Jessica V. Fayne

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Education

2022	Ph.D., Geography, University of California, Los Angeles (advisors: Laurence C. Smith; Dennis P. Lettenmaier)
2015	M.S. Geography and Geoinformation Science, George Mason University (advisors: Matthew Rice; Sven Fuhrmann)
2011	Grad Cert., School of International Service, American University
2010	B.A., Political Science, Hampton University

Professional Positions

2023/2024	Assistant Professor (tenure-track) Following Joint Fellowship Appointments: LSA Collegiate Fellowship and the President's Postdoctoral Fellowship, Department of Earth and Environmental Sciences, University of Michigan
2022	Postdoctoral Researcher, Department of Electrical Engineering, University of Southern California
2017	Research Intern, Terrestrial Information Systems, NASA Goddard Space Flight Center (NASA-GSFC)
2016-2017	Research Associate- NASA Applied Remote Sensing Training (ARSET)- Joint Center for Earth Systems Technology (JCET), University of Maryland Baltimore County (UMBC)
2015-2017	Research Associate- Water Resources- School of Earth, Ocean and Environment, University of South Carolina
2014-2016	Geospatial Consultant -NASA DEVELOP- Applied Sciences Laboratory, NASA Goddard Space Flight Center (NASA-GSFC)
2014	Hydrology Intern, Hydrological Sciences Laboratory, NASA Goddard Space Flight Center (NASA-GSFC)

Visiting Positions

2017-2023	Visiting Researcher Radar Science and Engineering - Data Production and Analysis, NASA Jet Propulsion Laboratory (NASA-JPL)

Honors and Awards

Year	Award	Amount
2021	Best Student Oral Presentation (3rd) - Canadian Symposium on Remote Sensing	$250
2020-2022	Future Investigators in NASA Earth and Space Science and Technology (FINESST) *"Analysis of Ka-band Radar for SWOT Hydrology"*	$135k
2019	Outstanding Student Presentation Award (OSPA), American Geophysical Union (AGU Fall Meeting) *"Surface Water Detection and Retrieval from AirSWOT"*	$200
2018	Research Incubator Award, Earth Science Information Partners (ESIP), *"Design, Build, and Deploy a Traveling Water Monitoring Station"*	$5k
2017	Research Fellowship, Earth Science Information Partners	$2k
2017	NASA- John Mather Nobel Scholarship Award (2nd time winning)	$3k
2017	Eugene V. Cota-Robles Fellowship, UCLA Tuition and Stipend 1st and 4th Year	$90k
2016	ASPRS Presidential Citation, American Society of Photogrammetry and Remote Sensing *"Developing the New ASPRS Awards Interface and Review Process"*	[-]
2015	Geospatial Intelligence (GEOINT) Student Travel Award, United States Geospatial Intelligence Foundation (USGIF)	$500

2014	NASA- John Mather Nobel Scholarship Award (1st time winning)	$3k
2014	AGU Student Travel Scholarship, American Geophysical Union Fall Meeting	$500
2014	ASPRS Geoleague Competition (1st Place, Team)	[-]
2013	GIS Day Mapping Competition (1st Place), George Mason University	[-]

Editorial and Professional Service

2024 **Co-Organizer and Co-Chair**, 2 Sessions in Hydrology, Cryosphere and Near Surface Geophysics, American Geophysical Union (AGU) Fall Meeting
1) *The Surface Water and Ocean Topography (SWOT) Mission: New Frontiers in Hydrology*
2) *Advances in Active Remote Sensing for Hydrology and Terrestrial Ecosystems*

2023 **Co-Organizer and Co-Chair**, 2 Sessions in Hydrology, Cryosphere and Near Surface Geophysics, American Geophysical Union (AGU) Fall Meeting
3) *The Surface Water and Ocean Topography (SWOT) Mission: A New Satellite for Earth's Water Cycle*
4) *Advances in Active Remote Sensing for Hydrology and Terrestrial Ecosystems*

2022 **Co-Organizer and Co-Chair**, 3 Sessions in Hydrology, Cryosphere and Near Surface Geophysics, American Geophysical Union (AGU) Fall Meeting
1) *The Surface Water and Ocean Topography (SWOT) Mission: A New Satellite for Earth's Water Cycle*
2) *Advances in Active Remote Sensing for Hydrology and Terrestrial Ecosystems*
3) *Remote Sensing of Earth's Northern Landscapes*

