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Space Science and Engineering Center
University of Wisconsin at Madison
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Education

- 9/2011 to 12/2013** **University of Wisconsin at Madison**
College of Letters and Science Graduate School
Doctor of Philosophy (Ph.D.), Atmospheric and Oceanic Sciences
Distributed Minor
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- Ph.D. Dissertation Information
Title: *Sky Cover*
Advisor: Dr. Steven Ackerman
- 9/2009 to 12/2011** **University of Wisconsin at Madison**
College of Letters and Science Graduate School
Master of Science (M.S.), Atmospheric and Oceanic Sciences
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- M.S. Thesis Information
Title: *Improving Cloud and Moisture Representation by Assimilating GOES
Sounder Products into Numerical Weather Prediction Initial Conditions*
Advisor: Dr. Steven Ackerman
- 9/2005 to 5/2009** **University of Wisconsin at Madison**
College of Letters and Science Honors Program
*Bachelor of Science (B.S.) with Comprehensive Honors and majors in
Atmospheric and Oceanic Sciences, Mathematics, and Political Science*
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- B.S. Thesis Information
Title: *A Review and Study of Land-Sea Interactions on the Great Lakes*

Professional Experience

- 10/2016 to Present** **Associate Researcher**
9/2014 to 9/2016 **Assistant Researcher**
1/2014 to 8/2014 **Postdoctoral Research Associate**
5/2009 to 12/2013 **Graduate Project/Research Assistant**
Cooperative Institute for Meteorological Satellite Studies (CIMSS)
Space Science and Engineering Center (SSEC)
University of Wisconsin at Madison

Personal Information

Born December 1986; United States Citizen

Professional Certifications and Training

- 9/2017** **University of Wisconsin at Madison**
School of Business Center for Professional and Executive Development
Professional Development Certificate: Advanced Management and Leadership
- 11/2013** **University of Wisconsin at Madison**
School of Business Center for Professional and Executive Development
Professional Development Certificate: Technical Leadership

- 8/2015** **Advanced Warning Operations Course (AWOC) Core Track**
at the NWS Warning Decision Training Branch (WDTB) in Norman, Oklahoma
- 1/2015** **Distance Learning Operations Course (DLOC)**
at the NWS Warning Decision Training Branch (WDTB) in Norman, Oklahoma
- 1/2015** **Information Technology Infrastructure Library (ITIL)**
Foundation Certificate in Information Technology Service Management (ITSM)

Awards and Honors

- 2014** Best Student Presentation Award, American Meteorological Society Tenth Annual Symposium on New Generation Operational Environmental Satellite Systems
- 2009 to 2012** Wisconsin Space Grant Consortium (WSGC) Graduate Fellowship Award
- 2008** WSGC Undergraduate Research Award
- 2007** WSGC Undergraduate Research Award
National Weather Association Meteorological Satellite Applications Award

Professional Interests and Specialties

My primary area of interest is the translation of meteorological research, particularly from the field of remote sensing, into the operational weather forecasting environment. This includes infusing satellite imagery and products into numerical weather prediction models. My work involves strong coordination with National Oceanic and Atmospheric Administration (NOAA) National Weather Service (NWS) forecast offices and the development of NWS technologies such as the Advanced Weather Interactive Processing System (AWIPS) to allow for the smooth transition and integration of new satellite products and imagery, particularly from the Geostationary Operational Environmental Satellite R-Series (GOES-R) and Joint Polar Satellite System (JPSS), into operations. I have participated in on-site research to operations coordination and training exercises with multiple NWS forecast offices throughout the country since 2006, including offices in Alaska and Hawaii.

My specialties include: Great Lakes and marine meteorology, satellite meteorology, satellite data acquisition, research to operations, operational meteorology, and meteorological systems engineering.

I have a working proficiency of multiple computing languages as well as modular and object-oriented structured programming styles, having previously developed in C/C++, Java, Perl, Python, and Fortran. I have designed components of numerical weather prediction models, implemented applicable numerical techniques, including optimization, and utilized the Weather Research and Forecast (WRF) model framework in research projects. I have expertise in manipulating and writing data in scientific storage formats, including GRIB/GRIB2, HDF, KML/KMZ, and netCDF. I have used, developed, and enhanced Linux-based atmospheric science software applications, led technical interchange meetings on research and software development, overseen cross-organizational, interdisciplinary, and meteorological research teams, and have experience in software governance, process automation, and web design.

