

J. MICHAEL JOHNSON

Curriculum Vitae · December 31, 2020

University of California, Santa Barbara, California · Department of Geography

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Keywords:

Geoinformatics (GIS); Hydroinformatics; Big Data Hydrology; Large Scale Modeling

EDUCATION

- | | |
|----------------------------------|--|
| March 2021
(Expected) | University of California, Santa Barbara, California (UCSB) <ul style="list-style-type: none">• Degree: PhD Candidate in Geography (ABD)• Advisor: Dr. Keith C. Clarke• Committee: Dr. Hugo Loaiciga, Dr. Kelly Caylor, David Blodgett• Emphasis: Modeling, Measurement, and Computation• Title: Spatial Challenges of 21st Century Water Resource Research |
| 2015 | California Polytechnic State University, San Luis Obispo, CA <ul style="list-style-type: none">• Degree: B.S. Anthropology & Geography• Honors: Cum Laude• Minors: Geographic Information Systems (GIS) for Agriculture
Water Science (Watershed Management Emphasis)
Statistics
Economics
Environmental Studies |

RESEARCH EXPERIENCE

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|-------------------------------------|--|
| Post-Doctoral
Researcher | Center for Spatial Studies, UCSB <ul style="list-style-type: none">• April 2021 (Offered Start) |
| Graduate Student | University of California, Santa Barbara, California (UCSB) <ul style="list-style-type: none">• I seek to bridge data-intensive computational geography with water resources research• Work with international and domestic collaborators across academia, the USGS, NCAR, and NOAA• Develop open source software to ease community access to big data• Served as research coordinator for the NOAA National Water Center Summer Institute• Helped author and am a primary data scientist on a multi-million dollar NSF-funded project• 10 peer-review articles; 2 in revision; 1 in review (8 first author)• 47 citations; h-index 4; i-index 1 |

PUBLICATIONS

Peer-Reviewed Journal Articles

- [10] **J.M. Johnson**, Keith C. Clarke. (2020). "An Area Preserving Method for Improved Categorical Raster Resampling". *Cartography and Geographic Information Science (In Press)*.
- [9] David Blodgett, **J.M. Johnson**, Mark Sondheim, Michael Wiecezorek, Nels Frazier. (2020). "Mainstems: A logical data model implementing mainstem and drainage basin feature types based on WaterML2 Part 3: HY-Features concepts". *Environmental Software & Modelling*. Available here. [↗](#)
- [8] Wens, M., Veldkamp, T., Mwangi, M., **J.M. Johnson**, Lasage, R., de Moel, H., Haer, T, and Aerts, J.C.J.H.. (2020). "Simulating small-scale agricultural adaptation decisions in response to drought risk: an empirical agent-based socio-hydrologic drought risk model for semi-arid Kenya". *Frontiers in Water*. Available here. [↗](#)
- [7] Keith C. Clarke, **J.M. Johnson**. (2020). "Calibrating SLEUTH with Big Data: Projecting California's Land Use to 2100". *Computers, Environment and Urban Systems*. Available here. [↗](#)
- [6] Keith C. Clarke, **J.M. Johnson**, Tim Trainor. (2019). "Contemporary American Cartographic Research: A Review and Prospective". *Cartography and Geographic Information Science*. Available here. [↗](#)
- [5] **J.M. Johnson***, Marthe Wens*, Cecilia Zagaria, T.I.E Veldkamp. (2019). "Integrating human behavior dynamics into drought risk assessment - A socio-hydrologic, agent-based approach". *WIREs Water (*co-first author)*. Available here. [↗](#)
- [4] **J.M. Johnson**, Dinuke Munasinghe, Damilola Eyelade, Sagy Cohen. (2019). "An Integrated Evaluation of the National Water Model (NWM) Height Above Nearest Drainage (HAND) Flood Mapping Methodology". *Natural Hazards and Earth System Sciences*. Available here. [↗](#)
- [3] H.A. Loaiciga, **J.M. Johnson**. (2018). "Infiltration on sloping terrain and its role on runoff generation and slope stability". *Journal of Hydrology*. Available here. [↗](#)
- [2] **J.M. Johnson**, Jim M. Coll, Paul J. Ruess, and Jordan T. Hastings. (2018). "Challenges and Opportunities for Creating Intelligent Hazard Alerts: The 'FloodHippo' Prototype". *Journal of the American Water Resources Association (JAWRA)*. Available here. [↗](#)
- [1] **J.M. Johnson**, H.A. Loaiciga. (2017). "Coupled Infiltration and Kinematic-Wave Runoff Simulation in Slopes: Implications for Slope Stability". *Water*. Available here. [↗](#)