2022-Present **Member,** 2 AGU Hydrology Technical Committees
1) *Hydrogeophysics*
2) *Remote Sensing*

2022-Present **Review Editor,** Frontiers in Remote Sensing: Microwave Remote Sensing ---Working to launch a special issue for Women in MRS, with sponsor-supported publication fees

2022 **Organizer and Chair**, 2 Sessions for the American Association of Geographers (AAG) Annual Meeting,
1) *Surface Water Remote Sensing 1*
2) *Surface Water Remote Sensing 2*

2022 **Co-Organizer and Co-Chair**, IEEE International Geoscience and Remote Sensing Symposium (IGARSS) *Radar Techniques and Sensor Fusion for Characterizing Arctic Change*

2021 **Co-Organizer and Co-Chair**, 2 Sessions IEEE International Geoscience and Remote Sensing Symposium (IGARSS)
1) *Multi-band, Multi-sensor, and Polarimetric Radar Techniques for Permafrost Characterization*
2) *Remote Sensing in Inland Waters II*

2021 **Organizer and Chair**, 2 Sessions for the American Association of Geographers (AAG) Annual Meeting,
1) *Surface Water Remote Sensing 1*
2) *Surface Water Remote Sensing 2*

2017-2019 **Member and Community Fellow,** "Disasters Cluster" (Natural Disasters Data Preparedness), Earth Science Information Partners (ESIP)

2016-2018 **Member,** Website and Media Working Group, American Society of Photogrammetry and Remote Sensing (ASPRS)

2016-2018 **Chair,** Early Career Professionals Council, American Society of Photogrammetry and Remote Sensing (ASPRS)

2015-2018 **Coordinator,** Scholarship and Awards Program, American Society of Photogrammetry and Remote Sensing (ASPRS)

2015-2016 **Communications Advisor,** Early Career Professionals Council, American Society of Photogrammetry and Remote Sensing (ASPRS)

2015 **Member,** Organizing Committee, ASPRS Potomac Region "GeoTech" Conference

2013-2015 **Councilor,** Communications, Student Advisory Council, American Society of Photogrammetry and Remote Sensing (ASPRS)

Departmental Service

2020-2021 **Member, Draft Writer,** UCLA Geography Task Force On Racial and Gender Equity, Inclusiveness, and Support

Invited Lectures & Talks

Planned 2024	Department of Geography and Geographic Information Science, University of Illinois Urbana-Champaign
Planned 2024	Department of Physical Geography, Stockholm University
Apr 2024	Institute for Geodesy and Geoinformation (IGG), Astronomical, Physical and Mathematical Geodesy (APMG), University of Bonn, Germany
Feb 2024	Department of Civil and Environmental Engineering, University of Wisconsin-Madison
Apr 2023	Department of Geosciences, Virginia Polytechnic University (Virginia Tech)
Mar 2023	Department of Climate and Space Sciences and Engineering, University of Michigan
Mar 2023	Molecular Frontiers Foundation, University of California, Berkeley, Symposium on the Nature of Water
Dec 2022	Fall AGU Meeting, Chicago "*Anticipating SWOT Water and Wetland Phenomenology using Airborne Ka-band SAR from AirSWOT*"
Sept 2022	Center for Global Change Science, University of Toronto (online)
June 2022	The Surface Water and Ocean Topography (SWOT) Science Team Meeting
Dec 2021	Department of Engineering, University of Virginia

Broader Impacts and Community Outreach

2022	**Invited Speaker*** Girls in Technology (GIT) Washington, DC Metro Area. "Women of NASA/ Women in Physical Science"
2021	**Invited Guest Lecturer*** Sisters of SAR: A 5 - Day SAR Remote Sensing Course: "Introduction to Interferometric Synthetic Aperture Radar"
2020	**Letter Writer/Organizer**, UCLA Geography Task Force on Racial and Gender Equity, Inclusiveness and Support
2018-2020	**Instructor** for R Programming for GIS and Remote Sensing, NASA DEVELOP Software Carpentries Training
2017	**Invited Speaker*** Girls in Technology (GIT) Washington, DC Metro Area. "Shining Figures: Women of NASA/ Women in Earth Science and GIS"
2017	**Instructor** for Satellite Precipitation Analysis with GPM data using QGIS, NASA Applied Remote Sensing Training

Course Instruction and Grading (Teaching Assistant-TA and Grader-G, Visiting Lecturer/TA-V)

