

Amanda M. Markert

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Education

M.S. Earth System Science (May 2017)

- University of Alabama in Huntsville, Huntsville, AL | Cumulative GPA: 3.71
- Thesis: A Spatial Pattern Analysis of Land Surface Heterogeneity and Its Relationship to Tornadogenesis.
- Advisor: Dr. Robert E. Griffin.

B.S. Meteorology, Geospatial and Environmental Analysis (May 2013)

- Virginia Polytechnic Institute and State University, Blacksburg, VA | Magna Cum Laude | Minor: Geoscience

Experience

Research Scientist I | ESSC, University of Alabama in Huntsville, Huntsville, AL

- 2018 – Present
- NASA SERVIR Regional Science Coordination Lead and Weather and Climate Scientist. Manages NASA-related activities at the SERVIR Southeast Asia hub and provides expertise in data science informatics, weather, climate, and disasters to aid in service development and capacity building efforts.

Lecturer & Affiliate Member Graduate Faculty | University of Alabama in Huntsville

- 2017 – 2022
- Lecturer for the Atmospheric and Earth Science Department: AES 402/502 Scientific and Societal Aspects of Natural Disasters course.

Research Associate I | ITSC, University of Alabama in Huntsville, Huntsville, AL

- 2016 – 2018
- Project lead for the NASA/MSFC IMPACT 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 using NASA Earth Science data.

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 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
- Led 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 through 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

- Bhandari, B., Markert, K., Mishra, V., Markert, A., & Griffin, R. (2023). Investigation of Data-Driven Rating Curve (DDRC) Approach. *Water*, 15(3), 604. <https://doi.org/10.3390/w15030604>
- Gupta, P., Zhan, S., Mishra, V., Aekakkararungroj, A., Markert, A., Paibong, Sarawut, P., Chishtie, F. (2021). Machine Learning Algorithm for Estimating Surface PM2.5 in Thailand. *Aerosol and Air Quality Research*. <https://doi.org/10.4209/aaqr.210105>
- Mayer, T., Poortinga, A., Bhandari, B., Nicolau, A., Markert, K., Soe Thwal, N., Markert, A., Haag, A., Kilbride, J., Chishhie, F., Wadhwa, A., Clinton, N., Saah, D. (2021). Surface Water Mapping using Deep Learning approach with Sentinel-1 leveraging Google Earth Engine. *ISPRS Open Journal of Photogrammetry and Remote Sensing*. <https://doi.org/10.1016/j.ophoto.2021.100005>
- Phanikumar, M., Abhishek, A., Das, N., Ines, A., Andreadis, K., Jayasinghe, S., Granger, S., Ellenburg, W., Dutta, R., Quyen, N., Markert, A., Mishra, V. (2021). Evaluating the Impacts of Drought on Rice Productivity over Cambodia in the Lower Mekong Basin. *Journal of Hydrology*. <https://doi.org/10.1016/j.jhydrol.2021.126291>
- Nauman, C., Anderson, A., Coughlan de Perez, E., Kruczkiewicz, A., McClain, S., Markert, A., Griffin, R., Suarez, P. (2021). Perspectives on flood forecast-based early action and opportunities for Earth observations. *Journal of Appl. Remote Sensing*. <https://doi.org/10.1117/1.JRS.15.032002>
- Laverde-Barajas, M., Corzo, G.A., Poortinga, A., Chishtie, F., Meechaiya, C., Jayasinghe, S., Towashiraporn, P., Markert, A., Saah, D., Son, L.H., Khem, S., Boonya-Aroonnet, S., Chaowiwat, W., Uijlenhoet, R., Solomatine, D.P. (2020). ST-CORAbico: A Spatiotemporal Object-Based Bias Correction Method for Storm Prediction Detected by Satellite. *Remote Sens.*, 12, 3538. <https://doi.org/10.3390/rs12213538>

