

CURRICULUM VITA

TODD D. ELLIS, Ph.D.

Mallinson Institute for Science Education
and Department of Geography
Western Michigan University
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EDUCATION

Doctor of Philosophy Degree in Atmospheric Science
Colorado State University, Fort Collins CO
Conferred August 2008

Dissertation: Characteristics of Precipitation: CloudSat Observations and Model Predictions of the Current and Future Climate
Advisor: Dr. Graeme L. Stephens

Master of Science Degree in Atmospheric Science
Colorado State University, Fort Collins, CO
Conferred May 2005

Thesis: An Evaluation of International Satellite Cloud Climatology Project (ISCCP) D2 Cloud Amount Changes and Their Connections to Large-Scale Dynamics
Advisor: Dr. Graeme L. Stephens
American Meteorological Society Graduate Fellowship - 2002

B.S. with Distinction in Physics
B.S. with High Distinction in Meteorology
Pennsylvania State University, University Park, PA
Conferred May 2002

Honors in Meteorology - Schreyer Honors College
Honors Thesis: The Effects of Spatial Resolution on Large-Eddy Simulation
Advisors: Dr. William Frank and Dr. John Wyngaard
Meteorology Department Marshal
Minor in Mathematics
Braddock Scholar 1997-2002 - Eberly College of Science

AREAS OF SPECIALIZATION

Earth Science Education (K-20), Geocognition, K-12 Teacher Professional Development, Informal Science Education, Clouds and Precipitation Processes, Atmospheric Thermodynamics, Atmospheric Radiative Transfer, Atmospheric Dynamics, Remote Sensing of the Atmosphere, The Earth's Climate and Global Climate Change

PROFESSIONAL AFFILIATIONS

Union of Concerned Scientists
American Meteorological Society
American Association for the Advancement of Science
American Geophysical Union
Council on Undergraduate Research
National Association of Geoscience Teachers
National Science Teachers Association
National Earth Science Teachers Association
Sigma Gamma Epsilon Earth Science Honor Society

TEACHING EXPERIENCE

Assistant Professor, Mallinson Institute for Science Education and Department of Geography, Western Michigan University; Kalamazoo, MI – 2015-present

COURSES TAUGHT AND DEVELOPED

Exploring Earth Science: The Atmosphere - GEOG 1900 - Redeveloped Fall 2015
Atmospheric Energy and Motion - GEOG 3260 - Newly Developed (target Fall 2017)

Advisor for 1 Ph.D. student.

Associate Professor of Meteorology, State University of New York College at Oneonta; Oneonta, NY – 2014-present

Assistant Professor of Meteorology – 2008-2014

COURSES TAUGHT AND DEVELOPED

Introduction to Meteorology – METR 110
Introduction to Oceanography – OCEA 110 (formerly 210)
Physical Meteorology – METR 340 - Redeveloped
Atmospheric Radiative Transfer – METR 380 –Newly Developed
Atmospheric Remote Sensing – METR 385 - Redeveloped
Computer Usage in Meteorology – METR 290 – Newly Developed
Senior Seminar in Meteorology – METR 392 – Newly Developed
Global Climate Change – ENV5/ESCI 257 – Newly Developed
Three Independent Studies in Weather and Climate Research

INNOVATIVE METHODS EMPLOYED

Employed the use of hands-on demonstrations and visualization in Introductory and Upper Division classes, including the use of the Earth Sciences Fluid Spin Tank to demonstrate geophysical flows

In METR 290/390, employed an entrepreneurial approach to problem solving with team-oriented semester long problem-based approach

In OCEA 110/210, extensive use of Angel, Audience Response Devices, and Twitter/Facebook to foster a series of discussions throughout the semester on various

current topics in Oceanography

In ENVS/ESCI 257, employing several active learning activities including gallery walks and mock town hall debates to encourage students to internalize information.

Implemented new Linux computer laboratory into METR 110, METR 380, METR 385, and METR 390 exercises as part of NSF Grant.

Innovative communication with students in all classes via Facebook and Twitter to assist them with class concepts and assignments.

Served as day-to-day system administrator for 10 seat Linux computer lab, responsible for computer maintenance and upkeep.

Winner - 2015 SUNY Chancellor's Award for Excellence in Teaching

Winner - 2013 Award for Excellence in the Use of Instructional Technology at SUNY Oneonta

"[Is There a Trend in Hurricane Intensity](http://serc.carleton.edu/NAGTWorkshops/hurricanes/activities/28276.html)" lesson selected as **Exemplary** in 2014 by peer faculty as part of the *On the Cutting Edge* program and published nationally online at <http://serc.carleton.edu/NAGTWorkshops/hurricanes/activities/28276.html>

Nominated for the 2014 Biggs Earth Science Teaching Award from the Geoscience Education Division of the Geological Society of America by Dr. James Ebert.

CloudSat Education and Public Outreach Lead, State University of New York College at Oneonta; Oneonta, NY – 2011-present

Ongoing contract with NASA JPL to conduct science writing and communications for CloudSat mission.

Led Train-the-Trainers workshop at GLOBE 20th Annual Meeting, Burbank, CA, July 2015.

Led Train-the-Trainers workshop at GLOBE North American Regional Meeting, Chicago, IL, March 2015.

Hosted videoconference workshop and Lecture with numerous teachers at IPST in Bangkok, Thailand through the NASA JPL Digital Learning Network, February 2013

Facilitated Workshops on Clouds at the National Science Teachers Association National Meetings (March 2011, San Francisco; March 2012, Indianapolis; March 2013, San Antonio; March 2014, Boston)

Designed exhibit for and helped run the NASA Jet Propulsion Laboratory Open House, Pasadena, CA (May 2011, June 2012, October 2014, October 2015, April 2016)

Ran a three-day workshop and seminar at University of Greenland, Nuuk (March 2012)

Presented a 1-day workshop at the GLOBE Europe/Eurasia Annual Meeting in Utrecht, Netherlands (June 2012)

CloudSat Outreach Coordinator, State University of New York College at Oneonta; Oneonta, NY – 2008-2011

Received **\$70,875** subcontract to assist in outreach efforts with the CloudSat mission

and the CloudSat Education Network

Presented a two-day workshop on GLOBE and CloudSat to teachers in Monteverde, Costa Rica in August 2009

Hosted a four day workshop at SUNY Oneonta on GLOBE and CloudSat to 16 teachers across the Northeastern US in August 2010

Ran booth at the American Geophysical Union Exploration Station as part of the AGU Fall Meeting in San Francisco (December 2009, 2010)

Designed and helped run the NASA Jet Propulsion Laboratory Open House, Pasadena, CA (May 2009,2010)

Visits to several different K-12 classrooms to prepare specialized programs on clouds and climate.

