

Johnathan W. Sugg

Associate Professor of Geography
Department of Geography and Planning
Appalachian State University
PO Box 32066, Rankin Science West 323A
Boone, North Carolina 28608

suggjw@appstate.edu
Office: (828) 262-8412

Education

University of North Carolina. *Chapel Hill, NC.*

Ph.D. Geography, 2017

Dissertation: *Geovisualization of Mountain Hydroclimatic Variability: Linkages between Atmospheric Circulation and the Spatial Pattern of Precipitation*

Appalachian State University. *Boone, NC.*

M.A. Geography, 2013

Thesis: *Satellite Perspectives on the Spatial Extent of New Snowfall in the southern Appalachian Mountains*

B.S. Geography, 2008

Thesis: *A GIScience Investigation of Mass Balance Change on the Franz Josef Glacier, New Zealand*

Employment

Appalachian State University. *Boone, NC.*

Associate Professor, Department of Geography and Planning, 2023-

Assistant Professor, Department of Geography and Planning, 2017-2022

Adjunct Assistant Professor, Department of Geography and Planning, 2015-2017

University of North Carolina. *Chapel Hill, NC.*

Research Associate, Southeast Regional Climate Center, 2014-2015

Graduate Assistant, Department of Geography, 2013

Appalachian State University. *Boone, NC.*

Graduate Assistant, Department of Geography and Planning 2011-2013

Orbis, Inc. *Charlotte, NC.*

GIS Specialist, 2008-2010

Publications

*indicates student author

Merritt, E. A.*, D. P. Retchless, B. Thapa, and J. W. Sugg, Using interactive maps to reveal the content of second-order climate change beliefs. *Cartographic Perspectives*, **107**, DOI: 10.14714/CP107.1913

Sugg, J. W., and C. F. Weir*, 2023: Geographical insights on the partisan polarization over human-

caused climate change acceptance in the US. *Southeastern Geographer*, **63**, 2, 135-154.

Moreno, C.*, J. W. Sugg, J. Runkle, R. D. Leeper, L. B. Perry, and M. M. Sugg, 2022: Examining spatiotemporal trends of drought in the conterminous United States using self-organizing maps. *Physical Geography*, DOI:10.1080/02723646.2022.2035891

Sugg, J. W., 2021: Exploratory geovisualization of the character and distribution of American climate change beliefs. *Weather, Climate, and Society*, **13**, 1, 67-82, DOI: 10.1175/WCAS-D-20-0071.1

Kinlaw, T. K.*, J. W. Sugg, and L. B. Perry, 2019: Warm season hydroclimatic variability and change in the Appalachian region of the southeastern US from 1950 to 2018. *Atmosphere*, **10**, 289, DOI: <https://doi.org/10.3390/atmos10050289>

Sugg, J. W., and C. E. Konrad II, 2019: Defining hydroclimatic regions using daily rainfall characteristics in the southern Appalachian Mountains. *International Journal of Digital Earth*, DOI: <https://doi.org/10.1080/17538947.2019.1576785>

Eck, M. A.*, L. B. Perry, P. T. Soule, J. W. Sugg, and D. K. Miller, 2018: Winter climate variability in the southern Appalachian Mountains, 1910-2017. *International Journal of Climatology*, **39**, 1, DOI: <https://doi.org/10.1002/joc.5795>

Sugg, J. W., and C. E. Konrad II, 2017: Relating warm season hydroclimatic variability in the southern Appalachians to synoptic weather patterns using self-organizing maps. *Climate Research*, **74**, 2, 145-160, DOI: <https://doi.org/10.3354/cr01493>

Sugg, J. W., C. M. Fuhrmann, L. B. Perry, D. K. Hall, and C. E. Konrad II, 2016: Sub-regional snow cover distribution across the southern Appalachian Mountains. *Physical Geography*, **38**, 2, 105-123, DOI: <https://doi.org/10.1080/02723646.2016.1162020>

Sugg, J. W., L. B. Perry, D. K. Hall, G. A. Riggs, and C. A. Badurek, 2014: Satellite perspectives on the spatial patterns of new snowfall in the southern Appalachian Mountains. *Hydrological Processes*, **28**, 16, 4602-4613, DOI: <https://doi.org/10.1002/hyp.10196>

Grants and Awards

**includes proposals not-funded*

**Not-funded*: Platt, J., Michelson, D., Dobson, G., Jackson, K., Rabinowitz, E., and J. Sugg. Appalachian Gravel. North Carolina Innovation Grant, \$1,458,875, 2025