Research Funding

- 2016, 2017** *CIMSS Support to Conduct Workshops on the Advanced Baseline Imager (ABI) to National Weather Service Science and Operations Officers (NWS SOOs)*
Source: NWS/NOAA
- 2016** *CIMSS Support to Develop the Satellite Information Familiarization Tool for the National Weather Service Training Program*
Source: NWS/NOAA

- 2015** *Development and Delivery of Himawari Training Workshop for NWS Forecast Office in Guam*
Source: NWS/NOAA
- 2014-Present** AWIPS II and Outside CONtiguous United States (OCONUS) Satellite Liaison, 2014 to Present
Source: JPSS/NOAA
- 2013** *Increasing AWIPS II Capabilities*, part of Unidata Community Equipment Awards Program
- 2012-2014** *GOES Imager Sky Cover Analysis Product*, part of GIMPAP, 2012 to 2014
Source: National Environmental Satellite, Data, and Information Service (NESDIS)/NOAA

Research Projects and Activities

- 2015, 2016** *Polar Satellite Antenna for the National Weather Service in Guam*
- 2011-Present** JPSS Proving Ground
- 2008-Present** GOES-R Proving Ground
- 2008** *Using AWIPS to expand use of GOES Imager and Sounder products in National Weather Service Forecast Offices*, part of GOES Improved Measurement and Product Assurance Plan (GIMPAP)
- 2006-2008** Satellite-based Nowcasting and Aviation Application Program
- 2005-2009** Virtual Institute for Satellite Integration Training (VISIT) Development
- 2005-2007** AWIPS Infusion into Academia/Research Sector

Professional Conference Roles

Invited Panelist

Current Radio Frequency Spectrum Challenges for the Weather, Water, Climate Enterprise
AMS 97th Annual Meeting, January 2017
AMS Summer Community Meeting, July 2016

Societal benefits of user-focused communication of satellite data, products and services, "Are we meeting user needs?"
EUMETSAT Meteorological Satellite Conference, September 2013

Organizer or Planning Committee

NOAA Satellite Conference, 2017
AMS 21st Satellite Meteorology, Oceanography, and Climatology Conference, 2016
NWA 37th Annual Meeting, 2012 (Program Chair)

Testbed Experience

- 2012, 2015** NOAA Aviation Weather Testbed Summer Experiment
Role: Visiting Satellite Meteorologist (one week annually)
Aviation Weather Center, Kansas City, Missouri
- 2009-2013** NOAA Hazardous Weather Testbed Spring Experiment
Role: Visiting Satellite Meteorologist (one to two weeks annually)
Storm Prediction Center, National Weather Center, Norman, Oklahoma

Teaching Experience

- 11/2016 to 3/2017** *Foundational GOES-R "Prep Courses" for NWS Science Officers*
 Role: Training Coordinator and Lead Trainer (six one-week workshops)
 National Weather Service Training Center, Kansas City, Missouri
- 7/2016** *Applications of satellite remote sensing in numerical weather and climate prediction*
 Role: Invited Lecturer for 2016 Summer School
 School of Atmospheric Sciences, Nanjing University, Nanjing, China
- 4/2016** *Advanced Himawari Imager Foundational Training Workshop*
 Role: Training Coordinator and Lead Trainer
 National Weather Service Forecast Office, Honolulu, Hawaii
- 11/2015** National Weather Service Forecast Office, Barrigada, Guam
- 2/2015** *Miami Polar Orbiter Workshop*
 Role: Event Coordinator and Teaching Assistant
 Atlantic Oceanographic and Meteorological Laboratory, Miami, Florida
- 8/2013** *Hawaii Suomi-NPP VIIRS and EOS MODIS DB Applications Workshop*
 Role: Event Coordinator and Teaching Assistant
 Dept. of Meteorology, University of Hawaii, Manoa
- 7/2009** *MODIS DB Data for Forecasting and Real-Time Environmental Decision-Making*
 Role: Teaching Assistant for IGARSS 2009 Short Course
 Dept. of Geology, Stellenbosch University, Stellenbosch, South Africa

Professional Organization Membership

American Geophysical Union (AGU), Member since 2018

American Meteorological Society (AMS), Member since 2003

- Ad Hoc Committee on Radio Frequency Allocations, Chair (2018 through 2019), Member (2016 through 2017)
- Board on Enterprise Communication, Member (2017 through 2019)
- Committee on Satellite Meteorology, Oceanography, and Climatology, Member (2015 through 2020), Student Member (2009 through 2014)

National Weather Association (NWA), Member since 2002

- Council, Student Ex-Officio Member (2011 through 2013)
- Professional Development Committee, Member (2009 through 2014)
- Strategic Planning Committee, Member (2014 through 2016)

Related Experience

I have:

- Collaborated with international agencies and colleagues through special teleconferences.
- Conducted live interviews with Hawaii media outlets to discuss approaching tropical cyclones.
- Contributed commentary that has appeared on AGU's *The Bridge* blog and *The Hill* (.com).
- Developed content for short courses on the operational applications of the GOES-R imager, and reviewed training materials of others prior to integration into the NWS training plans for GOES-R and JPSS.
- Organized and led weather briefings at the University of Wisconsin twice weekly since 2009.
- Provided weather forecasts to the University of Wisconsin Police for special events on campus.