), Eugenia Etkina, Ravit Golan Duncan, Douglas Lombardi
- MS in Geography** **2004**
Rutgers University, New Brunswick, NJ
Thesis Title: Synoptic and Diurnal Characteristics of the Northern New Jersey Heat Island
Committee: Dave Robinson (Chair), Bob Hordon, Allan Frei
- MAT in Science Education** **1986**
The College of New Jersey, Ewing, NJ
- BS in Environmental Planning and Design** **1982**
Cook College at Rutgers University, New Brunswick, NJ

TEACHING

- Science Teacher** **1996 - present**
Chatham High School, Chatham, NJ
- Courses taught: Earth & Space Science (3 levels), Astronomy, AP Environmental Science, Honors Physical Geography
 - Lead teacher responsibilities including budgeting and curriculum writing
 - Created dual-credit Honors Physical Geography program in partnership with Rutgers University
 - Pedagogies focus on data-rich instruction
- Instructor** **1999 - present**
Department of Geography, Rutgers University
- Courses taught: Earth Systems - undergraduate, face-to-face, hybrid, online
- Adjunct Professor** **2016 - present**
Graduate School of Education, Rider University
- Courses taught: Teacher & Learning Earth & Space Science (graduate)
- Adjunct Professor** **2004 - 2007**
Graduate School of Education, Fairleigh Dickinson University
- Courses taught: World of Science: Earth & Space Science (graduate)
- Science Teacher** **1986 - 1996**
Allentown High School, Allentown, NJ
- Courses taught: General Science, Physical Science, Earth & Space Science, Chemistry, Agriculture

PUBLICATIONS: Research & Practitioner

- Laubach, C., Royce, C., & **Holzer, M.** (2000), Teaching to the Power of Ten, *The Science Teacher*, 67(9).
- Duvall, C. & **Holzer, M.** (2001), Inquiry-Based Weather Lessons Utilizing Real-Time Data. *Proceedings of American Meteorological Society Annual Meeting*, Albuquerque, NM.
- Colangelo, E., Gross, G., & **Holzer, M.** (2001), *A Demo a Day in Earth Science*. Flinn Scientific, Ohio. (book)
- Holzer, M.** (2002), Application of Inquiry Methods in Student's Original Research Projects.

Proceedings of American Meteorological Society Annual Meeting, Orlando, FL.

- Duvall, C. **Holzer, M.**, & Robinson, D. (2002), Educational Opportunities in Weather and Climate for NJ Classrooms. *Proceedings of American Meteorological Society Annual Meeting, Orlando, FL.*
- Royce, C. & **Holzer, M.** (2003), What Would It Be Like Without...? *The Science Teacher*, 70(4).
- Holzer, M.**, Gordon, L., Tilling, R., & Katsu, C. (2003), This Dynamic Planet: Creating an Effective Use for a Global Teaching Tool. *Proceedings of International GeoScience Education IV Conference, Calgary, Canada.*
- Holzer, M.** (2004), Data Loggers Help N.J. High School Deliver Inquiry-Based Science Instruction. *Technology Horizons in Education*, 31(9).
- Holzer, M.** (2007), Field Trip Excursion: Volcanoes of Nicaragua - Experiences of a Teacher in the Field. *MARGINS Newsletter*, No. 18.
- Rowland, T., Chambers, L., **Holzer, M.**, & Moore, S. (2009), Solar Radiation, Harnessing the Power. *The Science Teacher*, 76(9).
- Holzer, M.** (2010), Low Budget Planetarium: A Classroom Model of the Night Sky. *The Earth Scientist*, 26(2).
- Holzer, M.**, Lombardi, D., & Bailey, J. (2016), Wetlands: Good or bad? Evaluating Competing Models with a MEL Diagram. *The Earth Scientist*, 32(2).
- Holzer, M.**, Jordan, R.C., Lombardi, D. (in preparation), Paving a Path to Conceptual Understanding of Complex Topics. Intended journal: *Science Education*
- Holzer, M.**, Jordan, R.C., Lombardi, D. (in preparation), Connecting Subsystems to Conceptualize the Human Climate System. Intended journal: *International Journal of Science Education*
- Holzer, M.**, Jordan, R.C., Lombardi, D. (in preparation), connecting Local, Regional, and Global Causality in the Human Climate System. Intended journal: *International Research in Geographical and Environmental Education*