Grant, Yao, Z., Shu, S., Wang, H., and J. Sugg, Building a new online graduate GIS certificate program, Teaching Quality Framework Grant, Center for Excellence in Teaching and Learning for Student Success, Appalachian State University, \$500, 2025

**Not-funded*: Bridging the research-practice gap for climate change communicators' use of interactive maps: a user-centered design approach. National Science Foundation, Human-Environment and Geographical Sciences Program (HEGS) 21-623, (Co-PI David Retchless, TAMU-G), \$287,574, 2024

**Not-funded*: User-centered design for interactive maps in climate change communication, National Science Foundation, Human-Environment and Geographical Sciences Program (HEGS) 21-623, (Co-PI David Retchless, TAMU-G), \$305,190, 2023

**Not-funded:* User-centered design for interactive maps in climate change communication, National Science Foundation, Human-Environment and Geographical Sciences Program (HEGS) 21-623, (Co-PI David Retchless, TAMU-G), \$234,104, 2022

Grant, Mapping geographies of climate advocacy and outreach in 2022, Protect Our Winters, \$22,075, 2022

Faculty Reassigned Time for Proposal Development, Appalachian State University, Visual communication and the cartography of climate change, 2021

Undergraduate Research Assistantship Program, Emissions scenarios in climate change maps and their framing in the online media, Office of Student Research, Appalachian State University, \$1,000, 2021

Undergraduate Research Assistantship Program, Cartography of climate change, Office of Student Research, Appalachian State University, \$1,000, 2020

Grant, Visual communication and the cartography of climate change, Research Development Summer Grant, College of Arts and Sciences, Appalachian State University, \$5,000, 2020

**Not-funded:* Visual communication and the cartography of climate change, Ralph E. Powe Junior Faculty Award, Oak Ridge Associated Universities \$10,000, 2020

Grant, A GIS analysis to identify key political geographies for climate advocacy and outreach, Protect Our Winters, \$10,233, 2019

Faculty Reassigned Time for Proposal Development, Appalachian State University, Historic and future changes to hydroclimatic extremes across the southeastern US, 2019

Grant, The changing hydroclimatology of the southeastern US, University Research Council Grant, Appalachian State University, \$3,168.97, 2018

1st Place, Climate Specialty Group Student Paper Competition, American Association of Geographers (AAG) Annual Meeting, San Francisco, CA, 2016

Suzanne Levy Summer Research Fellowship, University of North Carolina, \$4,000, 2015

2nd Place, Climate Specialty Group Student Paper Competition, American Association of Geographers (AAG) Annual Meeting, Chicago, IL, 2015

Graduate Student Travel Award, Department of Geography, University of North Carolina, 2014

Honorable Mention, Climate Specialty Group Student Paper Competition, American Association of Geographers (AAG) Annual Meeting, Tampa, FL, 2014

Grant, Cordillera Vilcanota research expedition to Peru, Melvin Marcus Fund for Physical Geography, American Association of Geographers, \$2,000, 2013

Outstanding Thesis Award in Science and Technology, Provost's Fellowship, Cratis D. Williams Graduate School, Appalachian State University, 2013

Miller Best Student Poster Award, 69th Eastern Snow Conference, Claryville (Frost Valley), NY, 2012

Graduate Student Research and Travel Grants, Appalachian State University, \$1,360, 2012-2013

Invited Presentations

Mapping the character and distribution of American climate change beliefs. Department of Earth, Atmosphere, and Environment, Northern Illinois University, DeKalb, IL, 2022

Mountain hydroclimatic variability and its relationship with synoptic weather patterns. Department of Geography, Virginia Tech, Blacksburg, VA, 2018

Geovisualization of warm season hydroclimatic extremes in the southern Appalachians. Department of Geology, Appalachian State University, Boone, NC, 2016

Conference Presentations

**indicates student author*

Merritt, E. A.*, D. P. Retchless, B. Thapa, and J. W. Sugg, Exploring second-order climate change beliefs with interactive maps. American Association of Geographers (AAG) Annual Meeting, Honolulu, HI, 2024

Sugg, J. W., and D. P. Retchless, User-centered design for interactive maps in climate change communication. American Association of Geographers (AAG) Annual Meeting, New York City (Remote), 2022

