

Amanda M. (Weigel) Markert

Education

- M.S. Earth System Science** May 2017
Thesis, *A Spatial Pattern Analysis of Land Surface Heterogeneity and Its Relationship to Tornadoogenesis*.
Advisor, Dr. Robert E. Griffin.
University of Alabama in Huntsville, Huntsville, AL, Cumulative GPA 3.71
- B.S. Meteorology, Geospatial and Environmental Analysis, Minor Geoscience** May 2013
Virginia Polytechnic Institute and State University, Blacksburg, VA, Magna Cum Laude

Experience

- Research Scientist I, ESSC, University of Alabama in Huntsville**, Huntsville, AL 2018-Present
NASA SERVIR Regional Science Coordination Lead supporting the Mekong hub. Provides expertise in data science informatics, weather, climate, and disasters to aid in service development and capacity building efforts.
- Research Associate I, ITSC, University of Alabama in Huntsville**, Huntsville, AL 2016-2018
Project lead for the NASA/MSFC DSIG Data Curation for Discovery project supporting NASA's role in Obama's Climate Action Plan. Lead coordinator for the NASA GHRC DAAC Outreach and User Services team developing data resources and tools, web content, and outreach materials.
- Graduate Research Assistant, University of Alabama in Huntsville**, Huntsville, AL Fall 2015
Designed knowledge graphs linking key instruments, parameters, publications, and algorithms to improve the search and discovery of resources within NASA Earth Science.
- Student Specialist IV, ITSC, University of Alabama in Huntsville**, Huntsville, AL Summer 2015
Collaborated with the USGCRP Global Change Information System team developing data models and a faceted classification scheme for the Climate Data Initiative Human Health theme.
- Graduate Research Assistant/ Data Services Intern, Baron Inc.**, Huntsville, AL 2014-2015
Developed and validated an automated near real-time GIS-based storm surge product for the Gulf of Mexico. Product required extensive Python geo-programming and data management.
- Team Lead, NASA DEVELOP National Program**, MSFC, Huntsville, AL 2013-2014
Lead and completed applied science projects partnered with government organizations. Projects: Andes Mountain Disasters I, Cumberland Plateau Ecological Forecasting I, II.
- Research Intern, University of Alabama in Huntsville**, Huntsville, AL 2013-2014
Analyzed hurricane risk for ancient Maya archaeological sites on the Yucatán Peninsula by applying novel GIS hurricane hazard mapping methods to under-modeled areas.
- Student Intern/ Undergraduate Research, National Weather Service**, Blacksburg, VA 2011-2012
Rotational training program with NWS forecasters centered on forecasting and issuing weather notifications. Analyzed the high wind climatology of the Blacksburg Weather Forecasting Area.

Publications

- (In Review) Phongsapan, K., Chishtie, F., Poortinga, A., Bhandari, B., Meechaiya, C., Kunlamai, T., Khun San Aung, Saah, A., Anderson, E., Markert, K., **Markert, A.**, Towashiraporn, P. (2019). Operational flood risk index mapping for disaster risk reduction using Earth Observations and cloud computing technologies: a case study on Myanmar. *Frontiers*
- (In Revision) David Saah, Tenneson, K., Matin, M., Uddin, K., Cutter, P., Poortinga, A., Nguyen, Q., Patterson, M., Johnson, G., Markert, K., Flores, A., Anderson, E., **Weigel, A.**, Ellenberg, W., Bhargava, R., Aekakkarakunroj, A., Khanal, N., Bhandari, B., Housman, I., Potapov, P., Tyukavina, A., Ganz, D., Maus, P., Clinton, N. (2019). Land cover mapping in the 21st century: challenges and opportunities. *Frontiers*
- (In Revision) McDonald, S., Mohammed, I., Bolten, J., Pulla, S., **Markert, A.**, Meechaiya, C., Nelson, J., Lakshmi, V., Srinivasan, R. (2019). Successfully received: submission SWAT online - A web-based decision support system for the Soil and Water Assessment Tool for Environmental Modelling and Software. *Environmental Modelling and Software*.
- Markert, A.**, Griffin, R., Molthan, A., Knupp, K., & Coleman, T. (2019). A Spatial Pattern Analysis of Land Surface Roughness Heterogeneity and its Relationship to the Initiation of Weak Tornadoes. *Earth Interactions*.