Year	Term	Course	Format	Role	Title	Credits	Students
2020	Spring Quarter	**UCLA-GEOG104**	Virtual	G	Climatology: Boundary Layer Climates	4	95
2019	Winter Quarter	**UCLA-GEOG169**	Lecture/Lab	TA/G	Introduction to Remote Sensing	4	25
2015	Fall Quarter	**Stanford-GEOPHYS199**	Lecture/Lab	V	Senior Seminar: Issues in Earth Sciences: Observing Freshwater	3	~12

Research Grants

Current Grants *(PI- Authority Awarded in July 2022)*

2023-2025	**Co-I**, NASA Commercial Satellite Data Acquisition Program (PI: Sarah Cooley, U. Oregon) *"Evaluating the capabilities of ICEYE radar imagery for surface water mapping"*
2023-2025	**Co-I**, NASA Commercial Satellite Data Acquisition Program (PI: Sarah Cooley, U. Oregon) *"Evaluating the capabilities of Capella Space radar imagery for surface water mapping"*

Pending Grants *(PI- Authority Awarded in July 2022)*

2024-2028	**PI-** NASA Surface Water and Ocean Topography (SWOT) Science Team SWOT Phenomenology Studies for Water and Wet-Land Surfaces
2024-2028	**Co-I** NASA Surface Water and Ocean Topography Science Team (PI: Eric Anderson, Colorado S.Mines) Improvement of Lake Representation in Operational Weather Forecasting Using SWOT
2024-2026	**Co-I** NASA Soil Moisture Active-Passive Mission Science Team (PI: Xiaodong Huang, NASA-JPL) "Towards Operational Global High-Resolution Soil Moisture Retrieval Integrating Recurrent Deep Learning Framework and Radiative Transfer Models"

Past Grants

2023	**PI -** NASA Spaceflight (Mission Director) Training *"Aerodynamic Resistance Constellation for Evapotranspiration (ARC-ET)"*
2020-2022	**FI**, NASA Future Investigators in Earth and Space Science and Technology (PI: Laurence C. Smith) "Analysis of Ka-band Radar for SWOT Hydrology"

Dissertation Committee Member
University of Michigan

Betty Jahateh	Ph.D.	*Coastal Vegetation (PhD Expected in 2029)*
Gary Bowen	M.S.	*Urban Flooding (MS Expected in 2026)*

External Committee Member

Molly Stroud	Virginia Polytechnic Institute and State University (Virginia Tech) (Ph.D. Expected 2025; Advisor, George Allen)
Kica Solomon	University of North Carolina, Chapel Hill (Ph.D. Expected 2027; Advisor, Tamlin Pavelsky)
Phyllis Ang-E-Mwin Gyang	Michigan State University (Ph.D. Expected 2027; Advisor, Leo Zulu)

Undergraduate Students Advised or Co-Advised

Felix Yu
2024-Present
"Land Cover Analysis using High-Frequency Radar Imagery"
University of Michigan: Undergraduate, Junior Year

Kelly Bonnville-Sexton
2023-Present
"Quantifying Open Water Dynamics from High Frequency Radar"
University of Oregon: Masters Thesis (co-advised with Sarah C. Cooley)

Duncan Jurayj
2022-Present
"Characterizing Vegetation Structure Using Full-Waveform LiDAR and Optical Data from LVIS and Landsat: Land Vegetation Component"
AND
"Retrievals of the VOD to VWC Scaling Factor through Vegetation Structural Analysis"
Brown University: Undergraduate Junior and Senior Year, Senior Thesis

Former Students

Rebecca Bowers
2022-2024
"Using High Resolution Remotely Sensed Data to Assess the Spatiotemporal Dynamics of the Fire Weather Index in Alaska (1980-2020)"
AND
"Characterizing Vegetation Structure Using Full-Waveform LiDAR and Optical Data from LVIS and Landsat: Aquatic Vegetation Component"
Brown University: Undergraduate Junior and Senior Year, Senior Thesis
Now: Teaching Fellow-Math and Science, Phillips Academy Andover

Miriam Bartleson
2023-2024
"Assessing the Variability of Green Space Availability Across Diverse Demographics in 10 Metropolitan Statistical Areas in the US "
University of Michigan: Undergraduate Senior Year, Senior Thesis
Now: Masters Student, University of Wisconsin, Madison--Geography

Former Students

Carolyn Lober	"*Bias Correction of 20 Years of IMERG Satellite Precipitation Data over Canada and Alaska*"
2021-2023	**Brown University** Undergraduate Senior Year, Senior Thesis
	Now: Intern, Flathead Lake Biological Station, Big Sky Watershed Corps, Montana Conservation Corps
Caitlin Tran	"*Unsupervised Classification for Landslide Detection from Airborne Laser Scanning*"
2017-2019	**California State Polytechnic University –Pomona** Senior Thesis (co-advised with Omar Mora)
	Now: Surveyor at BWE Inc.