GRE Test Preparatory Instructor and Tutor, Kaplan Test Prep; Boulder, CO – 2007-2008

Prepared and presented classes to students preparing for the graduate student entrance exam

Provided email and office hours assistance with questions regarding course material or logistics

Facilitated one-on-one tutoring sessions catered to individual student needs

Provided regular email assistance to students with out-of-class practice work

Outreach Coordinator, Colorado State University; Fort Collins, CO – 2003-2008

Prepared and led nearly 20 different outreach activities

Developed original hands-on demonstrations for clouds and atmospheric pressure

Facilitated demonstration booths at Super Science Saturday, NCAR, Boulder, CO for 4-6 graders

Lectured, Facilitated Q&A, and helped develop research projects for 11-12 grade students at Colorado Rocky Mountain School

Presented “How to Observe the Weather” to 4-6 grade students as part of CSU’s Kids in College summer program, featuring original demos and field weather observation

Visited several K-12 schools in Northern Colorado to discuss climate and weather

Developed a proposal for Department-wide K-12 outreach training program for graduate students

Teaching Assistant, Colorado State University; Fort Collins, CO – 2005-2006

Pennsylvania State University, University Park, PA – 2000-2002

Facilitated two first-year atmospheric dynamics courses (AT601, AT602)

Presented 3 different lectures on Dynamics of Hadley Circulation and ITCZ

Taught and graded 4 semesters of practicum section to Introductory Meteorology (METEO 003P)

Developed visual aids for lecture, including in class demonstrations

Completed and prepared comprehensive solutions for all assignments

SCHOLARSHIP

Assistant Professor, Mallinson Institute for Science Education and Department of Geography, Western Michigan University; Kalamazoo, MI – 2015-present

Current Research Threads:

- Spatial Thinking in Meteorology – How are spatial thinking skills employed by experts and novices in meteorological tasks?
- How effective is the GLOBE program at facilitating the infusion of scientific practices in pre-service and in-service teacher ability to facilitate environmental study?
- Computational Thinking – Can we identify effective ways to embed computational thinking into introductory science classes for pre-service teachers?

Three publications currently in pipeline (as of October 2016):

- Literature Review of Atmospheric Science Disciplinary Education Research
- Evaluation of backward-faded scaffolding model for teacher professional development in using science inquiry in the classroom
- Results of exploratory study of spatial thinking skills used by atmospheric scientists in interpreting scientific data

Presented at Lee Honors College Lyceum lecture series on the study of clouds and precipitation from NASA Earth Observing Missions

Participated in drafting 6 external funding and 1 internal funding proposals (3 as PI)

Designed and led GLOBE Teacher Training in partnership with the Kalamazoo Nature Center - August 2016

Led GLOBE workshop at the Kellogg Biological Station in August 2016.

Developed and co-facilitated workshop on Teaching Atmospheric Science at 2016 Earth Educators' Rendezvous, Madison, WI.

Associate Professor of Meteorology, State University of New York College at Oneonta; Oneonta, NY – 2014-2015

Assistant Professor of Meteorology – 2008-2014

Continued studies in how climate change affects the distribution and frequency of precipitation around the world

Mentored an independent study student in a study of the energy partition of the atmosphere.

Conducted research into the effectiveness of using real time meteorological data to improve student aptitude in Meteorology from the introductory to advanced undergraduate level as part of NSF CCLI grant award.

Active participant in Teaching with Technology Faculty Learning Community - 2012

Reviewer for NASA EPOESS Grants - July 2011

Regular reviewer for scientific content for all NASA Earth Science Educational Product Review - 2008-present.

Scientist, GLOBE Great Global Investigation of Climate – 2010-2011

Entails design, implementation, and science support of a worldwide experiment to characterize local climates with schools around the world and help students design their own scientific inquiry.

Science advisor for the initial design and piloting of the Global Learning and Observations to Benefit the Environment (GLOBE) Program Student Climate Research Campaign

Graduate Research Assistant, Colorado State University; Fort Collins, CO — 2002-2008

Studied the relationship between climate change and changes in the global hydrologic cycle and clouds using IPCC AR4 model data

Validated CloudSat precipitation incidence and compared observed cloud-precipitation relationships to weather and climate model predictions

Analyzed clouds related to tropical wave features and the intraseasonal oscillation

Studied the nature of long-term changes in the ISCCP cloud amount data

Implemented a novel approach for looking at changes in the general circulation related to changes in clouds amount through the use of statistical analyses and linear algebra

Developed an optimal estimation radiative transfer code and visualization tools for the DREAM radiometer, due to be launched by the Korean Space Agency in late 2007

Honors Thesis Research, Pennsylvania State University.; State College, PA — 2000-2002

Compared the effects of different model spectral resolutions on the Large-Eddy Simulation of Rayleigh-Bénard convection

Illustrated the difficulties of reaching conclusions from model output that relies heavily on sub-grid scale closure techniques

Research Meteorologist/Intern, Science Applications International Corp.; McLean, VA — 1998,2000

Worked 2 semesters as a Cooperative Education student through Penn State University

Sought out and ingested new datasets for the proprietary OMEGA adaptive-grid weather and dispersion model

Helped to prepare analysis reports for the Office of the Special Assistant for the Gulf War Illness

REFEREED PUBLICATIONS AND ABSTRACTS

McNeal, P.M., **Ellis, T.D.**, and Rudge, D.R. (in press). Sunrise, sunset: Using personal observations to understand changing sin patterns from an Earth perspective. *Science Scope*, n.d.