- Markert, K., Pulla, S., Lee, H., **Markert, A.**, Anderson, E., Okeowo, M., Limaye, A. (2019). AltEx: An open source web application for accessing and exploring altimetry datasets. *Environmental Modelling and Software*
- Zhang, J., Pourreza, M., Ramachandran, R., Lee, T., Gatlin, P., Maskey, M., & **Weigel, A.** (2018). Facilitating Data-Centric Recommendation in Knowledge Graph. In 2018 IEEE 4th International Conference on Collaboration and Internet Computing (CIC) (pp. 207-216). *IEEE*.
- Maskey, M., Ramachandran, R., Li, X., **Weigel, A.**, Bugbee, K., Gatlin, P., & Miller, J.J. (2017). A Relevancy Algorithm for Curating Earth Science Data around Phenomenon. *Computers & Geosciences*.
- Weigel, A.**, & Griffin, R. (2015) 14B. 3 Yucatán Hurricane Hazard Assessment: A GIS Methodology for Modeling Hurricane Hazards. American Meteorological Society Annual Meeting.

Awards and Honors

NASA Group Achievement Award to MSFC Hurricane Harvey Disaster Response Team, NASA	2018
2016 Raskin Scholar, Earth Science Information Partners Federation	2016
Graduate Student Researcher Award, Department of Atmospheric Science, Univ. of Alabama-Huntsville	2016
American Meteorological Society Travel Scholarship, University of Alabama-Huntsville	2014, 2016
Student Travel Grant Award, Societal Impacts and Policy Sciences Focus Group, AGU	2015
Industry/University Cooperative Graduate Research Program, University of Alabama-Huntsville	2014
Master Competitive Internship Program, University of Alabama-Huntsville	2013
Xi Sigma Pi Honor Society, College of Natural Resources and the Environment, Virginia Tech	2011
James F. Powell Scholarship, Virginia Tech	2009

Professional Presentations

<i>Water we going to do with all these data? Service development using interdisciplinary data for flood applications</i> , AGU Fall Meeting, Washington D.C.	2018
<i>“Risky Business”: Risk Financing for Drought Resilience Applications</i> , South and Southeast Asia Regional Drought Forum, Kathmandu, Nepal	2018
<i>Using GIS to Investigate Land-Atmosphere Interactions Involved in Tornadogenesis</i> , AMS Annual Meeting, Austin, TX	2018
<i>Enabling Visualization and Geospatial Analysis of Atmospheric Science Data through Python</i> , AMS Annual Meeting, Austin, TX	2018
<i>Drowning in Data: Going Beyond Traditional Data Archival to Educate Data Users</i> , AGU Fall Meeting, New Orleans, LA	2017
<i>Developing a Knowledge Base for NASA Earth Science and Hydrologic Applications</i> , CUAHSI Hydroinformatics Conference, Tuscaloosa, AL	2017
<i>Visualize, Discover and Analyze: A Data Center’s Innovative Services for Addressing Observing System Challenges</i> , Poster 1037, AMS Annual Meeting, Seattle, WA	2017
<i>Stimulating Remote Sensing Education through Knowledge Augmentation Services</i> , Poster 191, AMS Annual Meeting, Seattle, WA	2017
<i>A New Way to Explore Field Campaign Data</i> , NASA Booth Flash Talk, AGU Fall Meeting, San Francisco, CA	2016
<i>Earth Science Data Education through Cooking-up Recipes</i> , AGU Fall Meeting, San Francisco, CA	2016
<i>Field Campaign Explorer: Simultaneous Data Exploration, Discovery and Visualization</i> , Paper IN53E, AGU Fall Meeting, San Francisco CA	2016
<i>Plenary Speaker, 2016 Raskin Scholar Presentation</i> , ESIP Federation Summer Meeting, Durham, N.C.	2016
<i>Providing Application-Driven GIS Education for Earth System Science</i> , AMS Annual Meeting, New Orleans, LA	2016
<i>Using GIS for Automated Near Real-time Storm Surge Inundation Mapping and Visualization for the Gulf of Mexico</i> , AMS, Annual Meeting, New Orleans, LA	2016
<i>Providing Geospatial Education and Real World Applications of Data across the Climate Data Initiative Themes</i> , Paper PA13B-08, AGU Fall Meeting, San Francisco, CA	2016
<i>Capturing Data Connections within the Climate Data Initiative to Support Resiliency</i> , AGU Fall Meeting, San Francisco, CA	2016
<i>Automated Flood Hazard Mapping Methods for Near Real-time Storm Surge Inundation and Vulnerability Assessment</i> , AGU Fall Meeting, San Francisco, CA	2015
<i>Yucatán Hurricane Hazard Assessment: A GIS Methodology for Modeling Hurricane Hazards</i> , Paper 14B.3, AMS Annual Meeting, Phoenix, AZ	2015
<i>Enhancing Disaster Planning Techniques and Assessing Potential Loss through an Automated GIS-based Storm Surge Product</i> , Geo-Energy Summit, Geo-Huntsville, Huntsville, AL	2015