Publications *(* Denotes Mentored Paper)*
Published and Under Review

1. *Jurayj D, Bowers R, **Fayne JV**. "Phenology and Plant Functional Type Link Optical Properties of Vegetation Canopies to Patterns of Vertical Vegetation Complexity" *MDPI Remote Sensing (In Revision)*
2. **Fayne JV,** Smith LC. "How does wind influence near-nadir Ka-Band radar backscatter and interferometric coherence returns from small inland water bodies?" *MDPI Remote Sensing* *https://doi.org/10.3390/rs15133361*
3. Wang B, Smith LC, Kyzivat ED, **Fayne JV**., Harlan M, Langhorst T, Feng D., et al. 2023 "Athabasca River Avulsion Underway in the Peace‑Athabasca Delta, Canada" *Water Resource Research* *https://10.1029/2022WR034114*
4. Bakian-Dogaheh K., **Fayne JV**., Chen RH., Yi Y., Kimball JS., Moghaddam M. 2022 "Empirical Models for Predicting Soil Water Dielectric Behavior Using Hydrologic Properties of Permafrost Soils" *Geophysical Research Letters* (*In Revision*)
5. Goldstein SV, Ryan JC, How PR, Esenther SE, Pitcher LH, Lewinter AL, Overstreet B, Kyzivat EK, **Fayne JV**, Smith LC. 2022 "Proglacial river stage derived from georectified time-lapse camera images, Inglefield Land, Northwest Greenland" *Frontiers in Earth Science: Cryospheric Sciences Methods* *https://doi.org/10.3389/feart.2023.960363*
6. *Lober C, **Fayne JV**, Smith LC, Hashemi H. 2023. "Bias Correction of 20 Years of IMERG Satellite Precipitation Data over Canada and Alaska", *Elsevier Journal of Hydrology: Regional Studies* *https://doi.org/10.1016/j.ejrh.2023.101386*
7. **Fayne JV**, Smith LC, Liao T-H, Pitcher LH, Denbina M, Chen AC, Simard M, Chen CW, Williams BA. 2023 "Characterizing Near-Nadir and Low Incidence Ka-Band SAR Backscatter from Wet Surfaces and Diverse Land Covers" IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing *https://doi.org/10.1109/JSTARS.2023.3317502*
8. Pirmoradian R., Hashemi H., **Fayne JV**. 2022. "Performance Evaluation of IMERG and TMPA daily precipitation products over CONUS (2000-2019)". *Elsevier Atmospheric Re*search *https://doi.org/10.1016/j.atmosres.2022.106389*
9. Huang C, LC Smith, Kyzivat ED, **Fayne JV**, Ming Y, Spence C. 2022 "Tracking transient Arctic-Boreal wetland inundation from Sentinel-1 SAR" *GIScience and Remote Sensing*. *https://doi.org/10.1080/15481603.2022.2134620*
10. Kyzivat EK, Smith LC, Tigeros FG, Huang C, Wang C, Langhorst T, **Fayne JV**, Harlan M, Ishitsuka Y, Feng D, Dolan W, Pitcher LH, Pavelsky TM, Butman D, Wickland K, Dornblaster MM, Streigl R, Gleason CJ. 2022. "The Importance of Lake Emergent Aquatic Vegetation for Estimating Arctic-Boreal Methane Emissions." *Journal of Geophysical Research: Biogeosciences. https://doi.org/10.1029/2021JG006635*
11. Huang H, Fischella M, Liu Y, Ban Z, **Fayne JV**, Li D, Cavanaugh K, Lettenmaier DP. 2022 "Changes in mechanisms and characteristics of Western U.S. floods over the last sixty years" *Geophysical Research Letters https://doi.org/10.1029/2021GL097022*
12. **Fayne JV**, and LC Smith. "Characterization of Near-Nadir Ka-Band Scattering From Wet Surfaces," in *IGARSS 2021 - 2021 IEEE International Geoscience and Remote Sensing Symposium*, https://doi.org/10.1109/IGARSS47720.2021.9553413
13. Pitcher LH, Smith LC, Cooley SW, Zaino A, Carlson R, Pettit J, Gleason CJ, Minear TJ, **Fayne JV**, et al. 2020 "Advancing field-based GNSS surveying for validation of remotely sensed water surface elevation products". *Frontiers in Earth Science*. https://doi.org/10.3389/feart.2020.00278
14. Cooper MG, Smith LC, Rennermalm AK, Tedesco M, Muthyala R, Leidman SZ, Moustafa SE, **Fayne JV**. 2020 "First spectral measurements of light attenuation in Greenland Ice Sheet bare ice suggest shallower subsurface radiative heating and ICESat-2 penetration depth in the ablation zone" *The Cryosphere*. https://doi.org/10.5194/tc-2020-53
15. **Fayne JV**, Smith LC, Pitcher LH, Kyzivat ED, Cooley SW, Denbina MW, Chen AC, Chen CW, Pavelsky TM. 2020 "Airborne Observations of Arctic-Boreal Water Surface Elevations from AirSWOT Ka-band InSAR and LVIS LiDAR" *Environmental Research Letters*. https://doi.org/10.1088/1748-9326/abadcc
16. Hashemi, H, **Fayne JV**, Lakshmi V, Huffman G. 2020 "Very high resolution, altitude-corrected, TMPA-based monthly satellite precipitation product over the CONUS" *Nature Scientific Data https://doi.org/10.1038/s41597-020-0411-0*
17. *Tran C, Mora O, **Fayne JV**. 2019 "Unsupervised Classification for Landslide Detection from Airborne Laser Scanning"*, Geosciences* https://doi.org/10.3390/geosciences9050221