In Review Articles

- [3] **J.M. Johnson**, David L. Blodgett, Keith C. Clarke, Jon Pollack. (2020). "Optimized time series retrieval from the hourly 1993-2018 NOAA National Water Model Reanalysis Products". *Nature Scientific Data (In Revision)*.
- [2] **J.M. Johnson**, Damilola Eyelade, Keith C. Clarke, Justin Singh*. (2020). "Characterizing Roughness in Terrain Based Synthetic Rating Curves". *Water Resources Research (In Revision)*.
- [1] **J.M. Johnson**, Amir Mazrooei, A.Sankarasubramanian, Keith C. Clarke, Lilit Yeghiazarian. (2020). "Diagnosing performance in continental-scale, high-resolution, processed-based hydrologic models: The National Water Model". *JGR: Atmospheres (submitted for review: 2020-11-27)*.

Technical Reports

- [4] **J.M. Johnson**, [+22 others]. (2020). "Moving from Information to Insight by Linking Urban and Hydrologic Systems through the Urban Flooding Open Knowledge Network". *American Water Resources Association IMPACT Magazine: Geospatial Water Technology*.
- [3] **J.M. Johnson**, Coll J.M, et al. (2017). "National Water Centers Innovators Program Summer Institute Report". *Consortium of Universities for the Advancement of Hydrologic Science, Inc. Technical Report 14*. Available here. [↗](#)
- [2] Coll J.M, **J.M. Johnson**, Ruess P.J.. (2016). "Radar Measurement and Flow Modeling: Methods". *National Water Center Innovators Program Summer Institute Report. Consortium of Universities for the Advancement of Hydrologic Science, Inc. Technical Report 13, Ch 1*. Available here. [↗](#)
- [1] **J.M. Johnson**, Coll J.M, Ruess P.J.. (2016). "OPERA-Operational Platform for Emergency Response and Awareness: Reimagining Disaster Alerts". *National Water Center Innovators Program Summer Institute Report. Consortium of Universities for the Advancement of Hydrologic Science, Inc. Technical Report 13, Ch 11*. Available here. [↗](#)

Cartography

- [3] **J.M. Johnson**. (2017). "Map of Staats-Brabant indicating territories and boundaries c. 1648 [map]. Scale not given". *van de Meerendonk et al. Striving for Unity: The Significance and Original Context of Political Allegories by Theodoor van Thulden for 's-Hertogenbosch Town Hall. Early Modern Low Countries. Figure 6*. Available here. [↗](#)
- [2] **J.M. Johnson**. (2017). "Rising Sea Levels: Hawaii [map]. Scale not given". *Water: An Atlas. Oakland, CA: Guerrilla Cartography*.
- [1] **J.M. Johnson**. (2017). "Peoples and Regions of Africa [map]. Scale not given". *Cole, Herbert M. Maternity: Mothers and Children in the Arts of Africa, CT: Yale University Press*.

RESEARCH GRANTS

- | | | |
|-----|---------------------------------------|--|
| [6] | 2021-2022
(Approved start in Feb.) | Hydrologic Addressing Through a Spatial Data Lens
Role: Researcher, authored proposal
USGS Pathways Program
\$30,000 |
| [5] | 2020-2022 | The UFOKN: Delivering Flood Information to AnyOne, AnyTime, AnyWhere
Role: Lead Data Scientist, helped author proposal
National Science Foundation
\$2,853,561 |
| [4] | 2019-2020 | Convergence Accelerator Phase I (RAISE): The Urban Flooding Open Knowledge Network (UFOKN)
Role: Data Scientist
National Science Foundation
\$1,027,958 |

- [3] 2018-2019 **A National Water Model R Package: Improving access and application of model output**
 Role: Co-Principal Investigator, authored proposal
 UCAR COMET
 \$15,000

- [2] 2017-2018 **FOSSFlood: The LivingFlood Application Built on Free Open Source Software**
 Role: Contributor
 UCAR COMET
 \$5,000

- [1] 2017-2018 **Integrating farmers' adaptive behaviors in California's Central Valley to assess water and food security risks under climate change**
 Role: Co-Principal Investigator, authored proposal
 UCGHI Planetary Health Seed Grant
 \$10,000

FELLOWSHIPS

- [3] 2020-2021 **HydroInformatics Fellowship**
 Consortium of Universities for the Advancement of Hydrologic Science
 \$5,000