Ellis, T.D. & Ward, A. (2016). A useful pursuit of shadows: CloudSat and CALIPSO celebrate ten years of observing clouds and aerosols. *The Earth Observer*, 28(4), 4-15. Available at <http://eosps.nasa.gov/earthobserver/jul-aug-2016>

Ellis, T.D. (2016). 2016 CloudSat/CALIPSO joint science team meeting summary. *The Earth Observer*, 28(3), 30-34. Available at <http://eosps.nasa.gov/earthobserver/may-jun-2016>

Ellis, T.D., L'Ecuyer, T.S., Haynes, J.M., & Stephens, G.L. (2009). How often does it rain over the global oceans? The perspective from CloudSat. *Geophysical Research Letters*, **36**, L03815, doi:10.1029/2008GL036728.

Stephens, G.L. and **T.D. Ellis**. 2008: Global-scale Controls of Precipitation Efficiency in Global Warming GCM Experiments. *J. Climate*, **21**, 6141-6155, doi:10.1175/2F2008JCLI2144.1.

Ellis, T.D. (2008). *Characteristics of precipitation: CloudSat observations and model predictions of the current and future climate*. Doctoral Dissertation, Dept. of Atmospheric Science, Colorado State U., Fort Collins, CO.

Ellis, T.D. (2005). *Evaluation of ISCCP D2 cloud amount changes and their connections to large-scale dynamics*. Masters Thesis, Dept. of Atmospheric Science, Colorado State U., Fort Collins, CO.

Ellis, T.D. (2002) *The effects of spatial resolution on large eddy simulation*. Honors Thesis, Dept. of Meteorology, Pennsylvania State U., University Park, PA.

NON-REFEREED PUBLICATIONS

Editor of Quarterly *CloudSat Downlink* newsletter for outreach to schools worldwide to learn about clouds. Available online at <http://cloudsat.atmos.colostate.edu>.

INVITED PRESENTATIONS

Ellis, T.D. (2015). *The Useful Pursuit of Shadows: Clouds, Climate, and the Nature of Classroom Scientific Investigations*. **Invited Lecture** at Western Michigan University Mallinson Institute of Science Education, Kalamazoo, MI, 10 April 2015.

Ellis, T.D. (2014) *Expanding Our Community of Educator-Scientists: A Vision for the Professional Development of Scientists in the Undergraduate Classroom*.

Invited Guest Lecturer at Carleton College Science Education Resource Center, Northfield, MN, 4 March 2014.

Ellis, T.D., Falcon, P.C., TeBockhorst, D., & Tourville, N. (2013). "The Useful Pursuit of Shadows: CloudSat and the Importance of Scientific Inquiry." Recorded Teleconference presentation for the NASA Museum Alliance, 9 May 2013.

Ellis, T.D. (2013). *An Inside Look at Clouds and Precipitation*. **Invited Lecture** at St. Cloud State University Department of Earth Science, St. Cloud, MN, 28 March 2013.

Ellis, T.D. (2013). "Earth's Radiant Energy Balance." **Invited Guest Lecturer** at St. Cloud State University Department of Earth Sciences, St. Cloud, MN, 28 March 2013.

Ellis, T.D. (2013) *The Useful Pursuit of Shadows: CloudSat and New Insights into the Role of Clouds in Earth's Climate*. **Invited Oral Presentation** at the Fox Lane High School Student Science Research Day, Bedford, NY, 19 March 2013.

Ellis, T.D. (2012). *The Useful Pursuit of Shadows: CloudSat and New Insights into the Role of Clouds in Earth's Climate*. **Invited Oral Presentation** at the New York State Sectional Meeting of the American Physical Society, 107th Topical Symposium on the Physics of Water, Canisius College, Buffalo, NY. 20 October 2012.

Ellis, T.D. (2012). *The Useful Pursuit of Shadows: CloudSat and New Insights into the Role of Clouds in Earth's Climate*: **Invited Oral Presentation** at International Academy of Astronautics Academy Day, part of the COSPAR 2012 Assembly, Mysore, India. 14 July 2012.

Ellis, T.D. (2012). The Importance of Clouds. **Invited Lecture** at high school in Nuuk, Greenland, 22 March 2012.

Ellis, T.D. (2012) *The Useful Pursuit of Shadows*. **Invited Public Lecture** at Ilisimatusarfik (University of Greenland), Nuuk, Greenland, 21 March 2012

Ellis, T.D. (2012) *The Math You Need, When You Need It*. **Invited Oral Presentation** at SUNY Oneonta Earth and Atmospheric Sciences Brown Bag Seminar, 9 February 2012.

Ellis, T.D. (2010). Climate Change. Oral Presentation and Q&A Session at the Science Café at the West Kortright Centre, East Meredith, NY. 17 June 2010.

Ellis, T.D. (2010). The Importance of Atmospheric Water, Oral Presentation for Oneonta Center for Continuing Adult Education Learning (CCAL), SUNY Oneonta, Oneonta, NY, 20 April 2010.

Rogers, M., & **Ellis, T.D.** (2010). CloudSat Mission and Science Results. Web Presentation for NASA Solar System Ambassadors, 8 April 2010.

Ellis, T.D., & TeBockhorst, D. (2010). GLOBE and the CloudSat Education Network - Partners for Science Inquiry. Oral Presentation at the North American GLOBE Partners Meeting, Philadelphia, PA. 17 March 2010.

Ellis, T.D. (2010). Clouds, Water, and CloudSat. Oral Presentation at the JPL Climate Day, Pasadena, CA. 26 March 2010.

Ellis, T.D. (2008). "Experiencing" Climate Change in the Gen-Ed Classroom: Thoughts and Experiences on Active Learning. **Invited Oral Presentation** for The Hurricane–Climate Change Connection workshop and webinar.

