Christopher J. Russoniello

Department of Geology and Geography - Eberly College of Arts and Sciences - West Virginia University
330 Brooks Hall - Morgantown, WV 26506 - (304) 293-9803 - chris.russoniello@mail.wvu.edu

ACADEMIC EXPERIENCE

- **West Virginia University** Morgantown, WV
  - Assistant Professor – Department of Geology and Geography, July 2019 - Present

- **Syracuse University** Syracuse, NY
  - Postdoctoral Teaching and Research Associate, August 2017 - July 2019
  - Advisor: Laura K. Lautz, Ph.D.

- **University of Delaware** Newark, DE
  - Ph.D. Geology, May 2018
    Advisor: Holly A. Michael, Ph.D.
    Thesis: *The effect of waves on benthic exchange: measurement and estimation over a broad range of spatial and temporal scales*
  - M.S. Geology, August 2012
    Advisor: Holly A. Michael, Ph.D.
    Thesis: *Exploring submarine groundwater discharge into the Delaware Inland Bays over diverse scales with direct measurements and modeling*

- **Colby College** Waterville, ME
  - B.A. Geology, Cum Laude with Honors and Distinction in Geology, May 2006
    Advisor: Jennifer D. Shosa, Ph.D.
    Thesis: *Hydrogeologic investigation of the Serpentine Bog, Belgrade Lakes Watershed, Maine*

RESEARCH INTERESTS

- Groundwater resiliency in a changing climate
- Coastal Hydrogeology: Submarine groundwater discharge and associated chemical fluxes
- Groundwater-surface water interaction: benthic and hyporheic exchange processes
- Groundwater flow and reactive transport modeling
- Groundwater in the Arctic (Seasonal storage and Nutrient Processing)
- Spatio-temporal variability of acid mine drainage
- Linking morphology evolution to water storage in high-relief fluvial systems

ACCEPTED PUBLICATIONS *(* corresponding author)*

1. Levine, RM, KE Fogaren, JE Rudzin, *CJ Russoniello**, DC Soule, & JM Whitaker (2020). Open Data, Collaborative Working Platforms, and Interdisciplinary Collaboration: Building an Early Career Scientist Community of Practice to Leverage Ocean Observatories Initiative Data to Address Critical Questions in Marine Science. Frontiers in Marine Science. doi.org/10.3389/fmars.2020.593512

2. Duque, C, *CJ Russoniello*, DO Rosenberry, & Lee (2020). History and evolution of seepage meters for quantifying flow between groundwater and surface water: Part 2 – Marine settings and submarine groundwater discharge. Earth-Science Reviews

3. Yu, X, *CJ Russoniello*, LK Morgan, G Massmann and G Wang. (2020) Flow, Transport, and Reactions in Coastal Aquifers. Geofluids. doi.org/10.1155/2020/3539052

4. *Russoniello, CJ** and LK Lautz (2019). Novel use of Piper Plots to visualize, interpret and communicate large geochemical datasets. Groundwater. doi.org/10.1111/gwat.12953

5. Duque, C, KL Knee, *CJ Russoniello*, M Sherif, UA Abu Risha, NC Sturchio, HA Michael. (2019). Submarine groundwater discharge data at meter scale (223Ra, 224Ra, 226Ra, 228Ra and 222Rn) in Indian River Bay (Delaware, US). Data in Brief. doi.org/10.1016/j.dib.2019.104728

6. Duque C, K Knee, *CJ Russoniello,* M Sherif, U.A. Abu Risha, NC Sturchio and HA Michael (2019). Hydrogeological processes and near shore spatial variability of radium and radon isotopes for the characterization of submarine groundwater discharge. Journal of Hydrology. doi.org/10.1016/j.jhydrol.2019.124192

7. *Russoniello, CJ*, JH Heiss and HA Michael (2018). Variability in benthic exchange rate, mixing zone depth, and residence time in a shallow coastal estuary. Journal of Geophysical Research: Oceans doi: 10.1002/2017JC013568

8. JW Heiss, VEA Post, T Lattoe, *CJ Russoniello* and HA Michael (2017). Physical controls on biogeochemical processes in intertidal zones of beach. Water Resources Research doi: 10.1002/2017WR021110

9. Andres, AS, HA Michael, *CJ Russoniello*, CF Fernandez and JA Madsen (2017). Delaware Geological Survey Report of Investigations 80: Investigation of submarine groundwater discharge at Holts Landing State Park, Delaware: Hydrogeologic framework, groundwater level and salinity observations

10. *Russoniello, CJ*, LF Konikow, KD Kroeger, C Fernandez, AS Andres and HA Michael (2016). Hydrogeologic controls on groundwater discharge and nitrogen loads in a coastal watershed, Journal of Hydrology doi: 10.1016/j.jhydrol.2016.05.013.