CONFERENCE PRESENTATIONS

- Holzer, M.**, Reges, H., Doesken, N. J., Doesken, Cifelli, R., Schwable, & Z., Turner, J. (2010), Who is the citizen scientist? What have they learned from participating? Survey results from CoCoRaHS (the Community Collaborative Rain, Hail and Snow network). Poster presentation for the American Meteorological Society's Annual Meeting, Atlanta, Georgia.
- Holzer, M.** (2010), From Climate Change Research in the Arctic to Authentic Research in the Classroom. (*Invited oral*) National Science Teachers Association National Conference on Science Education.
- Holzer, M.**, Zimmerman, T., Doesken, N., Reges, H., Newman, N., Turner, J., & Schwalbe, Z. (2010), CoCoRaHS (The Community Collaborative Rain, Hail and Snow Network): Analysis of Participant Survey Data to Uncover Learning through Participation. Poster Presentation for the American Geophysical Union Fall Meeting, San Francisco, CA.
- Holzer, M.**, Zimmerman, T., Doesken, N., Reges, H., Newman, N., Turner, J., & Schwalbe, Z. (2011), CoCoRaHS (The Community Collaborative Rain, Hail and Snow Network): Lessons Learned from a Participant Survey of a Citizen Science Project. Citizen Science Symposium, University of Maine, Orono, ME.
- Holzer, M.** & Johnson, R., (2011), Climate Change Education Today in K-12: What's happening in the Earth and Space Science Classroom? Oral presentation for the American Geophysical Union Fall Meeting, San Francisco, CA.
- Holzer, M.** (2012), Citizen Science and Science Literacy – Evaluating the Connection. Oral presentation for the National Association for Research in Science Teaching Teacher Researcher Day at the National Science Teachers Association Annual Conference on Science Education, Indianapolis, IN.
- Holzer, M.** (2012), Multiple External Representations: Bridges or Barriers to Climate Literacy? (*Invited oral*) American Geophysical Union Fall Meeting, San Francisco, CA.

- Holzer, M.** (2013), Beating the Challenges of Climate Literacy. Oral presentation for the National Association for Research in Science Teaching Teacher Researcher Day at the National Science Teachers Association Annual Conference on Science Education, San Antonio, TX.
- Ruppert, J. **Holzer, M.**, & Shea, N., (2013), Exploring the Usefulness of Science in Daily Life. Poster presentation for the National Association for Research in Science Teaching Annual Conference, Puerto Rico.
- Holzer, M.** (2013), Seizing an Opportunity with Carefully Designed Geoscience Education Professional Development. (*Invited poster*) American Geophysical Union Fall Meeting, San Francisco, CA.
- Winters, J.M., **Holzer, M.**, Jungblut, D., Catena, A., & Rubenstein, D. (2013) Field-Based Teacher Research: How Teachers and Scientists Working Together Answer Questions About Turtle Nesting Ecology while Enhancing Teachers' Research Skills. Oral presentation for American Geophysical Union Fall Meeting, San Francisco, CA.
- Holzer, M.** (2014), Systems Thinking in the Context of Climate Literacy. Oral presentation for the National Association for Research in Science Teaching Teacher Researcher Day at the National Science Teachers Association Annual Conference on Science Education, Boston, MA.
- Holzer, M.** (2015), Paving a Path to Conceptual Understanding of the Climate System. Oral presentation for the National Association for Research in Science Teaching Teacher Researcher Day at the National Science Teachers Association Annual Conference on Science Education, Chicago, IL.
- Holzer, M.** & Jordan, R. C., (2015), Paving a Pathway to Understanding Complex Systems. Oral Presentation at the National Council for Geographic Education Annual Conference, Washington, DC.
- Holzer, M.** & Jordan, R. C., (2015), Detecting Subsystem Interactions within the Climate System. Oral presentation at the Ecological Society of America Annual Meeting, Baltimore, MD.

REVIEWS:

- 2009 NSTA 2010 Annual Conference Proposal Reviewer
International Conference of the Learning Sciences 2010 Proposal Reviewer
NASA Global Climate Change Education Grant Proposals
- 2010 NARST 2011 Annual Conference Proposal Reviewer
NASA Global Climate Change Education Grant Proposals
- 2011 NSTA 2012 Annual Conference Proposals
- 2012 NARST 2013 Annual Conference Proposal Reviewer
- 2013 NSF DRK-12 Grant Proposal Review Panel
- 2015 Journal of Geoscience Education
NSTA 2015 Area Conference Proposal Reviewer
NARST 2016 Annual Conference Proposal Reviewer
- 2016 Journal of Environmental Studies and Sciences

GRANTS, AWARDS & SPECIAL PROGRAMS: *Education Practitioner*

- 2016 Citation Scroll Recipient, NJSTA
National Geographic Certified Teacher
- 2014 NASA SOFIA Ambassador
- 2012 President of National Earth Science Teachers Association (2012-2014)
- 2011 Fellow of Teaching Excellence & Achievement Program (TEA) & International Leaders in Education Program (ILEP) administered through the US International Research & Exchanges Board & the US Department of State. Program placement in India
- 2010 Fellow of National Earth Science Teachers Association
President-elect of National Earth Science Teachers Association
- 2009 NJ Science Teachers Association Special Award Recipient
- 2008 PolarTREC Teacher to the Arctic - field research assistant for 5 weeks in Svalbard Norway
Re-Elected Secretary of National Earth Science Teachers Association
- 2007 Fellow of the NJ Science Teachers Association
NJ Earth Science Teachers Association Teacher of the Year