Enhancing Hurricane Hazard Methods Using a Geographic Information System, Wernher von Braun Symposium Student Poster Competition, Huntsville, AL 2015
Utilizing NASA Earth Observations to Model Volcanic Hazard Risk Levels in Areas Surrounding the Copahue Volcano in the Andes Mountains, NASA Applied Science Showcase, Global Earth Observing System of Systems Meeting, NASA Headquarters, Washington D.C. 2014

Funding Awarded

Title: Robert Raskin Scholarship
Supporting Organization: Earth Science Information Partners Federation
Period: July 2016 – July 2017
Awarded Budget: \$3,000 and Travel support to the 2016 ESIP Summer Meeting
PI: Amanda Weigel
Role: Principal Investigator
Level of Effort: n/a

Title: Societal Impacts and Policy Sciences Focus Group Student Travel Grant
Supporting Organization: American Geophysical Union Student Programs Department
Period: December 5-18, 2016
Awarded Budget: \$500
PI: Amanda Weigel
Role: Principal Investigator
Level of Effort: n/a

Title: University Cooperative Graduate Student Research Program
Supporting Organization: University of Alabama in Huntsville, Office of Vice President for Research 2014
Period: August 21, 2014 - December 21, 2014
Awarded Budget: \$13,036
PI: Robert Griffin
Role: Co-Investigator, Graduate Research Assistant
Level of Effort: 1.0 FTE

Funding Applied For

Title: Cloud-Based Pre-processing and Spatial Resampling of Multiple Sensors for Time Series Analysis
Supporting Organization: NASA Advancing Collaborative Connections for Earth System Science 2017
Proposed Period: May 1, 2018 - April 2020
Proposed Budget: \$728,339
PI: Christopher Hain
Role: Co-Investigator
Level of Effort: 0.25 FTE

Title: Building NASA's End-to-End Framework for Disaster Response Utilizing Near Real-Time and Expedited Remote Sensing Data Sets
Supporting Organization: NASA Advanced Information Systems Technology 2016
Proposed Period: August 1, 2017 - July 31, 2019
Proposed Budget: \$1,324,051
PI: Andrew Molthan
Role: Co-Investigator
Level of Effort: 0.25 FTE

Title: Analyzing the Influence of Surface Roughness on Central Oklahoma Tornado Frequency using NASA Satellite Derived Land Cover Imagery from 1990-2013
Supporting Organization: NASA Earth and Space Science Fellowship 2014
Proposed Period: September 1, 2014 - August 31, 2017
Proposed Budget: \$90,000
PI: Principal Investigator
Role: Principle Investigator
Level of Effort: 1.0 FT