11. *Russoniello, CJ* and HA Michael (2014). Investigation of seepage meter measurements in steady flow and wave conditions, Groundwater, doi: 10.1111/gwat.12302.

12. Michael, HA, *CJ Russoniello* and LA Byron (2013). Global assessment of vulnerability to sea-level rise in topography-limited and recharge-limited coastal groundwater systems, Water Resources Research doi: 10.1002/wrcr.20213

13. *Russoniello, CJ*, C Fernandez, J Bratton, D Krantz, J Banaszak, AS Andres, LF Konikow and HA Michael (2013). Geologic and hydrologic control of subsurface salinity distributions and submarine groundwater discharge to an estuary, Indian River Bay, Delaware, Journal of Hydrology doi: 10.1016/j.jhydrol.2013.05.049

ARTICLES in PREPARATION *(corresponding author*, advisee[A])*

1. *Russoniello, CJ** & HA Michael (in prep for Nature Geoscience). Variability of global wave pumping over spatial, storm, seasonal, and climactic scales.

2. *Russoniello, CJ**, & LK Lautz (in prep for Journal of Hydrology). Exploring the role of Beaver Dam Analogues on arid-region transient groundwater storage with mechanistic groundwater models.

3. Davis, JS, LK Lautz, C Kelleher, *CJ Russoniello*, & Vidon, P (in prep for Earth Surface Processes and Landforms). Assessing the Effects of Beaver Dam Analogues on Channel Morphology using High-Resolution Imagery from Unoccupied Aerial Vehicles (UAVs).

4. Devereux, K[A], JW Heiss, *CJ Russoniello** (in prep). Estimating future groundwater recharge rates over the Contiguous United States.

5. Duque, C, *CJ Russoniello*, and HA Michael. (in prep). Hydrogeological flow paths in coastal areas; a dismissed factor for the delivery of nutrients?

6. Duque C, *CJ Russoniello*, and HA Michael. (in prep). Small scale heterogeneity controls on spatial variability of submarine groundwater discharge rates and salinity in a near shore aquifer.

TEACHING EXPERIENCE

West Virginia University

Assistant Professor

○ Spring Semester	2021	Python in the Geosciences (500)
○ Fall Semester	2020	Physical Hydrogeology (400)
		GeoMath (300)
○ Spring Semester	2020	Groundwater Modeling (600)
○ Fall Semester	2019	Physical Hydrogeology (400)

Syracuse University

Postdoctoral Teaching and Research Fellow

○ Spring Semester	2019	Groundwater Modeling (600)
○ Fall Semesters	2017/18	Hydrogeology (400/600)
○ Spring Semester	2018	Water and the Environment (200)

University of Delaware

Teaching Assistant

○ Spring Semesters	2016/17	Surficial Processes (200)
○ Spring Semester	2016	Paleobiology (300)
○ Fall Semesters	2014/15	Sedimentology and Stratigraphy (300)
○ Spring Semester	2015	Earth History (100)
○ Fall Semester	2012	General Geology Laboratory (100)
○ Fall Semester	2010	Geological Hazards Laboratory (100)

Colby College

Teaching Assistant

○ Fall Semesters 2004/05, Spring Semester 2006	Earth Processes (100)

ADVISING EXPERIENCE

Postdoctoral Advisor: [*1*]

- **Deon Knights** (Primary Adviser); NSF EAR Postdoctoral Fellow — 2020-2022
  - Project: *EAR-PF: Nitrogen processing in Arctic deltas and role of channel network orientation on flux to the coast*

M.S. Committee Chair: [*2*]