18. **Fayne, JV**, Ahamed, A, Roberts-Pierel, J, Rumsey, A. 2019 "Automated Satellite-Based Landslide Identification Product for Nepal" *Earth Interactions* https://doi.org/10.1175/EI-D-17-0022.1

19. Pitcher LH, Pavelsky TM, Smith LC, Moller DK, Altenau EH, Allen GH, Lion C, Butman D, Cooley SW, **Fayne JV,** Bertram M "AirSWOT InSAR Mapping of Surface Water Elevations and Hydraulic Gradients Across the Yukon Flats Basin, Alaska" *Water Resources Research* https://doi.org/10.1029/2018WR023274

20. Kyzivat ED, Smith LC, Pitcher LH, **Fayne JV**, Cooley SW, Cooper MG, Topp SN, Langhorst T, Harlan ME, Horvat C, Gleason CJ, Pavelsky TM. 2019 "A High-Resolution Airborne Color-Infrared Camera Water Mask for the NASA ABoVE Campaign" *Remote Sensing*. https://doi.org/10.3390/rs11182163

21. Lakshmi, V, **Fayne, JV**, Bolten, JD. 2018 "A comparative study of available water in the major river basins of the world" *Journal of Hydrology* https://doi.org/10.1016/j.jhydrol.2018.10.038

22. *Mora, OE, Lenzano MG, Toth CK, Grejner-Brzezinska DA, **Fayne JV**. 2018 "Landslide Change Detection Based on Multi-Temporal Airborne LiDAR-Derived DEMs." *Geosciences: Special Issue of Natural Hazards and Risks Assessment*. https://doi.org/10.3390/geosciences8010023

23. Shortridge AM, **Fayne JV**, Rice MT. 2017. "Modeling Uncertainty in Digital Elevation Models." International Encyclopedia of Geography: People, the Earth, Environment and Technology. https://doi.org/10.1002/9781118786352.wbieg1153

24. **Fayne JV**, Bolten JD, Doyle CS, Fuhrmann S, Rice MT, Houser Paul, R, Lakshmi V. 2016. "Flood mapping in the lower Mekong River Basin using daily MODIS observations." *International Journal of Remote Sensing*. https://doi.org/10.1080/01431161.2017.1285503

25. **Fayne JV**, Fuhrmann S, Rice MT, and Rice RM. 2015. "Exploring Alternative Map Products To Enhance Transportation Option Awareness." *Cartography And Geographic Information Science* 1-13. https://doi.org/10.1080/15230406.2015.1053826.