PEER REVIEWED PRESENTATIONS * indicates student

Ellis, T.D. & Taylor, J. (2016). *CloudSat/CALIPSO education and public outreach.* Oral presentation at the 2016 CALIPSO/CloudSat Science Team Meeting, 1-3 March 2016, Newport News, VA, USA. NASA Technical Report #NF1676L-23835. Available at <http://ntrs.nasa.gov/search.jsp?R=20160007879>

Ellis, T.D. (2015). *Clouds in a bottle: qualitative and quantitative demonstrations for cloud formation in a learning environment.* Poster presented at the 2015 American Geophysical Union Fall Meeting, San Francisco, CA.

Ellis, T.D. (2015). Using Python to infuse data analysis in the curriculum. Poster presentation at the Earth Educators' Rendezvous, Boulder, CO, 16 July 2015.

Ellis, T.D., & TeBockhorst, D. (2015). *Teaching Inquiry using NASA Earth-System Science (TINES): Lessons Learned for Teacher Professional Development.* 24th Symposium on Education, Phoenix, AZ, Amer. Meteor. Soc., 4.2.

Ellis, T.D. (2014) *Computer Data Analysis for Meteorology - Project-Centered Skill Development for the Early Undergraduate Career.* Abstract ED51D-3452, presented at the American Geophysical Union Fall Meeting, San Francisco, CA, 19 December 2014.

Ellis, T.D. & TeBockhorst, D. (2013). *Teaching Inquiry using NASA Earth-System Science: Lessons Learned for Blended, Scaffolded Professional Development.* Abstract ED13D-0794, presented at the American Geophysical Union Fall Meeting, San Francisco, CA, 9-13 December 2013.

Ellis, T.D. & TeBockhorst, D. (2012). *Teaching Inquiry using NASA Earth-System Science: Preparing Pre- and In-Service K-12 Educators to Use Authentic Inquiry in the Classroom.* Abstract ED14A-07, presented at the American Geophysical Union Fall Meeting, San Francisco, CA, 3-7 December 2012.

Ellis, T.D., TeBockhorst, D., Falcon, P.C., Tourville, N. & Vane, D. (2011). *The CloudSat Education Network Reaching Students Worldwide and Revealing the Inner Secrets of Clouds.* Presentation at CloudSat/CALIPSO Science Team Meeting, Montreal, QC, Canada, 16 June 2011.

- Ellis, T.D.** (2011). *CloudSat at 5 Years: What have we learned about clouds?* Presentation at CloudSat/CALIPSO Science Team Meeting, Montreal, QC, Canada, 15 June 2011.
- Ellis, T.D.** (2011). *The CloudSat Education Network: A Model for Engaging Education Outreach and Research for Early Career Scientists*. Abstract ED31B-0760 presented at 2011 Fall Meeting, American Geophysical Union, San Francisco, CA, 5-9 December 2011.
- Ellis, T.D.** (2011). Computer Data Analysis for Meteorology - Project-Centered Skill Development for the Early Undergraduate Career. *Geological Society of America Abstracts with Programs*, Vol. 43, no. 5., p. 622. Digital Poster.
- Ellis, T.D.** (2011). Public Education and Outreach - Essential Skills for Early Career Success. *Geological Society of America Abstracts with Programs*, Vol. 43, no. 5., p. 483.
- Ellis, T.D. & Ebert, J.R.** (2010). *SUNY Oneonta Earth Science Outreach Program: Generating New Drilling Prospects for Geoscience Programs*. Abstract ED13A-0602 Presented at the American Geophysical Union Fall Meeting, San Francisco, CA, 13-17 December 2010.
- Ellis, T.D. & Mason, E.E.*** (2009). Preliminary Analysis of Changes in the Lorenz Energy Budget of the Atmosphere. *Eos Trans. AGU*, 90(52) *Fall Meet. Suppl.*, Abstract GC33A-0726.
- Ellis, T.D. & McEnroe, N.A.** (2009). Engaging Climate Change Mitigation Strategies as Citizen Scientists at SUNY College at Oneonta. *Eos Trans. AGU*, 90(52) *Fall Meet. Suppl.*, Abstract ED33C-02.
- Ellis, T.D.** (2009) *Precipitation Changes and the Radiation Budget of the Atmosphere*. Oral presentation at the Northeastern Storm Conference, Springfield, MA, 7 March 2009.
- Haynes, J.M., L'Ecuyer, T.S., Stephens, G.L., Mitrescu, C., Miller, S.D., Turk, J., & **Ellis, T.D.** (2008). Precipitation from CloudSat: New Discoveries and Comparisons with Other Sensors, *Eos. Trans. AGU*, 89(53), Fall Meet. Suppl., Abstract A31E-0166.
- Ellis, T.D., & Stephens, G.L.** (2008). Controls on Global-Scale Precipitation Increases in IPCC Global Warming Simulations, *Eos. Trans. AGU*, 89(53), Fall Meet. Suppl., Abstract GC43A-0703.
- Ellis, T.D., & Stephens, G.L.** (2007) *Global-scale Controls of Precipitation Efficiency in Global Warming GCM Experiments*. Poster presentation for the 4th Annual CoRP Symposium, College Park, MD.

Ellis, T.D., Stephens, G.L., Thompson, D.W.J., & Campbell, G.G. (2004) *Evaluation of Cloud Amount Trends and Connections with Large-Scale Dynamics*. Poster presentation at the 14th International Conference on Clouds and Precipitation, Bologna, Italy.

Ellis, T.D., Stephens, G.L., & Thompson, D.W.J. (2004). Evaluation of Cloud Amount Trends and Connections to Large Scale Dynamics. *15th Symposium on Global Change and Climate Variations*. Seattle, WA., Amer. Meteor. Soc., Abstract 5.7. Available online at <https://ams.confex.com/ams/84Annual/webprogram/Paper69340.html>.

NON-PEER REVIEWED PRESENTATIONS

Ellis, T.D. (2015). "Clouds and CloudSat." Presentation to Wagner Ranch Elementary School, Orinda, CA, 12 December 2015.

Ellis, T.D. (2014). "Clouds and CloudSat." Presentation to Wagner Ranch Elementary School, Orinda, CA, 13 December 2014.