- **Lindsey Aman** (Chair); MS Student — Expected 2022
  - Project: *Seasonal water storage in Taliks within Arctic Deltas*
- **D. Jesse Carpinello** (Chair); MS Candidate — Expected 2021
  - Project: *Salinization of coastal aquifers through overtopping: controls and mechanisms*

Ph.D. Committee Member: [*3*]

- **Jill Riddell**; PhD Candidate — Expected 2021
  - *Evaluating sediment processing and particle transport in karst aquifers via the characterization of cave sediment organic carbon and polystyrene microsphere tracer experiments*
- **Jonney Mitchell**; PhD Student — 2019-2020

  - *Dissolved Carbon and Rare Earth Element Dynamics in Coal Mine Drainage Sediments*
- **Rachel Yesenchak**; PhD Qualifying — Qualified 2019

M.S. Committee Member: [*4*]

- **Holly Pettus**; MS Candidate — Expected 2021
  - The Architecture of Fluvial Lava Delta-Dam Complexes
- **Sarah Schreder-Gomes**; MS Candidate — Expected 2021
  - Project: *Microorganisms and Organic Compounds in Ancient Acid Saline Lake-Precipitated Halite*
- **Brigitte Petras**; MS Candidate — Expected 2021
  - Project: *Refining the sedimentology, geochemistry, and microbiology of the mid-Permian Blaine Formation of west-central Kansas: a greater insight into western-equatorial Pangea*
- **Matthew Bell,** MS — Completed 2020
  - Thesis: *Relating recharge mechanisms to chemical changes in a shallow Appalachian coal mine discharge: A case study from Lambert Run, West Virginia*

Undergraduate Advisor: [*2*]

- **Rachel Chidlow**, BS Student — Expected 2021
  - Project: *Seasonality of nutrient spiraling in a mountain river*
- **Kendra Devereux**, Wooster College, BS Honors Thesis — Expected 2021
  - REU mentor: Rutgers Data Labs Virtual REU — Sum. 2020
  - Project: *Estimating future groundwater recharge rates over the Contiguous United States*

Additional Advising Roles:

- **Academic Advisor: *Environmental Geosciences Major*** — Fall 2019-Present
  - Advise 17-12 Env. Geosci. Undergraduate students each semester
- **Mentor**: 6 MS and PhD students in Lautz Lab Group as postdoc. — Fa. 2017-Sp. 2019

ADDITIONAL WORK EXPERIENCE

- **Educational Testing Service** — Princeton, NJ
  Outside Science Item Writer for SAT assessment, 2016 - 2018
- **TerraSond Ltd.** — Palmer, AK
  Hydrographic Surveyor, 2006 - 2009
- **Bering Land Bridge National Preserve, N.P.S.** — Nome, AK
  Interpretive and backcountry SCA Intern, 2006

FELLOWSHIPS AND HONORS

- **2018 Editor's Citation for Excellence in Refereeing for Water Resources Research** — April 2019
- **Summer Doctoral Fellowship**, University of Delaware — May 2017
  Awarded for academic merit
- **First Place Poster,** Delaware Geologic Research Symposium — April 2015
  Presented by the Delaware Geologic Survey for outstanding student poster presentation
- **University Graduate Fellowship, University of Delaware Graduate College** — 2013-2014

Awarded for academic achievement and professional commitment and potential

- **Farvolden Award,** National Groundwater Association April 2011
  Awarded for outstanding student presentation
- **Departmental Fellowship**, University of Delaware Geological Sciences 2009-2010
  Awarded for outstanding academic merit
- **S.S. and I.M.F. Marsden Prize,** Colby College Geology Department May 2006
  Awarded for outstanding achievement in the Earth Sciences
- **S.S. Marsden Teaching Award**, Colby College Geology Department May 2006
  Awarded for dedication as a teaching assistant
- **Thomas Bove Award**, Colby College Geology Department May 2006
  Awarded for dedication to the Earth Sciences
- **REU Internship**, NSF, University of Arkansas Summer 2004
  Dr. John Van Brahana - Surface water-groundwater interactions and Karst Hydrogeology

---

AWARDS

Awarded:

- WVU Eberly College Faculty Travel Award (2019) [**$700**]