Other Publications

1. Ahamed A, Bolten JD, Doyle CS, **Fayne JV**. 2017 "Near real-time flood monitoring and impact assessment systems", Remote Sensing of Hydrological Extremes https://doi.org/10.1007/978-3-319-43744-6_6

2. Clayton A, **Fayne JV**, Green C, Tomlin J. 2017. "Utilizing NASA Earth Observations to Map Temporal and Spatial Patterns of Annual Bromes for Prairie Management and Invasive Species Control in the Northern Great Plains" Weber, Samantha, ed. Connections Across People, Place, and Time: Proceedings of the 2017 George Wright Society Conference on Parks, Protected Areas, and Cultural Sites. Hancock, Michigan: George Wright Society. http://www.georgewright.org/proceedings2017

3. **Fayne JV**, Bolten JD, Lakshmi V, Ahamed A. 2016 "Optical and Physical Methods for Mapping Flooding with Satellite Imagery", Remote Sensing of Hydrological Extremes https://doi.org/10.1007/978-3-319-43744-6_5

4. Lakshmi, V, Bindlish R, **Fayne JV**, Huffman G, Jackson T, Kirschbaum D, Skofronick-Jackson G, and Yueh S, Mapping the 2015 South Carolina flood using SMAP and GPM, GEWEX Newsletter, Vol. 26, No. 2, pp. 6-10, 2016 https://www.gewex.org/gewex-content/files_mf/1463600503May2016.pdf

5. Rice MT, Paez FI, Rice RM, Ong EW, Qin H, Seitz CR, **Fayne JV**, Curtin KM, Fuhrman S, Pfoser D, Medina RM. 2014. "Quality Assessment and Accessibility Applications of Crowdsourced Geospatial Data: A Report on the Development and Extension of the George Mason University Geocrowdsourcing Testbed" Defense Technical Information Center Report http://www.dtic.mil/dtic/tr/fulltext/u2/a615952.pdf

6. Rice MT, Curtin KM, Pfoser D, Rice RM, Fuhrman S, Qin H, Vese RD, Ong EW, **Fayne JV**, Paez FI, Seitz CR, Rice MA, Yu M, Ober SJ, Rice CA. 2015. "Social Moderation and Dynamic Elements in Crowdsourced Geospatial Data: A Report on Quality Assessment, Dynamic Extensions and Mobile Device Engagement in the George Mason University Geocrowdsourcing Testbed" Defense Technical Information Center Report http://oai.dtic.mil/oai/oai?verb=getRecord&metadataPrefix=html&identifier=AD1001943

7. **Fayne JV**. 2014. George Mason University Cloth Bike Map. Fairfax. George Mason University

Published Datasets

1. Lober, C, **Fayne JV**. 2022. "Bias-Corrected IMERG Monthly Precipitation Data for Canada and Alaska, 2000-2020." ORNL DAAC, Oak Ridge, Tennessee, USA. https://doi.org/10.3334/ORNLDAAC/2097

2. Kyzivat ED, Smith LC, Pitcher LH, **Fayne JV**, Cooley SW, Cooper MG, Topp S, Langhorst T, Harland ME, Gleason CJ, Pavelsky TM. 2020 "ABoVE: AirSWOT water masks from color-infrared imagery over Alaska and Canada, 2017" ORNL DAAC, Oak Ridge, Tennessee, USA. https://doi.org/10.3334/ORNLDAAC/1643

3. **Fayne JV**, Hashemi H. 2019, "High-Resolution Altitude Corrected Precipitation based on TMPA and other sources L4 Monthly 1 km x 1 km V1", Edited by David Silberstein, Greenbelt, MD, Goddard Earth Sciences Data and Information Services Center (GES DISC), https://doi.org/10.5067/8115OXI2F5SB

4. **Fayne, JV**, Smith LC, Pitcher LH, and Pavelsky TM. 2019. "ABoVE: AirSWOT Ka-band Radar over Surface Waters of Alaska and Canada, 2017". ORNL DAAC, Oak Ridge, Tennessee, USA. https://doi.org/10.3334/ORNLDAAC/1646

Conference Presentations (Presenting, First-Author Only)