Sugg, J. W., Exploratory geovisualization of the character and distribution of American climate change beliefs. American Association of Geographers (AAG) Annual Meeting, Seattle, WA (Remote), 2021

Weir, C. F.*, and J. W. Sugg, Geographical insights on the partisan polarization of human-caused climate change acceptance in the US. Poster presented at the ASU Celebration of Student Research and Creative Endeavors, Boone, NC, 2021

Kinlaw, T. K.*, and J. W. Sugg, Warm season hydroclimatic variability and change in the Appalachian region of the southeastern US from 1950 to 2018. American Association of Geographers (AAG) Annual Meeting, Washington, D.C., 2019

Kinlaw, T. K.*, and J. W. Sugg, Warm season hydroclimatic variability and change in the southern Appalachian Mountains from 1955 to 2017. Poster presented at ASU Celebration of Student Research and Creative Endeavors, Boone, NC, 2019

Sugg, J. W., A comparison of gridded rainfall estimates for examining hydroclimatic variability. Poster presented at the 73rd Southeastern Division of the American Association of Geographers (SEDAAG) Meeting, Johnson City, TN, 2018

Kinlaw, T. K.*, and J. W. Sugg, Warm season hydroclimatic variability and change in the southern Appalachian Mountains from 1955 to 2017. Poster presented at the 73rd Southeastern Division of the American Association of Geographers (SEDAAG) Meeting, Johnson City, TN, 2018

Sugg, J. W., and C. E. Konrad II, Self-organizing maps as a visualization tool for understand-

ing hydroclimatic variability. American Association of Geographers (AAG) Annual Meeting, New Orleans, LA, 2018

Sugg, J. W., and C. E. Konrad II, Disentangling the spatiotemporal complexity of synoptic and orographic precipitation patterns in the southeastern U.S. with a self-organizing map. 71st Southeastern Division of the American Association of Geographers (SEDAAG) Meeting, Columbia, SC, 2016

Sugg, J. W., and C. E. Konrad II, Geovisualization of hydroclimatic variability across the southeastern US: 1979-2014. Poster presented at 3rd Annual UNC-CH Climate Change Symposium. Chapel Hill, NC, 2016

Sugg, J. W., and C. E. Konrad II, Relating mountain hydroclimatic variability to synoptic weather patterns using self-organizing maps. American Association of Geographers (AAG) Annual Meeting, San Francisco, CA, 2016

Sugg, J. W., Mapping warm season hydroclimate extremes in the southern Appalachians. 70th Southeastern Division of the American Association of Geographers (SEDAAG) Meeting, Pensacola, FL, 2015

Sugg, J. W., and C. E. Konrad II, Spatial characteristics of hydroclimate variability across the southern Appalachian Mountains of the southeastern US. American Association of Geographers (AAG) Annual Meeting, Chicago, IL, 2015

Sugg, J. W., and C. E. Konrad II, Mapping warm season hydroclimate extremes in the southern Appalachians. Poster presented at 2nd Annual UNC-CH Climate Change Symposium. Chapel Hill, NC, 2015

Sugg, J. W., and C. E. Konrad II, Spatial characteristics of hydroclimate variability across the Southern Appalachian Mountains of the southeastern US. 69th Southeastern Division of the American Association of Geographers (SEDAAG) Meeting, Athens, GA, 2014

Sugg, J. W., C. M. Fuhrmann, L. B. Perry, D. K. Hall, and C. E. Konrad II, Sub-regional variation in fractional snow cover across the southern Appalachian Mountains. 71st Eastern Snow Conference, Boone, NC, 2014

Sugg, J. W., L. B. Perry, and D. K. Hall, A synoptic classification of new snowfall in the southern Appalachian Mountains using MODIS fractional snow cover. American Association of Geographers (AAG) Annual Meeting, Tampa, FL, 2014

Sugg, J. W., A. Seimon, D. Martin, L. B. Perry, C. Rodda, S. Haines, S. Sneed, and P. Mayewski, Climate-glacier interaction in the tropical Andes: field observations from the Cordillera Vilcanota, Peru. Poster presented at 68th Southeastern Division of the American Association of Geographers (SEDAAG) Meeting, Roanoke, VA, 2013

Sugg, J. W., L. B. Perry, D. K. Hall, G. A. Riggs, and C. A. Badurek, Satellite perspectives on the spatial patterns of new snowfall in the southern Appalachian Mountains. 70th Eastern Snow Conference, Huntsville, Ontario, Canada, 2013