In Review: [Total/personal: $51,638/**$21,084]**

- *Analysis of passive AMD treatment system components over lifespans, seasons, and storms*. Submitted to USGS. (2020) Russoniello, CJ and S Cayton. [Total/personal: $32,698/**$16,349]** *Recommended for funding, awaiting final approval.*
- *Modeling and measuring drivers of erosion in a sediment-impaired stream*. Submitted to USGS. (2020). Shobe, C and CJ Russoniello. [Total/personal: $18,940/**$4,735**]. *Recommended for funding, awaiting final approval.*

Submitted: [Total/personal: $1,907,722/**$401,277**]

- *Tidal restriction in coastal wetlands: hydrological, biogeochemical, and greenhouse gas emission impacts*. Submitted to USCRP. (2020). Heiss, JW (UMass Lowell) and CJ Russoniello. [Total/personal: $385,779/**$146,683**] *Rejected.*
- *A Novel Method for Preventing Groundwater Contamination from Coal Ash Impoundments*. Submitted to DOE. (2020). Ziemkiewicz, P, CJ Russoniello and J Quaranta. [Total/personal: $ 999,932/**$203,045**] *Rejected.*
- *Developing the Falling Run Greenspace as a Research Incubator - Infrastructure Design and Baseline Data Collection*. Submitted as internal Research and Scholarship Advancement grant (2020). Russoniello, C.J, DJ Vesper and V Haas. [Total/personal: $17,891/**$15,327**] *Rejected, plan to resubmit.*
- *REU Site: West Virginia Student Water Research Institute*. Submitted to NSF (2020). Collins, S and J Serafin et al., (C.R. included as supporting investigator). [Total/personal: $486,009/$0] *In review.*
- *Quantifying temporal and spatial variations of acid mine drainage remediation in an Appalachian watershed*. Submitted to USGS. (2019). Russoniello, C.J. [Total/personal: $18,111/**$18,111**]. *Rejected.*

In Preparation: [Total/personal: $349,846/**$85,336**].

- *Empowering Appalachian Students to Address Climate Challenges - Exploring Geosciences Solutions (EGeoS)*. In preparation for NSF (planned submission January 2020). Hessl, A, CJ Russoniello, A Weislogel, S Sharma, and G Stewart. [Total/personal: $349,846/**$85,336**].

DEPARTMENTAL SERVICE and ACTIVITIES

Spring 2021

- **Environmental Geoscience Committee** – Advised 25 undergraduate majors and developed curriculum

- **Co-Chair Colloquium Committee** – Facilitated 9 Spring 2021 G&G Colloquiums

Fall 2020

- **Environmental Geoscience Committee** – Advised 25 undergraduate majors and developed curriculum
- **Co-Chair Colloquium Committee** – Facilitated 7 Fall 2020 G&G Colloquiums
- **AGU Bridge Program Committee**
- **Geology Program 'Environmental Geology AOE' Committee**

Spring 2020

- **Faculty Search Committee Member** – Tenure-track 'Surficial Processes' position
- **Environmental Geoscience Committee** – Advised 25 undergraduate majors and developed curriculum
- **Co-Chair Colloquium Committee** – Facilitated 10 Spring 2020 G&G Colloquiums

Fall Semester 2019

- **Faculty Search Committee Member** – Tenure-track 'Surficial Processes' position
- **Environmental Geoscience Committee** – Advised 25 undergraduate majors and developed curriculum
- **Co-Chair Colloquium Committee** – Facilitated 9 Fall 2019 G&G Colloquiums