- Markert, K. N., Markert, A., Mayer, T., Nauman, C., Haag, A., Poortinga, A., ... & Kwant, M. (2020). Comparing Sentinel-1 Surface Water Mapping Algorithms and Radiometric Terrain Correction Processing in Southeast Asia Utilizing Google Earth Engine. *Remote Sensing*, 12(15), 2469. <https://doi.org/10.3390/rs12152469>
- 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*. <https://doi.org/10.3389/fenvs.2019.00191>
- 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., Aekakkararungroj, 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*. <https://doi.org/10.3389/fenvs.2019.00150>
- McDonald, S., Mohammed, I., Bolten, J., Pulla, S., Meechaiya, C., Markert, A., Nelson, J., Lakshmi, V., Srinivasan, R. (2019). SWAT online - A web-based decision support system for the Soil and Water Assessment Tool for Environmental Modelling and Software. *Environmental Modelling and Software*. <https://doi.org/10.1016/j.envsoft.2019.104499>
- 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*. <https://doi.org/10.1175/EI-D-18-0010.1>
- 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*. <https://doi.org/10.1016/j.envsoft.2019.03.021>
- 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. <https://doi.org/10.1109/CIC.2018.00037>
- 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*. <https://doi.org/10.1016/j.cageo.2017.06.007>
- Weigel, A., & Griffin, R. (2015) 14B. 3 Yucatán Hurricane Hazard Assessment: A GIS Methodology for Modeling Hurricane Hazards. American Meteorological Society Annual Meeting. <https://ams.confex.com/ams/95Annual/webprogram/Paper264619.html>

Book Chapters

- Uddin, K., Matin, M. A., Khanal, N., Maharjan, S., Bajracharya, B., Tenneson, K., ... & Markert, A. (2021). Regional land cover monitoring system for Hindu Kush Himalaya. In *Earth observation science and applications for risk reduction and enhanced resilience in Hindu Kush Himalaya region* (pp. 103-125). Springer, Cham. https://doi.org/10.1007/978-3-030-73569-2_6
- Cherrington, E. et al., (2019). Chapter 8, The SAR Handbook: Comprehensive Methodologies for Forest Monitoring and Biomass Estimation, SERVIR Science Coordination Office, <https://doi.org/10.25966/nr2c-s697>

Awards and Honors

- SAR Handbook Group Award, SERVIR Annual Global Exchange, Siem Reap, Cambodia (2020)
- 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)

Select Professional Presentations

- Panelist, Climate Talks - Equal Space: addressing gender gaps with GIS, Asian Disaster Preparedness Center (2022)
- Addressing Fiery Needs: How SERVIR-Mekong Brings NASA Air Quality Data Down to Earth, AMS, Annual Meeting Online (2022)
- Panelist, Satellite Data as Decision-making Tools for Infrastructure Planning through Climate-sensitive Challenges. Side Event: Applying New Integrated Resources Planning and Data Visualization into Sustainable Power Planning, Asia Clean Energy Forum 2021 (2021)
- Panelist, Learning Session: Harnessing Earth Observations for Making Programmatic Decisions and Responding to Flooding Events Around the World, InterAction Forum, Virtual (2021)
- SERVIR Service Planning Toolkit, Lunch-and-Learn Webinar Series, Earth Science Division, NASA (2020)
- Automated Multi-Sensor Near-Real Time Flood Monitoring in the Lower Mekong, 22nd EGU General Assembly, Virtual (2020)
- Air Quality from Space, Smog-a-thon Thailand 2020, Chiang Mai, Thailand (2020)
- Raining Data from the Cloud: Using Google Earth Engine for Flood Monitoring, Google Booth, AGU Fall Meeting, San Francisco, CA (2019)
- Raining Data from the Cloud: Leveraging Cloud-based Technology for Multi-sensor Flood Monitoring in Southeast Asia, AGU Fall Meeting, San Francisco, CA (2019)
- Water we going to do with all these data? Service development using interdisciplinary data for flood applications, AGU Fall Meeting, Washington D.C. (2018)
- "Risky Business": Risk Financing for Drought Resilience Applications, South and Southeast Asia Regional Drought Forum, Kathmandu, Nepal (2018)
- Using GIS to Investigate Land-Atmosphere Interactions Involved in Tornadogenesis, AMS Annual Meeting, Austin, TX (2018)
- Enabling Visualization and Geospatial Analysis of Atmospheric Science Data through Python, AMS Annual Meeting, Austin, TX (2018)