2024
1. **Fayne JV** [*sole author*] SWOT Phenomenology for Lakes and Wet-Lands, IEEE International Geoscience and Remote Sensing Symposium (IGARSS), Athens, Greece July 2024
2. **Fayne JV** [*sole author*] Climate Change Studies through SWOT Phenomenology Research, European Geoscience Union (EGU), Vienna, Austria, April 2024
3. **Fayne JV** [*sole author*] A Framework for Studying Novel SWOT Observations with AirSWOT Ka-band Phenomenology from Delta-X and ABoVE Flight Campaigns, Honolulu, Hawaii, February 2024
4. **Fayne JV** et al., Passive L-band GNSS-R and Active C- and Ka-band Radar Inland Water Wind Speeds IEEE National Radio Science Meeting, Boulder, Colorado, January 2024

2023
5. **Fayne JV** et al., Fusing SWOT, NISAR, and GEDI for Vegetation Water and Soil Moisture Profiles, AGU Annual Meeting, San Francisco, December 2023
6. **Fayne JV** [*sole author*]. Inland Water Inundation Extent and Wind Speeds from Passive L-band GNSS-R and Active C-and Ka-band Radar. IEEE International Conference on Electromagnetics in Advanced Applications Venice, Italy, October 2023
7. **Fayne JV** et al., Vegetation Water Content and Soil Moisture Profiles from Multi-Frequency Radar Observations, IEEE International Geoscience and Remote Sensing Symposium, Pasadena, July 2023
8. **Fayne JV** et al., Multi-Scale DEM and Image Analysis for Hydrogeomorphology Studies, The Southern California Geomorphology Symposium, Santa Barbara, California May 2023

2022
9. **Fayne JV** et al., Utilizing multiple-frequency SAR observations for monitoring hydrological and ecological characteristics: A study of UAVSAR and AirSWOT airborne data from ABoVE, AGU Annual Meeting 2022
10. **Fayne JV** et al., Anticipating SWOT Water and Wetland Phenomenology using airborne Ka-band SAR from AirSWOT (Invited), AGU Annual Meeting 2022
11. **Fayne JV** et al., Diverse Utility of SWOT Water Extent, Elevation, and Backscatter Measurements, AGU Annual Meeting 2022
12. **Fayne JV** et al., Characterizing Wetlands Using Ka-band Radar and the KaPS/KaRWL Model, 43rd Canadian Symposium on Remote Sensing, Montreal City/Online, July 2022
13. **Fayne JV** *[sole author].* Towards a Methodology for Monitoring Topographic Change and Slope Instability using Remotely Sensed Canopy Geometry, The Southern California Geomorphology Symposium, Irvine, California, April 2022

2021
14. **Fayne JV** et al., Impacts of the atmosphere on Ka-band radar backscatter returns from land and water surfaces, AGU Annual Meeting, New Orleans/Online, December 2021
15. **Fayne JV** et al., Characterizing AirSWOT Ka-band SAR Backscatter to Support SWOT Surface Water Extent Retrievals, AGU Annual Meeting, New Orleans/Online, December 2021
16. **Fayne JV** et al., Characterization of Near-Nadir Ka-Band Scattering from Wet Surfaces, IEEE International Geoscience and Remote Sensing Symposium, Brussels/Online, July 2021
17. **Fayne JV** et al., The Quantification of Near-Nadir Ka-band Surface Scattering Characteristics, 42nd Canadian Symposium on Remote Sensing, Yellowknife/Online, June 2021
18. **Fayne JV** et al., Changes in mechanisms and intensity of Western US floods, 1960-2013, European Geoscience Union (EGU) General Assembly, Online, April 2021
19. **Fayne JV** et al., Radar Scattering from Water Surfaces: Introduction to the SWOT Mission, AAG Annual Meeting, Online, April 2021

2020
20. **Fayne JV** et al., Airborne Observations of Ka-band Radar Backscatter from AirSWOT Enable Vegetation and Water Detection, AGU Annual Meeting, Online, December 2020
21. **Fayne JV** et al., Airborne observations of Ka-band radar backscatter from AirSWOT enable vegetation and water detection in the Peace Athabasca Delta, 41st Canadian Symposium on Remote Sensing, Yellowknife/Online, June 2020

2019
22. **Fayne JV** et al., Airborne Arctic-Boreal Water Surface Elevation Observations from AirSWOT Ka-band InSAR and LVIS LiDAR, AGU Annual Meeting, San Francisco, December 2019
23. **Fayne JV** et al., Building an Operational Network to Validate Novel Inland Water Swath Altimetry, Earth Science Information Partners (ESIP) Winter Meeting, Bethesda MD, January 2019

2018
24. **Fayne JV** et al., Surface Water Detection and Elevation Retrieval from AirSWOT Airborne Ka-band Radar Interferometry, AGU Annual Meeting, Washington, DC, December 2018