Sugg, J. W., Land cover effects on snow classification in the southern Appalachian Mountains. Poster presented at 67th Southeastern Division of the American Association of Geographers (SEDAAG) Meeting, Asheville, NC, 2012

Sugg, J. W., L. B. Perry, and D. K. Hall, Satellite and surface perspectives of snow extent in the

southern Appalachian Mountains. Poster presented at 69th Eastern Snow Conference, Claryville (Frost Valley), NY, 2012

Sugg, J. W., and C. A. Badurek, A GIScience investigation of mass balance change on the Franz Josef Glacier, New Zealand: 1990 to 2002. International Geographical Union Meeting, Tunis, Tunisia, 2008

Arnold, J., L. B. Perry, M. Mayfield, and J. W. Sugg, A snow-related flood hydroclimatology of the southern Appalachian Mountains of North Carolina and Tennessee. 65th Eastern Snow Conference, Fairlee (Lake Morey), VT, 2008

Conference Proceedings Papers

Sugg, J. W., C. M. Fuhrmann, L. B. Perry, D. K. Hall, and C. E. Konrad II, 2014: Sub- regional snow cover distribution across the southern Appalachian Mountains. Proceedings of the 71st Eastern Snow Conference, Boone, NC

Sugg, J. W., L. B. Perry, D. K. Hall, G. A. Riggs, and C. A. Badurek, 2013: Satellite perspectives on the spatial patterns of new snowfall in the southern Appalachian Mountains. Proceedings of the 70th Eastern Snow Conference, Huntsville, Ontario, Canada

Sugg, J. W., L. B. Perry, and D. K. Hall, 2012: Satellite and surface perspectives of snow extent in the southern Appalachian Mountains. Proceedings of the 69th Eastern Snow Conference, Claryville (Frost Valley), NY

Teaching

Appalachian State University

Courses:

GHY 1010 - Introduction to Physical Geography (*Fall 2015, 2016*)

GHY 2310 - Cartographic Design and Analysis (*Fall 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, Spring 2018, 2019, 2020, 2021, 2022, 2024, 2025*)

GHY 3000 - Communicating Geographic Information (*Fall 2017, 2018, 2019, 2020, Spring 2018, 2019, 2020*)

GHY 3535 - Climate Responses and Response-ibilities (*Spring 2022*)

GHY 4530/5530 - Special Topics Seminar in Cartography of Climate Change (*Spring 2021*)

GHY 4812/5812 - Advanced GIS (*Spring 2018*)

GHY 4818/5818 - Web mapping (*Fall 2020, 2021, 2022, 2023, 2024, 2025, Spring 2021, 2022, 2024, 2025*)

GHY/PLN 4830 - Professional Development in Geography and Planning (*Fall 2025*)

GHY 4900 - Undergraduate Internship in Geography (*Summer 2018, 2020, 2021, 2022, 2025, Spring 2020*)

GHY 5150 - Graduate Seminar in Geographic Information Science (*Fall 2018*)

GHY 5500 - Graduate Independent Study (*Spring 2019, 2021, Fall 2022*)

GHY 5530 - Special Topics Graduate Seminar in Climate Change (*Spring 2020*)

WRC 1103 - Participatory Mapping and Community-based Cartography (*Fall 2016*)

WRC 1104 - The Nature and Culture of Climate Change (*Spring 2017*)

Laboratory Sections:

GHY 1011 - Global Climate Change Laboratory (*Fall 2011, 2015, 2016, 2017, Spring 2016*) GHY 1012 - Global Change of the Biosphere Laboratory (*Fall 2012, Spring 2016, 2017*) GHY 3310 - Environmental Remote Sensing Laboratory (*Spring 2013*)

Student Supervision

Theses Chaired

Eliza Merritt, M.A. in Geography, 2023, Thesis: *Using interactive maps to understand the content of second-order climate change beliefs: evidence from a small student sample.*, Committee: J. W. Sugg (Chair), D. P. Retchless, B. Thapa, Herbert Stout Award for Student GIS, NC GIS Conference

Timothy Kinlaw, M.A. in Geography, 2019, Thesis: *Warm season hydroclimatic variability in the southern Appalachian Mountains, 1955-2017.*, Committee: J. W. Sugg (Chair), L. Baker Perry, S. van de Gevel, Winner of the Master's Student Poster Competition, 2018 Southeastern Division of the American Association of Geographers

Internships Chaired

Elijah Aquino, B.S. in Geography/GIS, 2025, Internship: Sebago Technics, Inc.