Ellis, T.D. & Heindl, B. (2013). "Pressure and Vacuum: Air, Water, and Human Movements" Interdisciplinary Dialogue presentation as part of the SUNY Oneonta Diversity Series, organized by H. Leung. 7 March 2013.

Ellis, T.D. (2013). "The Resurrection of CloudSat: Stories of a Miracle Rescue." NASA Exhibit Hall Public Presentation at the American Geophysical Union Fall Meeting, 12 December 2013.

Ellis, T.D. (2013). "Clouds and CloudSat." Presentation to Wagner Ranch Elementary School, Orinda, CA, 11 December 2013.

Ellis, T.D. & Kluge, S. (2012). Environment and Geoscience Education and Research Program on the Green Local 175 Radio Show, First aired on 4 September 2012, replayed 1 January 2013. <http://greenlocal175.com/mediaL12.html>

Ellis, T.D. (2011). Clouds and CloudSat. Presentation to Wagner Ranch Elementary School, Orinda, CA, 9 December 2011.

Ellis, T.D. (2011). Clouds and CloudSat. Exhibition at American Geophysical Union Fall Meeting Exploration Station, San Francisco, CA, 4 December 2011.

Ellis, T.D. (2010). All About Clouds and CloudSat. Classroom Program for Wagner Ranch Elementary School, Orinda, CA, 17 December 2010.

Ellis, T.D. (2010). "CloudSat at the Nexus of Science and Education." Oral Presentation at the NASA Exhibit of the American Geophysical Union Fall Meeting, San Francisco, CA, 13-17 December 2010.

- Ellis, T.D.** & Blechman, J.B. (2010). "Improved Computer Applications in the Meteorology Program." Poster Presentation at the SUNY Oneonta Life of the Mind Exhibition, 2 October 2010.
- Ellis, T.D.** (2010). Student Observations and Research on Climate. Oral Presentation at SUNY Oneonta Earth Sciences Brown Bag Seminar. 24 September 2010
- Ellis, T.D.** (2009). All About Clouds and CloudSat. Classroom Program for Wagner Ranch Elementary School, Orinda, CA, 18 December 2009.
- Ellis, T.D.** (2009). Clouds and CloudSat. Exhibition at American Geophysical Union Fall Meeting Exploration Station, San Francisco, CA, 11 December 2009.
- Ellis, T.D.** (2009). Global Climate Change: An Opportunity for Developing Real World Skills. Poster presentation for the SUNY College at Oneonta Celebration of Teaching, Oneonta, NY, 5 November 2009.
- Mason, E.E.* & Ellis, T.D. (2009). "Alterations to Earth's Energy Budget due to Climate Change." Poster presentation at the SUNY College at Oneonta Student Research Show, Oneonta, NY, 21 April 2009.
- Ellis, T.D.** (2009) "Global Water Cycle Changes Associated with Global Warming." Poster presentation at the SUNY College at Oneonta Faculty Research Show, Oneonta, NY, 12 February 2009.
- Ellis, T.D.** (2008) "Energetic Controls on Precipitation Changes with Global Warming." Oral presentation as part of the Earth Sciences Brown Bag Seminar, Oneonta, NY., 20 November 2008.
- Ellis, T.D.** (2008). Taking it for a spin: Demonstrating Atmospheric and Ocean Currents in the Classroom. Poster presentation for the SUNY College at Oneonta Celebration of Teaching, Oneonta, NY, 6 November 2008.
- Butler, A., Ciasto, L., **Ellis, T.D.**, Van Roekel, L., and Ito, T. (2007). "Understanding Ocean General Circulation using the CSU Spin Tank." Oral presentation for the Department of Atmospheric Science Colloquium series. Fort Collins, CO.
- Ellis, T.D.**, Masarik, M. & Smith, M. (2006). "Our Department's New Radiosonde System: Overview and Launch Demonstration." Oral presentation for the Department of Atmospheric Science Colloquium series, Fort Collins, CO.

CONFERENCE SESSIONS CONVENED

- Ellis, T.D.**, Burt, M.A., & Rogers, M.A. (2015). *Best practices in meaningful and authentic science outreach to formal and informal audiences.* Sessions ED51C and ED53G. Held at the American Geophysical Union Fall Meeting, San Francisco, CA, 18 December 2015.

Ellis, T.D. & Burt, M.A. (2014). *Best Practices in Meaningful and Authentic Science Outreach to Formal and Informal Audiences*. Session ED43D and ED51B, presented at the American Geophysical Union Fall Meeting, San Francisco, CA, 18-19 December 2014

INVITED WORKSHOPS

Ellis, T.D., TeBockhorst, D. & Falcon, P.C. (2015) Atmospheric Protocol Training at the GLOBE Annual Meeting, Los Angeles, CA, 19-24 July 2015.

Ellis, T.D., TeBockhorst, D., & Falcon, P.C. (2015) CloudSat Protocol Training at the GLOBE North American Regional Meeting, GEMS World Academy, Chicago, IL, 11 March 2015.

Ellis, T.D., Falcon, P.C., TeBockhorst, D., & Tourville, N. (2013). "Clouds and CloudSat" Series of three atmosphere protocol trainings and CloudSat seminars as part of session A4 at the GLOBE Annual Partners Meeting, Hyattsville, MD, 12-16 August 2013.

Ellis, T.D., & Falcon, P.C. (2012) CloudSat Workshop presented at the Europe and Eurasia Annual Meeting of the GLOBE Program, Utrecht, Netherlands, 14 June 2012.

PEER-REVIEWED WORKSHOPS

Lewis, P.M., **Ellis, T.D.** & TeBockhorst, D. (2014) "Exploring Clouds in the Classroom Through Data Visualization." Workshop at the National Science Teachers Association National Meeting, Boston, MA, 6 April 2014.

Ellis, T.D., Falcon, P.C., TeBockhorst, D., Tourville, N., Lini, S., & Lewis, P. (2013). "Clouds in the Elementary Classroom." Workshop at the National Science Teachers Association National Meeting, San Antonio, TX, 12 April 2013.