Teaching and Mentorship

Instructor, ESS 402/502 Scientific and Societal Impacts of Natural Disasters, Dept. of Atmospheric Science, Univ. of Alabama-Huntsville	Fall 2017-Present
Adviser, Claire Nauman: NASA SERVIR-Mekong GRA, Dept. of Atmospheric Science, Univ. of Alabama-Huntsville	2018-Present
Adviser, Nicole Dougherty: Earth System Science Undergraduate Research Capstone, Dept. of Atmospheric Science, Univ. of Alabama-Huntsville	Spring 2019
Adviser, Helen Eifert: Improving Landslide Inventories with a focus on Myanmar, NASA Internship Program, MSFC	Summer 2018
Adviser, Katharine Egan: Mapping Rain-induced Landslide Susceptibility in Myanmar, NASA Internship Program, MSFC	Summer 2018
Instructor, Introduction to Earth Data Science, NASA SERVIR Science Friday	September 2018
Instructor, Big Data and Hydrology Workshop, University of Alabama	April 2018
Speaker, Atmospheric Event-based Research Using NASA GHRC Tools and Services, NASA Earthdata Webinar	2017
Guest Lecturer, Introduction to ArcGIS Model Builder, Python for Interdisciplinary Earth System Science Applications, Dept. of Atmospheric Science, University of Alabama-Huntsville	2017
Instructor, NASA Global Hydrology Resource Center DAAC GIS Workshop	2015
Student Instructor, Virginia Tech Storm Chase, Virginia Tech	2011-2012

Relevant Professional Service

Member, NASA TROPICS Mission Applications Working Group, NASA	2017-Present
Co-convenor, Free and Open-Source Technologies for Advancing Earth and Space Sciences Earth and Space Science Informatics, AGU Fall Meeting, Washington, D.C.	2018
Convenor, Weather and Climate Service Sustainability, SERVIR Annual Global Exchange, Lisbon, Portugal	2018
Co-convenor, Numerical Weather Modeling, Technical Mini-Exchange, SERVIR Annual Global Exchange Lisbon, Portugal	2018
Co-convenor, Disaster Strategy, Technical Mini-Exchange, SERVIR Annual Global Exchange, Lisbon, Portugal	2018
Co-convenor, Drought Impacts and Climate Risk Financing, South and Southeast Asia Regional Drought Forum, Kathmandu, Nepal	2018
Session Chair, Analysis in Remote Sensing, Novel Data Streams, and Social Media for Natural Hazard Monitoring, Research, and Preparedness, Natural Hazards, AGU Fall Meeting, New Orleans, LA	2018
Co-convenor, Developing Innovative Tools and Services to Enable Data Use Across Broad User Communities, Earth and Space Science Informatics, AGU Fall Meeting, New Orleans, LA	2017
Manuscript Reviewer, Journal of Disaster Risk Reduction. Elsevier.	2017
Session Chair, Innovative Tools and Services to Enable Data Use across Broad User Communities, Earth and Space Science Informatics, AGU Fall Meeting, San Francisco, CA	2016
Member, Earth Science Data System Data Recipes Working Group, NASA	2016
President, American Meteorological Society (Blue Ridge Chapter), Blacksburg, VA	2012-2013

Technical Expertise

Agile Planning Software: Smartsheets, JIRA, TRELLO
Information Modeling Software: CMap, Neo4J
Programming Languages: R, Python, IDL (Processing and analysis of ground, airborne and satellite remote sensing data)
Geospatial & Remote Sensing Software: ArcGIS 9-10x (Spatial Analyst, 3D Analyst, Geostatistical Analyst, Network Analyst, ArcPy, ArcServer), ENVI Classic, 4-5x (Fx, Feature Extraction Module), ERDAS Imagine
Meteorological Software: Campbell Scientific Mesonet, Gibson Ridge (Level 3, Level 2 Analyst)
Amateur Radio Operator: License KK4RDG