25. **Fayne JV** et al., Differentiating wetland and open water surfaces using optical and SAR remote sensing, the 39th Canadian Symposium on Remote Sensing, Saskatoon, June 2018
26. **Fayne JV** et al., Historic Analyses of Thinning Ice and Melt Pond Identification in the Arctic Beaufort and Chukchi Seas, AGU Ocean Sciences Meeting, Portland Oregon, February 2018
27. **Fayne JV** et al., Updates on AirSWOT Flight Data Processing for SWOT Calibration & Validation, American Society for Photogrammetry and Remote Sensing (ASPRS) – International LiDAR Mapping Forum (ILMF), Denver, February 2018

2017

28. **Fayne JV** et al., Landslide Detection in the Carlyon Beach, WA Peninsula: Analysis of High-Resolution DEMs, AGU Annual Meeting, New Orleans, December 2017
29. **Fayne JV** et al., Predicting groundwater fluctuations in major global river basins: Case study of California and Mekong River Basins, Baltimore, March 2017

2016

30. **Fayne JV** et al., Predicting the variability of water resources in eleven global river basins using multivariate and decision tree analysis with satellite data, AGU Annual Meeting, San Francisco, December 2016
31. **Fayne JV** et al., Decreased Freshwater Storage Leading to the Intrusion of Saltwater and Organic Compounds, AAG Annual Meeting, Boston April 2016
32. **Fayne JV** et al., Predicting Water Resource Variability in the Major River Basins of the World Using Satellite and Model Data, ASPRS IGTF, Fort Worth TX, April 2016

2015

33. **Fayne JV** et al., Estimation of Variability in Water Resources in the Major River Basins of the World Using Satellite Data, AGU Annual Meeting, San Francisco, December 2015
34. **Fayne JV** et al., Real-Time Multi-Scale Mapping for Emergency Management, International Cartographic Conference, Rio de Janeiro, August 2015
35. **Fayne JV** et al., Validating Flood Mapping Products Using Elevation Model Comparison and Spectral Reflectance, United States Geospatial Intelligence Foundation (USGIF) GEOINT Symposium, Washington DC, June 2015
36. **Fayne JV** [*sole author*]. Improving the Longevity of LiDAR Datasets by Defining Potential Areas of Rapid Change, the International LiDAR Mapping Forum (ILMF), Denver, February 2015

2014

37. **Fayne JV** et al., Validating Flood Mapping Products Using a Digital Elevation Model Comparison Technique, AGU Annual Meeting, San Francisco, December 2014
38. **Fayne JV** et al. [*team*], Mapping Ecosystem Services Change in Coastal Belize Based on Landsat Data, ASPRS Annual Conference, Louisville, March 2014

2013

39. **Fayne JV** [*sole author*]. Indonesia: A Transit Study, George Mason University GIS Day, Fairfax VA, November 2013

Reviewing and Refereeing Activity
Journal Reviews

AGU Earth and Space Science, Hydrological Sciences Journal, Hydrology and Earth System Science, Applied Meteorology and Climatology, MDPI Remote Sensing, Nature Water

Proposal Reviews

National Aeronautics and Space Administration, NSF

Field Experience

2013 **WOEIP** West Oakland Environmental Indicators	Gentrification Processes and Land Ownership in West Oakland with UC Berkeley Department of City and Regional Planning	West Oakland, California
2015 **SMAPex-15** Soil Moisture Active Passive	SMAPex-15 Field Validation of 5 cm Depth Satellite Soil Moisture Products	Yanco, New South Wales, Australia
2018 **SWOT** Surface Water and Ocean Topography	Calibration and Validation Pre-Planning and Methodology Development Surveys	Saskatoon, Saskatchewan; Peace Athabasca Delta, Alberta, Canada
2019 **SWOT** Surface Water and Ocean Topography	Calibration and Validation Pre-Planning and Methodology Development Surveys	Peace Athabasca Delta, Alberta, Canada
2018-2019 **UAVSAR, AirSWOT, and SWOT**	Calibration and Validation Methods Development and Testing; Marsh Dynamics Assessment	Carpinteria Salt Marsh; Piute Ponds, California
2024 **SoilScape**	Long-term In Situ Soil Moisture Sampling (network developed by the University of Southern California, M. Moghaddam)	Alamosa, Colorado (San Luis Valley)

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