- [2] 2019-2020 **Jack and Laura Dangermond GIS Fellow in Residence**
 Jack and Laura Dangermond
 \$5,000

- [1] 2015-2016 **Disciplines Fellowship**
 University of California Regents
 \$30,000

SCIENTIFIC SOFTWARE

Author, Creator

- [6] **AOI** Fast & flexible geocoding and AOI creation [↗](#)
- [5] **climateR** Compiling gridded and observation climate data [↗](#)
- [4] **FloodMapping** Flood mapping using CFIM and the National Water Model [↗](#)
- [3] **nwmHistoric** Accessing the National Water Model reanalysis streamflow [↗](#)
- [2] **NFHL** Interface to the FEMA National Flood Hazards Layer [↗](#)
- [1] **NWM** An R client for the operational National Water Model [↗](#)

Author On

- [1] **USGS-R dataRetrieval** R Interface to the USGS data holdings [↗](#)

Contributor To

- [2] **USGS-R nhdplusTools** Manipulating hydrographic data with the NHDPlus data model [↗](#)
- [1] **elevatr** Accessing elevation data from various sources [↗](#)

Roles as assigned in package description and defined here [↗](#)

INSTRUCTOR, DEPARTMENT OF GEOGRAPHY, UCSB:

Summer 2020 Introduction to Geoinformatics

- Independently developed and taught to address the growing need for data science in the GIS profession.
- Will become new prerequisite course for the UCSB Geography Department and new Masters in GIS Curriculum starting in 2021
- Content Available here: [🏠 https://mikejohnson51.github.io/spds/](https://mikejohnson51.github.io/spds/)

TEACHING ASSISTANT, DEPARTMENT OF GEOGRAPHY, UCSB:

- [9] **2021, 2020** **Remote Sensing of the Environment 2**
- *Dr. Vena Chu, Alana Ayasse*
- [8] **2020, 2019, 2018, 2016** **Living with Global Warming**
- *Dr. Catherine Gautier*
- [7] **2020, 2019, 2017** **Conceptual Modeling and Programming for the Geo-Sciences**
- *Dr. Krzysztof Janowicz*
- [6] **2020** **Remote Sensing of the Environment 1**
- *Dr. Joe McFadden*
- [5] **2019** **Remote Sensing of the Environment 3**
- *Dr. Vena Chu*
- [4] **2019, 2018, 2017** **Maps and Spatial Reasoning**
- *Dr. Werner Kuhn, Dr. Keith Clarke*
- [3] **2018** **Cartographic Design and Geovisualization**
- *Dr. Keith Clarke*
- [2] **2017** **Environmental Water Quality**
- *Dr. Hugo Loaiciga*
- [1] **2016** **Oceans and Atmosphere**
- *Dr. Tim DeVeries*


TEACHING AWARD NOMINATIONS, UCSB

- [1] **2020, 2019** Nominated for UCSB Geography Excellence in Teaching by faculty member
- [2] **2020, 2019** Nominated for UCSB GSA Excellence in Teaching by students

MENTORSHIP EXPERIENCE, UCSB

- Have mentored 11 undergraduates in formal capacities including independent research projects, inclusion in research efforts, and instructional independent study.
- Served as a sponsor for the Ronald E. McNair Postbaccalaureate Achievement Program
- Serving as a faculty mentor for the Gene and Susan Lucas Undergraduate Research Fund created to help first-generation undergraduate students experience research

PROFESSIONAL EXPERIENCE

Lecturer	Department of Geography, UCSB <ul style="list-style-type: none">• Summer 2021 (Offered Position)
Sep 2019 - Present	Data Scientist: Urban Flooding Open Knowledge Network 
Sep 2020 - Present	Water Resources Engineer II*: Lynker Technologies/ NOAA-Affiliate <ul style="list-style-type: none">• Assigned to the NOAA Next Generation Water Modeling Engine and Framework Prototype development group
Visiting Researcher	Institute for Environmental Studies. Vrije Universiteit, Amsterdam <ul style="list-style-type: none">• June - July 2019• January - March 2018 Research Applications Laboratory. NCAR, Boulder, Colorado <ul style="list-style-type: none">• August - September 2018 NOAA National Water Center. Tuscaloosa, Alabama <ul style="list-style-type: none">• June - August 2017• June - August 2016

*security clearance (secret)