- IPEV Teacher at Sea - Invited participant on a 4-week international scientific deep sea coring cruise on the R.V. Marion Dufresne off the coast of Southern Chile
- 2006 Elected Secretary of National Earth Science Teachers Association
- Public Service Electric and Gas Environmental Grant recipient (\$3500)
- 2005 Toyota TAPESTRY Grant Recipient (\$10,000)
- Chatham High School Teacher of the Year
- 2004 CPO/Delta Education Inquiry-Based Educator of the Year – National Award
- 2001 NOAA Teacher At Sea Program - selected for a 2.5 week cruise exploring hydrothermal vents at the Juan deFuca Ridge in the Pacific Ocean.
- 2000 Fulbright Memorial Fund Program - selected recipient to visit Japan for a 3 week cultural/educational exchange.
- 1999 Radioshack/Tandy Scholars – Outstanding Teacher National Award
- National Association of Geoscience Teachers Outstanding NJ Earth Science Teacher
- School District of the Chathams Excellence in Education Award
- 1998 RadioShack/Tandy Scholars – Outstanding Teacher -Honorable Mention
- 1999 NEWMAST - Selected participant in a two week NASA Educational Workshop for at Goddard Space Flight Center, Maryland.
- Phi Delta Kappa International - Initiated into this education honor society
- 1996 SEA Experience - Selected participant in 5 week marine science program
- 1996 Governor's Award for Excellence in Teaching
- Teacher of the Year. Allentown High School
- 1995 Summer Sabbatical Recipient. Upper Freehold Regional School District

LEADERSHIP, SERVICE, & OUTREACH: *Education Practitioner*

- 2016 Fairleigh Dickinson University "Using PBL and Sustainability to Improve PARCC Outcomes" Workshop Invited Speaker
- NJ Dept of Education Model Curriculum Author
- DuPont Challenge Competition scorer
- NJ Geographic Alliance Advisory Board
- National Geographic Education Advisory Board
- NGSS EQUiP Peer Review Panel Member
- 2015 NJ Dept of Education Model Curriculum Author
- MY NASA DATA Advisory Board
- Trustee Sterling Hill Mining Museum
- 2014 NJ Dept of Education Standards Correlation Team Member
- NJ Dept of Education Model Curriculum writer
- NJ Dept of Education Assessment Item team leader
- DuPont Challenge Competition scorer
- 2013 Fairleigh Dickinson University STEM Conference Invited Speaker
- PBS-NOVA Advisory Board
- 2012 NJ Dept of Education Lead State Review Team for the Next Generation Science Standards
- NJ Dept of Education HS Science Model Curriculum writing team leader for Environmental Science and Earth Systems Science
- Merck Institute for Science Education (MISE) Instructional Team Leader for a summer workshop
- 2011 Workshop Leader of the Maitland P. Simmons Memorial Award 1 week Middle School Earth System Science Institute
- 2010 NJ Dept of Education high school Earth System Science course description team leader
- NJ Dept of Environmental Protection curriculum alignment team member
- NSTA Conference on Science Education High School Level Invited Speaker
- American Geophysical Union (AGU) Geophysical Information for Teachers (GIFT) Workshop presenter
- 2009 NAEP Achievement Level Descriptor team member
- Earth System Science 1-day workshop facilitator for teachers at Rutgers University
- NJ Dept of Education Science Standards Revision Committee
- 2008 Workshop presenter for Teacher Connection at Liberty Science Center
- American Geophysical Union (AGU) Geophysical Information for Teachers (GIFT) Workshop presenter
- Liberty Science Center Learning & Teaching Advisory Committee Member (2009-2012)

New Jersey Math Science Coalition Board of Governors, Executive Board Member (2009-1014)
 2007 AGU Fall Meeting session speaker
 2006 European Geosciences Union Geophysical Information for Teachers (GIFT) Workshop in Vienna
 Austria - invited presenter (2006, 2008)
 Co-Presenter Maitland P. Simmons Memorial Award 1 week Middle School Physical Science
 Institute
 Soil Science Society of America K-12 Committee (current)
 2005 Executive Board Member of New Jersey Science Teachers Association (current)
 2004 National Association of Geoscience Teachers Northeastern Section - state councilor. (current)
 2002 Chandra Resource Agent - Presenter and curriculum developer (2002-2009)
 1997 Executive Board Member of New Jersey Earth Science Teachers Association; President 2003-
 2004; 2016-2017; Conference Chair 2002, 2003. (current)
 2001-2015 Merck State Science Day co-chair
 1999-2001, 2010-13 NSTA Area Convention presenter on various topics
 1998, 2000-present NSTA National Convention presenter on various topics
 1996-present New Jersey Science Teachers Convention presenter on various topics
 1993 & 2000 Middle States Accreditation Evaluator

Affiliations

American Educational Research Association
 National Assoc. for Res. in Science Teaching
 National Science Teachers Association
 National Science Ed Leadership Association
 National Association of Geoscience Teachers
 National Earth Science Teachers Association
 NJ Science Teachers Association
 NJ Earth Science Teachers Association

American Assoc. for the Advance. of Science
 American Meteorological Society
 American Geophysical Union
 Geological Society of America
 Phi Delta Kappa
 ASCD
 Int. Society of the Learning Sciences