PROFESSIONAL SERVICE and ACTIVITIES

- REU Mentor for Kendra Devereux; 2020 Virtual REU - Ocean Data Lab - Rutgers University
- Manuscript Peer Reviewer for *Nature Communications, Nature Climate Change, Water Resources Research, Groundwater, Journal of Hydrology, Journal of Geophysical Research: Oceans, PLOS One, Hydrologic and Earth Systems Science,* and *Advances in Water Resources*
- Ad hoc reviewer for National Science Foundation Hydrologic Sciences
- Session Convener/Chair, GSA 2020 Fall Meeting, "Coastal and Marine Hydrogeology in an Age of Rising Seas: From the Shore to the Oceanic Ridge." October 2020
- Panel Chair: Science, Technology and Energy: Part I. Reassessing the truth: the role of scientific and technological progress, the business sector the sustainable economic and community development in the energy transition. John Rockefeller IV School of Policy and Politics, Department of Public Administration, West Virginia University November 2019
- Guest Editor: *Geofluids* special issue: 'Flow, Transport, and Reactions in Coastal Aquifers" 2019-20
- Session Convener, CGU/IAHS/IUGG 2019 Joint Meeting, "Coastal Hydrology, Hydrogeology, and Hydraulics in an Era of Unprecedented Change" July 2019
- Session Convener, AGU 2018 Fall Meeting, "Coastal Hydrology: fluid flow, transport, and ecosystem responses from wave to climate scales" December 2018
- Panelist "Postdocs: How to Get One, What to Expect" Syracuse University Syracuse Future Professoriate Program Workshop May 2018
- Planned EMPOWER CUAHSI workshop on storage and retrieval of archived data March 2018
- Committee member for "PITCH 90" planning 2015-2016
- Graduate Student Representative to the UDel Geological Sciences Faculty 2011-2014
- Graduate Student Senate Representative, University of Delaware 2010-2011
- Geology Club, Colby College - Member/President 2003-2006
- *Member* AGU 2010-Present, GSA 2004-Present, NGWA 2011-Present, CGU 2018-Present

SHORT COURSES and WORKSHOPS

- WVU Write Winning Grant Proposals Workshop October 2019

- WVU Communicating Science Workshop October 2019
- 2019 Texas Hydrogeo Workshop, Boerne, TX October 2019
- NSF Ocean Observatories Initiative Early Career Workshop May 2019
- Measuring Water Resources: Undergraduate Teaching Module – UNAVCO December 2018
- Establishing and Sustaining an Undergraduate Research Program – AGU December 2018
- Beaver Dam Analog Workshop, Lander, WY August 2018
- NSF Ocean Observatories Initiative Early Career Geology Data Workshop July 2018
- Syracuse University Future Professoriate Program May 2018
- EMPOWER CUAHSI workshop on storage and retrieval of archived data March 2018
- EMPOWER Diversity Workshop on Implicit Bias November 2017
- Workshop on Sea Level Rise and Contaminated Sites, Newark DE November 2013
- COMSOL Multiphysics Workshop, Newark, DE January 2013
- PEST Parameter Estimation Program, Bethesda, MD September 2011
- Barnegat Bay Comprehensive Research Meeting September 2011
- Multibeam Sonar Training Course, Norfolk, VA January 2009
- Chesapeake SonarWiz.MAP and HYPACK HYSWEEP, Palmer, AK March 2009

SELECTED PRESENTATIONS and POSTERS (Russoniello advisee[A], invited[I])

- Russoniello et al., (2020) Lightning Talk: Open data, collaborative working platforms, and interdisciplinary collaboration. AGU Fall Meeting. December 2020
- AGU [A]Devereux, K, Heiss, JW, & CJ Russoniello (2020). Estimating future groundwater recharge rates over the Contiguous United States. AGU Fall Meeting. Virtual. December 2020
- Russoniello et al., (2020) Open Data, Collaborative Working Platforms, and Interdisciplinary Collaboration: Building an Early Career Scientist Community of Practice to Leverage Ocean Observatories Initiative Data to Address Critical Questions in Marine Science. GSA Joint 69th Annual Southeastern / 55th Annual Northeastern Section Meeting. March 2020 – Cancelled for COVID
- American Geophysical Union, National Meeting, San Francisco, CA December 2019
  Presented Poster: "The impact of beaver dam analogs on transient bank storage and dry season flow in the US Mountain West"
- American Geophysical Union, National Meeting, San Francisco, CA December 2019
  Co-authored Poster: "Assessing the Effects of Beaver Dam Analogues on Channel Morphology using High-Resolution Imagery from Unoccupied Aerial Vehicles (UAVs)
- [I]Pittsburgh Geological Society, Monthly Meeting, Pittsburgh, PA November 2019
  Invited Talk: The effect of waves on benthic exchange: Measurement and estimation over a broad range of spatial and temporal scales
- OceanObs'19 Meeting, Honolulu, HI September 2019
  Co-authored poster: "The Ocean Observatories Initiative: a catalyst for early-career, interdisciplinary research"
- American Geophysical Union, National Meeting, Washington, DC December 2018
  Presented poster: "Teaching hydrogeology with a Simple Online Groundwater Model (SOGWaM)"
- Canadian Geophysical Union, National Meeting, Niagara Falls, ON June 2018
  Presented poster: "Paying the PIED Piper: Visualization of large geochemical datasets using new approaches with Piper Diagrams"
- WAGGS, Syracuse University Earth Sciences Department May 2018
  Presented talk: "The effect of waves on benthic exchange: Measurement and estimation over a broad range of spatial and temporal scales"
- American Geophysical Union, National Meeting, New Orleans, LA December 2017
  Presented Poster: "Variability in benthic exchange rate, depth and residence time beneath a shallow coastal estuary"
- Geological Society of America, National Meeting, Seattle, WA October 2017
  Presented talk: "Spatial and temporal variability of global wave pumping"