- Drowning in Data: Going Beyond Traditional Data Archival to Educate Data Users, AGU Fall Meeting, New Orleans, LA (2017)
- Developing a Knowledge Base for NASA Earth Science and Hydrologic Applications, CUAHSI Hydroinformatics Conference, Tuscaloosa, AL (2017)
- Visualize, Discover and Analyze: A Data Center's Innovative Services for Addressing Observing System Challenges, Poster 1037, AMS Annual Meeting, Seattle, WA (2017)
- Stimulating Remote Sensing Education through Knowledge Augmentation Services, Poster 191, AMS Annual Meeting, Seattle, WA (2017)
- A New Way to Explore Field Campaign Data, NASA Booth Flash Talk, AGU Fall Meeting, San Francisco, CA (2016)
- Earth Science Data Education through Cooking-up Recipes, AGU Fall Meeting, San Francisco, CA (2016)
- Field Campaign Explorer: Simultaneous Data Exploration, Discovery and Visualization, Paper IN53E, AGU Fall Meeting, San Francisco, CA (2016)
- Plenary Speaker, 2016 Raskin Scholar Presentation, ESIP Federation Summer Meeting, Durham, N.C. (2016)
- Providing Application-Driven GIS Education for Earth System Science, AMS Annual Meeting, New Orleans, LA (2016)
- Using GIS for Automated Near Real-time Storm Surge Inundation Mapping and Visualization for the Gulf of Mexico, AMS, Annual Meeting, New Orleans, LA (2016)
- Providing Geospatial Education and Real World Applications of Data across the Climate Data Initiative Themes, Paper PA13B-08, AGU Fall Meeting, San Francisco, CA (2016)
- Capturing Data Connections within the Climate Data Initiative to Support Resiliency, AGU Fall Meeting, San Francisco, CA (2016)
- Automated Flood Hazard Mapping Methods for Near Real-time Storm Surge Inundation and Vulnerability Assessment, AGU Fall Meeting, San Francisco, CA (2015)
- Yucatán Hurricane Hazard Assessment: A GIS Methodology for Modeling Hurricane Hazards, Paper 14B.3, AMS Annual Meeting, Phoenix, AZ (2015)
- Enhancing Disaster Planning Techniques and Assessing Potential Loss through an Automated GIS-based Storm Surge Product, 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)

Support Awarded

Evaluation of ICEYE SAR products for flood extent mapping in the Lower Mekong region

- Supporting Organization: ESA Third Party Missions scheme
- Awarded: Access to ESA 8 ICEYE/SAR (X-band) Stripmap products, 4 ICEYE/SAR (X-band) Spotlight products
- PI: Arjen Haag | Role: Co-Investigator

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

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

University Cooperative Graduate Student Research Program

- Supporting Organization: University of Alabama in Huntsville, Office of Vice President for Research
- Period: August 21, 2014 – December 21, 2014
- Awarded Budget: \$13,036
- PI: Robert Griffin | Role: Co-Investigator, Graduate Research Assistant

Teaching and Mentorship

- Instructor, AES 402/502 Scientific and Societal Impacts of Natural Disasters, Dept. of Atmospheric and Earth Science, Univ. of Alabama-Huntsville (Fall 2017 – 2022)
- Masters Committee Member, Biplov Bhandari: NASA SERVIR-Mekong GRA, Dept. of Atmospheric and Earth Science, Univ. of Alabama-Huntsville (2020 – 2022)
- Masters Committee Member, Claire Nauman: NASA SERVIR-Mekong GRA, Dept. of Atmospheric and Earth Science, Univ. of Alabama-Huntsville (2018 – 2020)
- Adviser, Nicole Dougherty: Earth System Science Undergraduate Research Capstone, Dept. of Atmospheric Science, Univ. of Alabama-Huntsville (Spring 2019)
- Intern Mentor, Helen Eifert: Improving Landslide Inventories with a focus on Myanmar, NASA Internship Program, MSFC (Summer 2018)
- Intern Mentor, 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

- Convener, Climate and Natural Disaster Risk Management for Human-Natural Systems, AGU Fall Meeting, Chicago, IL (2022)
- Session Chair, Climate Risk Management for Human-Natural Systems, AGU Fall Meeting, New Orleans, LA (2021)

- Convener, Implementing Earth Observations in South and Southeast Asia To Address Environmental Challenges, Global Environmental Change, AGU Fall Meeting, New Orleans, LA (2021)
- Member, NASA TROPICS Mission Applications Working Group, NASA (2017 – Present)
- Reviewer, ISPRS International Journal of Geo-Information (2021)
- Convener, Implementing Earth Observations in South and Southeast Asia To Address Environmental Challenges, Global Environmental Change, AGU Fall Meeting, Virtual (2020)
- Convener, User Interface/User eXperiences (UI/UX) opportunities, SERVIR Annual Global Exchange, Siem Reap, Cambodia (2020)
- Convener, Numerical Weather Prediction in applications across themes, SERVIR Annual Global Exchange, Siem Reap, Cambodia (2020)
- Convener, Deepening Impact Across the Network: Weather and Climate, SERVIR Annual Global Exchange, Siem Reap, Cambodia (2020)
- Moderator, Session 6: Social components of EWSs, communicating risks, and community-based forecasting, Regional Knowledge Forum on Early Warning for Flood and High Impact Weather Events, Kathmandu, Nepal (2019)
- Convener, Free and Open-Source Technologies for Advancing Earth and Space Sciences, Earth and Space Science Informatics, AGU Fall Meeting, Washington, D.C. (2018)
- Convener, Weather and Climate Service Sustainability, SERVIR Annual Global Exchange, Lisbon, Portugal (2018)
- Convener, Numerical Weather Modeling, Technical Mini-Exchange, SERVIR Annual Global Exchange, Lisbon, Portugal (2018)
- Convener, Disaster Strategy, Technical Mini-Exchange, SERVIR Annual Global Exchange, Lisbon, Portugal (2018)
- Convener, 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)
- Convener, 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)
- 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 Systems 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/ArcPro 9-10x (Spatial Analyst, 3D Analyst, Geostatistical Analyst, Network Analyst, ArcPy, ArcServer), ENVI Classic 4-5x (Fx, Feature Extraction Module), ERDAS Imagine, QGIS, Google Earth Engine
- Meteorological Software: Campbell Scientific Mesonet, Gibson Ridge (Level 3, Level 2 Analyst), RadarScope
- Amateur Radio Operator: License KK4RDG