Ellis, T.D., TeBockhorst, D., Moore, S., & Falcon, P.C. (2012). The Importance of Studying Clouds. Workshop at the National Science Teachers Association National Meeting, Indianapolis, IN, 31 March 2012.

Ellis, T.D., TeBockhorst, D., & Moore, S. (2011). The Importance of Studying Clouds: NASA Cloud Science and its Application to Classroom Inquiry. Presented at the American Geophysical Union - National Earth Science Teachers Association Geophysical Information for Teachers Workshop, American Geophysical Union Fall Meeting, San Francisco, CA, 5 December 2011.

Ellis, T.D., & Ebert, J.R. (2011). Designing College-Level Geoscience Courses for Inclusion in the SUNY Oneonta Earth Science Outreach Program. Workshop at the Science Teachers Association of New York State Annual Conference, Rochester, NY, 6 November 2011.

Ellis, T.D., (2011). Student Inquiry and Discovery with Clouds and the NASA CloudSat Mission, Workshop at the Science Teachers Association of New York State Annual Conference, Rochester, NY, 5 November 2011.

Ellis, T.D., TeBockhorst, D., & Moore, S. (2011). Why Study Clouds?. Workshop held at the National Science Teachers Association National Meeting, San Francisco, CA, 9-13 March 2011.

Ebert, J.R., **Ellis, T.D.**, & Kluge, S. (2010). SUNY Oneonta Earth Science Outreach Program. Oral Presentation and Workshop at Science Teachers Association of New York State (STANYS) Annual Conference, Rochester, NY, 7 November 2010.

TEACHER PROFESSIONAL WORKSHOPS DESIGNED/HOSTED

Ellis, T.D. & TeBockhorst, D. (2014) "Teaching Inquiry Using NASA Earth-System Science (TINES)" Annual In-Service Workshop at Mohawk Valley Community College campus, 18-22 August 2014.

Ellis, T.D., Falcon, P.C., TeBockhorst, D. & Tourville, N. (2014). "CloudSat in Thailand" Videoconference with educators from Thailand hosted by IPST in Bangkok, Thailand, 10-11 February 2014.

Ellis, T.D., & TeBockhorst, D. (2013). "Teaching Inquiry Using NASA Earth-System Science (TINES)" Annual In-Service Workshop at the North Carolina Center for the Advancement of Teaching, 5-9 August 2013.

Ellis, T.D., TeBockhorst, D., Falcon, P.C., & Randolph, G. (2012). TINES Cohort 1 F2F Workshop, Loveland, CO. 9 February 2013.

Ebert, J.R., **Ellis, T.D.**, & Kluge, S. (2012). SUNY Oneonta Earth Science Outreach Program Workshop. SUNY Oneonta. 20-24 August 2012.

Ellis, T.D., (2012). GLOBE, CloudSat and NASA: Partners for Science Inquiry in the Classroom. Workshop hosted at Ilinniarfissuaq (Greenland's Teaching Seminary), Nuuk, Greenland, 20-23 March 2012.

Ellis, T.D., TeBockhorst, D., & Falcon, P.C. (2010). GLOBE, CloudSat and NASA: Partners for Science Inquiry in the Classroom. Workshop hosted at SUNY Oneonta, Oneonta, NY, 9-12 August 2010.

Ellis, T.D. & Merrill, M. (2009). GLOBE and CloudSat Education Network training at the Monteverde Institute, Monteverde, Costa Rica, 17-19 August 2009.

NON-PEER REVIEWED WORKSHOPS

Ellis, T.D., and the CloudSat Education Network team. (2016). CloudSat and the CEN, Exhibit at the Jet Propulsion Laboratory Ticket to Explore Event, Pasadena, CA, 3-5 June 2016.

Ellis, T.D., and the CloudSat Education Network team. (2015). CloudSat and the CEN, Exhibit at the Jet Propulsion Laboratory Open House, Pasadena, CA, 10-11 October 2015.

Ellis, T.D., TeBockhorst, D. & Wegner, K. (2015). CloudSat and GLOBE: Models for Teacher Professional Development. Joint NASA/GLOBE workshop for the development of a professional learning community for K-12 teacher professional development.

Ellis, T.D., and the CloudSat Education Network team. (2014). CloudSat and the CEN, Exhibit at the Jet Propulsion Laboratory Open House, Pasadena, CA, 9-10 October 2014.

Ellis, T.D., and the CloudSat Education Network team. (2012). CloudSat and the CEN, Exhibit at the Jet Propulsion Laboratory Open House, Pasadena, CA, 9-10 June 2012.

Ellis, T.D. (2012). The Useful Pursuit of Shadows: CloudSat and the Pursuit of Scientific Understanding. NASA Exhibit Presentations at National Science Teachers Association National Meeting, Indianapolis, IN, 28 March - 1 April 2012.

Ellis, T.D., and the CloudSat Education Network team. (2011). CloudSat and the CEN, Exhibit at the Jet Propulsion Laboratory Open House, Pasadena, CA, 14-15 May 2011.

Ellis, T.D., and the CloudSat Education Network team. (2010). CloudSat and the CEN, Exhibit at the Jet Propulsion Laboratory Open House, Pasadena, CA, 15-16 May 2010.

Ellis, T.D., and the CloudSat Education Network team. (2009). CloudSat and the CEN, Exhibit at the Jet Propulsion Laboratory Open House, Pasadena, CA, 9-10 May 2009.

Ellis, T.D. (2009). Sunlight in the Sky. Workshops for Science Saturday at the Science Discovery Center (ages 6-16), Oneonta, NY, 14 February 2009.

Ellis, T.D. (2008). The Earth Sciences Spin Tank. Mini-course developed for the Science I Rededication at SUNY College at Oneonta, Oneonta, NY. 17 October 2008.