PROFESSIONAL SERVICE

[9]	2019-2021	UCSB Geography Chair's Graduate Advisory Committee
[8]	2020	Advisory Board: Azavea NOAA SBIR Phase I
[7]	2018-Present	Reviewer for: European Journal of Environmental and Civil Engineering, Transactions in GIS, rOpenSci
[6]	2014 - 2019	Irrigation Association: Certified Agricultural Irrigation Specialist
[5]	2019	Spatial Discovery Experts Meeting
[4]	2018	UCSB Geography Spatial Data Science Faculty Search Committee
[3]	2017	NOAA National Water Center Summer Institute Research Coordinator
[2]	2015-2017	UCSB Geography Department Outreach Committee
[1]	2016	NOAA National Water Center Summer Institute Research Fellow

PRESENTATIONS

[25]	Nov 2020	University of Kansas GIS day <i>Climate Analysis with R</i>	presentation
[24]	Nov 2020	Unidata Users Committee <i>Fall 2020 Student Panel</i>	panel
[23]	Oct 2020	Eco Data Science <i>Working with Gridded Climate Data in R</i>	presentation
[22]	July 2020	ESIP Summer Meeting <i>Does slightly better data equal much better information?</i>	presentation
[21]	Feb 2020	USGS Water Mission Area <i>Urban Flooding Open Knowledge Network</i>	presentation
[20]	Feb 2020	Microsoft Research and Development Team <i>Urban Flooding Open Knowledge Network</i>	presentation
[19]	Feb 2020	ESIP: Interoperability and Technology/Tech Dive Webinar Series <i>Urban Flooding Open Knowledge Network</i>	presentation
[18]	Dec 2019	American Geophysical Union Fall Meeting <i>Representing Landcover in the National Water Model</i>	poster
[17]	Dec 2019	American Geophysical Union Fall Meeting <i>Identifying disturbed watersheds using 20 years of MODIS and Google Earth Engine</i>	poster
[16]	Dec 2019	American Geophysical Union Fall Meeting <i>Using Google Earth Engine and MODIS to detect watershed disturbance</i>	presentation (Google Booth)
[15]	Dec 2018	American Geophysical Union Fall Meeting <i>The National Water Model and R: Providing fast discovery, access, and usability of NWM output and earth systems data</i>	presentation
[14]	Dec 2018	American Geophysical Union Fall Meeting <i>Drought adaptation behavior of agricultural stakeholders: An Agent Based Model for Kenya</i>	presentation
[13]	June 2018	International Congress on Environmental Modelling and Software <i>An agent-based approach to evaluating sustainable drought adaptation policy</i>	presentation
[12]	June 2018	International Congress on Environmental Modelling and Software <i>Simulating dynamic drought adaptation behavior of agricultural stakeholders using Agent-Based Models</i>	presentation
[11]	April 2018	European Geophysical Union <i>Integrating Adaption behavior in drought risk analysis</i>	poster
[10]	Dec 2017	American Geophysical Union Fall Meeting <i>HydroData: Discover Earth Systems Data with R</i>	eLightning talk

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| [9] | July 2017 | CUAHSI Hydroinformatics Conference
<i>Real-time Discharge-to-Damage Flood Mapping</i>
<i>'Anywhere, USA'</i> | presentation |
| [8] | May 2017 | @Spatial Tech Talk UCSB Spatial Center
<i>Accessing National Water Model Output</i> | presentation |
| [7] | Nov 2016 | UCGIS Webinar
<i>2017 CUAHSI SI: Collaborative Problem Solving at the</i>
<i>National Water Center</i> | presentation |
| [6] | Nov 2016 | HAZUS Users Conference
<i>Reimagining Disaster Alert Systems: OPERA</i> | presentation |
| [5] | Oct 2016 | UCSB-SDSU Retreat
<i>The Five Meanings of Water Security</i> | presentation |
| [4] | July 2016 | CUAHSI Biennial Conference
<i>Densified Radar Measurement and Flow Modeling</i> | poster |
| [3] | May 2016 | California Geography Society 2016 Annual Conference
<i>Rising Temperatures and Water Supply: Tools for Water</i>
<i>Security</i> | presentation |
| [2] | April 2016 | UC Student Lobby Conference
<i>Water Research: Problems with Scale</i> | presentation |
| [1] | May 2015 | California Geography Society 2015 Annual Conference
<i>Developing a Decision Support System for California</i>
<i>Surface Water</i> | presentation |

REFERENCES

Keith Clarke, PhD

Professor

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Professor and University Faculty Scholar

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