- Delaware Environmental Institute Research Symposia, Newark, DE March 2017
  Presented poster: “Variability in benthic exchange rate, mixing zone depth, and residence time in a shallow coastal estuary”
- Geological Sciences Department Poster Session, Newark, DE February 2017
  Presented poster: “Variability in benthic exchange rate, mixing zone depth, and residence time in a shallow coastal estuary”
- Geological Society of America, National Meeting, Baltimore, MD October 2015
  Presented poster: “Estimating Groundwater Transit Times Through a Coastal Aquifer Using Modpath”
- Delaware Geological Survey Research Symposium, Newark, DE April 2015
  Presented poster: “Watershed scale controls on relative rates of submarine groundwater discharge and stream baseflow, groundwater residence times, and nutrient loads to the Inland Bays”
- Geological Sciences Department Poster Session, Newark, DE February 2015
  Presented poster: “Watershed scale controls on relative rates of submarine groundwater discharge and stream baseflow, groundwater residence times, and nutrient loads to the Inland Bays”
- UDel Day in DC, Washington, D.C. March 2013
  Presented poster to the Delaware congressional delegation at function to spotlight UD work
- DENIN Research Symposium & EPSCoR Annual Meeting, Newark, DE March 2013
  Presented poster: Global assessment of vulnerability to sea-level rise in topography-limited and recharge-limited coastal groundwater systems
- Geological Sciences Department Poster Session, Newark, DE February 2013
  Presented poster: Global assessment of vulnerability to sea-level rise in topography-limited and recharge-limited coastal groundwater systems
- Geological Society of America, National Meeting, Charlotte, NC October 2012
  Presented talk: “Exploring wave-induced artifacts and asymmetry in seepage meter measurements”
- Delaware Center for the Inland Bays, STAC, Lewes, DE May 2012
  Presented talk: “Construction of a Watershed-Scale Model to Assess Groundwater Flow into the Inland Bays, Delaware”
- Geological Sciences Department Poster Session, Newark, DE February 2012
  Presented poster: "Control of submarine groundwater discharge patterns and salinity by a low-permeability paleochannel cap at Indian River Bay, Delaware"
- American Geophysical Union, National Meeting, San Francisco, CA December 2011
  Presented poster: "Control of submarine groundwater discharge patterns and salinity by a low-permeability paleochannel cap at Indian River Bay, Delaware"
- National Groundwater Association, Annual Summit, Baltimore, MD April 2011
  Presented talk: "Construction of a Watershed-Scale Model to Assess Submarine Groundwater Discharge to Indian River Bay, Delaware"
- Geological Society of America, National Meeting, Salt Lake City, UT October 2005
  Presented poster: “Water and Chemical Fluxes through the Serpentine Bog/Stream System”
- Geological Society of America, Northeast Section, Saratoga Springs, NY March 2005
  Co-authored poster: “The paleoecology and depositional setting of a Silurian mixed siliciclastic system; Ripogenus Dam, Maine”
- Geological Society of America, National Meeting, Denver, CO October 2004
  Presented poster: “Ground-Water and Surface-Water Interactions in Northwest Arkansas”