GRANT PROPOSALS - * Indicates Student

Petcovic, H.P., **Ellis, T.D.**, Bertman, S., Kaczmarek, S., & Vellom, R.P. (2016). GP-EXTRA: Fostering interest in earth science teaching through the reflective practice of science. Submitted to NSF GEOPATHS Program. 11 October 2016. **Pending.**

Ellis, T.D. & McNeal P.* (2016). Doctoral Dissertation Research: Spatial thinking in meteorology: a task analysis of the forecasting process. Submitted to the NSF DDRI Program. 11 August 2016. **Pending.**

Ellis, T.D. (2016). CAREER: Spatial and computational thinking in the atmospheric sciences. Submitted to the NSF CAREER Program. 20 July 2016. **Pending.**

Ellis, T.D., 2016: Using GLOBE to Forge STEM Education Partnerships. Western Michigan University Faculty Research and Creative Activities Award Proposal. **Awarded \$9,369** on July 1, 2016.

Petcovic, H., **Ellis, T.D.,** Horvitz, B., & Voice, P. (2015). The MGRRE Education Portal: Engaging Students In Online Authentic Geologic Investigations. Submitted to the NSF IUSE:GEOPATHS Program. 15 October 2015. **Declined.**

Rudge, D., Schuster, D., & **Ellis, T.D.** (2015). Narratives as a Framing Element. Submitted to the NSF IUSE Program. 15 October 2015. **Declined.**

Ellis, T.D., Atkinson, L., Burt, M., Campbell, B., Falcon, P., Janney, D., Lewis, P., Rogers, M., TeBockhorst, D., & Tourville, N. (2015). The Satellite Teaching and Learning Academy: A Professional Learning Community for Satellite Remote Sensing of the Earth. Submitted to the Science Mission Directorate of NASA in response to Cooperative Agreement Notice NNH15ZDA004C, 4 May 2015. **Declined.**

Gallagher, K., Kaugars, K, & **Ellis, T.D.** (2013). CS² - Coordinated Scientific Computing Support. Submitted as a STAR Proposal for SUNY Oneonta, 13 December 2013. **Declined.**

Institute for Global Environmental Strategies (2013). GLOBE Implementation Office: Science that Matters. Submitted to the Science Mission Directorate of NASA in response to Funding Opportunity NNH13ZDA001N-GLOBE, 10 August 2013. **Declined.**

Ellis, T.D., & TeBockhorst, D. (2010). Teaching Inquiry using NASA Earth System Science (TINES): Preparing Future and Current Educators to Use Observation and Inquiry in the K-12 Classroom. Submitted to the National Aeronautics and Space Administration Education and Public Outreach in Earth and Space Sciences (EPOESS) on 2 June 2010. **Awarded \$246,606 in December 2010.**

Ebert, J. & **Ellis, T.D.,** (2010). New “Drilling Prospects” to Feed the Geoscience Workforce Pipeline. Submitted to NSF GeoEd Program on March 8, 2010. **Awarded \$148,406 on 1 September 2010.**

Ellis, T.D., TeBockhorst, D. & Yuen, K. (2009). Teaching and Learning about Climate Change (TLC²): A project designed to bring NASA climate science, GLOBE observations, and best practices in education together through professional development focused on the K-12 classroom. Submitted to the National

Aeronautics and Space Administration Global Climate Change Education (NASA GCCE) program on 3 August 2009. **Declined.**

Ellis, T.D. & Blechman, J.B. (2009). Improving the Use of Computer Data Analysis Skills in Undergraduate Meteorology. National Science Foundation Course, Curriculum, and Laboratory Improvement (NSF-CCLI) program. **Awarded \$199K on 31 August 2009.**

Ellis, T.D. (2009). Analysis of Changes in the Energy Budget of the Atmosphere Due to Climate Change. Walter B. Ford Faculty and Staff Grant. **Awarded \$1500 on 4 May 2009.**

Bischoff, P., Schaumloffel, J., Ebert, J., French, P., & **Ellis, T.D.** (2009) SUNY Oneonta NOYCE Scholarship Proposal. National Science Foundation Division of Undergraduate Education (NSF-DUE) **Awarded \$899K on 22 May 2009.**

Ellis, T.D. (2009). Computer Training for Meteorologists using IDL. SUNY Oneonta TLTC Fellowship Grant. **Awarded \$3475 on 8 April 2009**

Ellis, T.D. (2009). Improving Demonstration Equipment for Earth Sciences Labs. UUP Individual Development Award. **Awarded \$236 on 26 March 2009.**

ADDITIONAL WORKSHOPS AND CONFERENCES

Transforming Geoscience Preparation for K-8 Pre-Service Teachers workshop hosted by St. Norbert's College, De Pere, WI. April 7-9, 2016.

Earth Educators' Rendezvous, University of Colorado, Boulder, July 13-17, 2015.

SUNY Making Diversity Count: Ensuring Equity, Inclusion, Access and Impact, Albany, NY, 12-13 November 2014

CloudSat CALIPSO Science Team Meeting, Alexandria, VA, 3-5 November 2014

SUNYCON 2014: Critical Issues in Higher Education: Executing Change to drive Collective Impact, New York, NY, 29-30 October 2014 - **Selected as Faculty Fellow**

Racial Equity Institute Workshop: Phase I, Oneonta, NY, 13-14 October 2014

National Science Teachers Association National Meeting, Boston, MA, 3-6 April 2014.

Anti-Defamation League "A Campus of Difference" Training - November 2013

National Science Teachers Association Area Meeting, Charlotte, NC, 7-10 October 2013.

GLOBE Annual Partners Meeting, Hyattsville, MD., 12-16 August 2013.

National Science Teachers Association National Meeting, San Antonio, TX, 11-14 April 2013.

National Science Education Leadership Association (NSELA) Professional Development Institute on the Next Generation Science Standards, San Antonio, TX, 10 April 2013.

NASA Earth Science Education and Public Outreach Annual Community Meeting, Leesburg, VA, 21-24 May 2012.

National Science Teachers Association National Meeting, Indianapolis, IN, 29 March-1 April 2012.