Web Resources and Articles Developed

Micro Articles

- 2019: Atmospheric Rivers, Micro Article, Global Hydrology Resource Center DAAC, NASA. URL: <https://ghrc.nsstc.nasa.gov/home/micro-articles/atmospheric-rivers>
- 2018: Assessing Wind and Rain in Hurricane Ingrid during Hurricane and Severe Storm Sentinel (HS3) Field Campaign, Micro Article, Global Hydrology Resource Center DAAC, NASA. URL: <https://ghrc.nsstc.nasa.gov/home/micro-articles/assessing-wind-and-rain-hurricane-ingrid-during-hurricane-and-severe-storm-sentinel>
- 2018: Earth Observations: Optical Transient Detector (OTD), Micro Article, Global Hydrology Resource Center DAAC, NASA. URL: <https://ghrc.nsstc.nasa.gov/home/micro-articles/earth-observations-optical-transient-detector-otd>
- 2018: Instrument: 2DVD Disdrometer, Micro Article, Global Hydrology Resource Center DAAC, NASA. URL: <https://ghrc.nsstc.nasa.gov/home/micro-articles/instrument-2dvd-disdrometer>
- 2018: Lightning, Micro Article, Global Hydrology Resource Center DAAC, NASA. URL: <https://ghrc.nsstc.nasa.gov/home/micro-articles/lightning>
- 2018: Lake Effect Snow, Micro Article, Global Hydrology Resource Center DAAC, NASA. URL: <https://ghrc.nsstc.nasa.gov/home/micro-articles/lake-effect-snow>
- 2018: Hurricane, Micro Article, Global Hydrology Resource Center DAAC, NASA. URL: <https://ghrc.nsstc.nasa.gov/home/micro-articles/hurricane>

Data Recipes and Code

- 2020: OTD Lightning Flash Location Quickview using Python 3.0 and GIS, Data Recipe, Global Hydrology Resource Center DAAC, NASA. URL: <https://ghrc.nsstc.nasa.gov/home/data-recipes/otd-lightning-flash-location-quickview-using-python-30-and-gis>
- 2019: HS3 CPL Attenuated Total Backscatter Quickview, Data Recipe, Global Hydrology Resource Center DAAC, NASA. URL: <https://ghrc.nsstc.nasa.gov/home/data-recipes/hs3-cpl-attenuated-total-backscatter-quickview>
- 2019: ISS LIS Lightning Flash Location Quickview using Python 2.7 and GIS, Data Recipe, Global Hydrology Resource Center DAAC, NASA. URL: <https://ghrc.nsstc.nasa.gov/home/data-recipes/iss-lis-lightning-flash-location-quickview-using-python-27-and-gis>
- 2019: HS3 HIWRAP Radar Reflectivity Profile Quick View, Data Recipe, Global Hydrology Resource Center DAAC, NASA. URL: <https://ghrc.nsstc.nasa.gov/home/data-recipes/hs3-hiwrap-radar-reflectivity-profile-quick-view>
- 2018: HS3 HAMSAR Radar Reflectivity Profile Data Subset Quick View, Data Recipe, Global Hydrology Resource Center DAAC, NASA. URL: <https://ghrc.nsstc.nasa.gov/home/data-recipes/hs3-hamsr-radar-reflectivity-profile-data-subset-quick-view>

- 2018: RSS DMSP SSM/I and SSMIS Gridded Ocean Product Quickview, Data Recipe, Global Hydrology Resource Center DAAC, NASA. URL: <https://ghrc.nsstc.nasa.gov/home/data-recipes/rss-dmsp-ssmi-and-ssmis-gridded-ocean-product-quickview>