Nicholas Grizales, B.S. in Geography/GIS, 2025, Internship: Drexel, Barrell and Co

Joshua McClellan, B.S. in Geography/GIS, 2025, Internship: Destination by Design

Charles Odom, B.S. in Geography/GIS, 2025, Internship: Withers Ravelnel

Brett Haas, M.A. in Geography, 2023, Internship: Samaritan's Purse

Jacob Wallace, B.S. in Geography/GIS, 2022, Internship: City of Asheville, NC GIS IT Services

Davis Roll-Mitchell, B.S. in Geography, 2021, Internship: Cartographic Content Analysis of Climate Emissions Maps

Sarah Hajnos, B.S. in Geography/GIS, 2021, Internship: Timmons Group, Inc.

Colton Barrow, B.S. in Geography/GIS, 2020, Internship: Garmin International

Drew Wilson, B.S. in Geography, 2020, Internship: Blue Ridge Conservancy

Elizabeth Goughnor, M.A. in Geography, 2018, Internship: New Hanover County, NC Sheriff's Department

Thomas Dean, B.S. in Geography/GIS, 2018, Internship: Moore County, NC GIS Department

Rachel McCoy, B.S. in Geography/GIS, 2018, Internship: Town of Beech Mountain, NC

Thesis Committee Membership

Gloria Hope, M.A. in Geography, 2025

Sarah Ulrich, M.A. in Geography, 2024

Maggie Wagner, B.A. in Sustainable Development, 2024

Camila Moreno, M.A. in Geography, 2021

Matthew Wilson, M.A. in Geography, 2019

Montana Eck, M.A. in Geography, 2018

Undergraduate Research

Chip Weir, B.S. in Geography, 2021, Geographic perspectives on the relationship between politics and climate change beliefs in the US, Poster presented at ASU Celebration of Student Research and Creative Endeavors, *Spring 2021*

Professional Activity

Departmental Service

Search Committee for Community and Regional Planning Assistant Professor, Member, *2025*
Teaching Enhancement Committee, Member, *2025*
Search Committee for Physical Geography and Climatology Assistant Professors, Chair, *2024*
Curriculum Committee, Member, *2024*
Scholarship Committee, Member, *2023*
Search Committee for Environmental GIS Assistant Professor, Member, *2023*
Honors and Awards Committee, Member, *2021-2022*
Promotion and Tenure, Merit Document Review Committees, Member, *2021-2022*
Search Committee for Remote Sensing and GIS Assistant Professor, Member, *2020*
Graduate Comprehensive Exams Committee, Member, *2019, 2023, 2024*, Chair, *2020, 2025*
Search Committee for Departmental Chair, Member, *2019-2020*
Search Committee for Remote Sensing and GIS Assistant Professor, Member, *2018-2019*
GIS Curriculum Committee, Member, *2017-*
Map Library Committee, Member, *2017-2020*
Departmental Personnel Committee, Alternate Member, *2017-*

College and University Service

Climate in the Disciplines (CID) Course (Re)Design Institute Participant, AppState Quality Enhancement Plan, *2024*
Climate Literacy Fellow, College of Arts and Sciences Pilot Course on Climate Responses and Responsibility, *2021-2022*
College of Arts and Sciences Computation and Visualization Laboratory, Co-director, *2018-*
Writing in the Discipline Consultant, Writing Across the Curriculum Program, *2018-2019*
Work-Life Balance Panel, Center for Academic Excellence Early Career Programs, Panelist, *2018*
University Corporation for Atmospheric Research, Annual Members Meeting, Early Career Faculty Guest, Boulder, CO, *2017*
Appalachian Orientation Weekend, Student Faculty Exchange Volunteer, *2017*
American Association of Geographers, Early Career Faculty Development Alliance, Participant, Knoxville, TN, *2017*

Disciplinary Service

Manuscript reviews for:
Climate
International Journal of Applied Geospatial Research
International Journal of Climatology

Community and Nonprofit Service

Science Alliance at Protect Our Winters

Media

Adams, Ella. An uphill climb for North Carolina's ski resorts. The Assembly. *2025*
Lee, Alex. Helene is a climate disaster. Protect Our Winters. *2024*

Affiliations

Protect Our Winters
American Association of Geographers
Southeastern Division of the American Association of Geographers

Last updated on October 31, 2025