GLOBE North American Partners Meeting, Indianapolis, IN., 28 March 2012

Integrating Satellite Data and Products into Geoscience Courses with Emphasis on Advanced Geostationary Satellite Systems. COMET Program, Boulder, CO., 8-12 August 2011.

The Math You Need, When You Need It Summer 2011 Workshop, Science Education Resource Center, Kent, WA, 27-29 July 2011.

NASA Earth Science Education and Public Outreach Annual Community Meeting, Warrenton, VA, 23-26 May 2011.

GLOBE North American Partners Meeting, San Francisco, CA., 8 March 2011.

GLOBE Data Implementation Strategies Workshop, Washington, D.C., 11-12 November 2010.

Education Research I: Conducting Qualitative Geoscience Education Research. Geological Society of America Short Course, Minneapolis, MN, October 2010.

Education Research II: Conducting Quantitative Geoscience Education Research. Geological Society of America Short Course, Minneapolis, MN, October 2010.

NASA Earth Science Education and Public Outreach Annual Community Meeting, Warrenton, VA, 18-20 May 2010.

National Science Teachers Association National Meeting, Philadelphia, PA, 18-21 March 2010.

Northeastern Storm Conference, Saratoga Springs, NY, 5-7 March 2010.

Science Education Resource Center - On the Cutting Edge Early Career Faculty Workshop, Williamsburg, VA, 14-19 June 2009

New York Campus Compact Service-Learning Workshop - SUNY Oneonta, April 15, 2009

National Science Foundation Webinar on CCLI Grants – April 8, 2009

National Science Foundation Research Day – Binghamton University, NY, January 15, 2009

How to get a Research Program Started at a Primarily Undergraduate Institution – Council on Undergraduate Research, San Francisco, CA, December 16, 2008

Communicating your Research to the Public (NSF) – San Francisco, CA, December 14, 2008

The Hurricane–Climate Change Connection: Bringing Cutting Edge Research into the Classroom - October 2008

3rd Annual Lake Effect Conference – Oswego, NY, October 4-5 2008

Teaching Weather and Climate Using Laboratory Experiments - Chicago, IL, June 2008

GLOBE IPY (International Polar Year) Seasons & Biomes Pole to Pole Videoconference - April 2008

INSTITUTIONAL SERVICE ACTIVITIES

Western Michigan Institutional Service -- 2015-present

- Volunteer, WMU Bronco Bash, Fall 2016
- Search Committee Member for Office of Pre College Programming and Initiatives search, May–July 2016
- Staffed Geography Dept. recruiting visit to Kalamazoo Valley Community College, March 21, 2016
- Staffed Career Fair booth and successfully recruited a new M.S./Ph.D. student at the American Meteorological Society 96th Annual Meeting, New Orleans, LA, January 10-13, 2016.
- Staffed Recruiting Booth at the Metro Detroit Science Teachers Association Conference, November 5, 2015
- Lee Honors College Lyceum Lecture Series, Committee Member, 2015
- Completed “Behind the W” Brand Ambassador Program, 2015
- Volunteer, WMU Fall Welcome, 2015

SUNY Oneonta Institutional Service -- 2008-2015

Presiding Officer of the Faculty - July 2014 - July 2015

Chair, Joint Task Force on Hiring Policies - 2014-present

Ex-Officio Member, SUNY Oneonta College Council - 2014-present

Acting Secretary of the Faculty: March-May 2013

Member, Academic Master Plan Task Force Phase I: 2011-present

Member, Ad Hoc Committee on Senate By-laws Changes - 2011-present

Secretary of the Faculty, 2010-2011
College Senate Representative for Earth Sciences Department - 2009-2010
Acting Secretary of the College Senate - 2010
Reader for thesis of Claire Grothe, Cooperstown Graduate Program - 2010
Meteorology Club Advisor - 2010-present
Commencement Marshal - 2009-2013
Keynote Speaker - Divisional Commencement 2010
Director, SUNY Oneonta Earth Science Outreach Program - 2009-2013
Director, Central NY GLOBE Partnership at SUNY Oneonta, 2009-present
Accepted Student Open House – SUNY College at Oneonta – 2009
SUNY Oneonta Safe Space Training – 2009
SUNY College at Oneonta Fall Admissions Open House – 2008

Colorado State University Department of Atmospheric Science Service - 2002-2008

Trained Operator of CSU Atmospheric Science Radiosonde System – 2006-2008
Designer and Presenter for CSU Atmospheric Science Demonstration Spin Tank – 2004-2008
M.S. Student Representative to CSU Atmospheric Science Faculty Council – 2004-2005

Undergraduate Student Government, Pennsylvania State University – 1998-2002

Vice President, Academic Assembly 1999-2001
Founder and Chair, Academic Assembly Outreach Committee 2000-2001
Student Representative, University Faculty Senate, Committee on Curricular Affairs, 1998-1999
Co-Manager, Special Project Team for Advising Improvement, 1999
Chairman, Excellence in Advising Award Committee, 1998-2000
Operations Director, inaugural Martin Luther King, Jr. Day of Service, 2000.

Office of the Dean, Eberly College of Science, Pennsylvania State University – 1998-2002

Admissions Department representative for the College, 2000-2002
Student Member, College Undergraduate Education Committee, 1999-2000
Adviser, Freshman Testing, Counseling, and Advising Program (FTCAP), Summer 2001
Student Member, Physics Dept. Undergraduate Education Committee, 1999-2002
Master of Ceremonies and Planner, Prospective Student Open House, 1998-2002

COMMUNITY INVOLVEMENT

Member of Oneonta Lodge #466 Free and Accepted Masons
Elected as Junior Warden – 2010-2011
Appointed as Senior Deacon and Brotherhood Fund Chair – 2010-2011
Member of Valley of Binghamton Scottish Rite Masons

Member of Kalurah Shrine - Appointed as Captain of the Guard – 2011-2012

American Radio Relay League – 1996-present

Amateur Extra Class Radio Operator

Volunteer Examiner, ARRL-VEC – 2006-present

Member, Kalamazoo Curling Club 2015-present

Volunteer, Ice Crew

REFERENCES AVAILABLE UPON REQUEST