

PROGRAM

2021 Annual Meeting of the North Carolina Geographical Society



**Hosted by the University of North Carolina at
Greensboro**

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March 12, 2021

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Zoom Information

Join Zoom Meeting: <https://uncg.zoom.us/j/92928972258>

Dial by your location

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Meeting ID: 929 2897 2258

PROGRAM AT A GLANCE

Friday, March 12, 2021		
10:00 am	Welcome Address: Jesse M. Lane, UNCG	Zoom Link
Paper Session		
10:10 am	“Compound Coastal Water Event Risk within Eastern North Carolina,” Kelley De Polt	
10:25 am	“A Fair Candlemas,” Dennis J. Edgell	
10:40 am	Paper Session Q & A	
Poster Session		
10:50 am	Poster Session will include a main meeting room and two breakout rooms, one for each of the following presentations	
	“Trends in NFIP (National Flood Insurance Program) Participation after Major Hurricanes in North Carolina,” Julia Cardwell	Breakout Room 1
	“Dasymetric Mapping of 2016 Population of Washington, D.C. Using Hyperspectral Imagery,” Jahmina Ollison	Breakout Room 2
Keynote		
11:30 am	Jeff Dequattro, Director of Restoration, Gulf of Mexico, Nature Conservancy	
Business Meeting & Conference Closing		
11:50 pm	See Detailed Program	

DETAILED PROGRAM

Friday, March 12, 2021

10:00am Welcome Address from NCGS Vice President, Jesse M. Lane, University of North Carolina at Greensboro

Paper Presentations

10:10am “Compound Coastal Water Event Risk within Eastern North Carolina,”

Kelley De Polt, Eastern Carolina University

The combination of multiple climatic drivers across spatial and temporal scales is referred to as a compound event. Flood events result from the coincidence of drivers that are typically climatic in nature. Three distinct flood drivers: pluvial (precipitation-based), fluvial (river-based), and coastal (tidal-based) have the potential for causing damages on their own, but if these drivers occur concurrently or in close succession, this is called a Compound Coastal Water Event (CCWE) and the adverse consequences of the hazards can be exacerbated leading to substantial impacts. Within Eastern North Carolina, Hurricanes Florence and Matthew are examples of CCWE, where floods occurred outside the predicted flood zone boundaries. When considering flood risk, current studies and applications for risk assessment have used univariate or bivariate approaches, typically leaving out the influence of the pluvial driver, leading to an underestimation of risk during these events. The use of multivariate statistical analysis of the three drivers included in CCWE has not yet been explored. In this project, a copula-based approach is introduced that can be used to obtain multivariate probabilistic assessments of CCWE drivers and their corresponding return periods. It has been hypothesized that the joint distributions will yield a greater hazard risk and smaller return period for each variable compared to their univariate distributions. Analyzing all drivers will provide a better understanding of CCWE and how to respond to these events.

10:25am “A Fair Candlemas,”

Dennis J. Edgell, University of North Carolina at Pembroke

This presentation represents the second in my geographical education series “Meteorology and Myth”. The purpose of the series is to develop teaching modules which bridge topics in geography and meteorology with topics in art, folklore, religion, and culture. One question that students in my

introductory “Weather and Climate” class would inevitably ask was if the “Groundhog Day” predictions are true. Although a groundhog and its shadow cannot predict the weather several weeks in advance, I found that there was a unique teaching opportunity within the folklore. Although the legend does not make short-term meteorological sense, there may be long-term upper-atmosphere circulation patterns, which have allowed this folk myth to arise in Europe, then diffuse to America. The lessons are not designed to “prove” if the Groundhog Day folk predictions are true. The point is to explain the relevant meteorological processes and cultural geographies in an interesting and accessible manner. Throughout this series, vivid and evocative imagery are used to make the atmospheric concepts engaging and memorable for general education students. Students were assessed on their ability to answer holistic questions such as “What is the cultural significance of Candlemas?” and “How will global warming lead to more severe winters?”

10:40am Question and Answer for Paper Presentations

Poster Presentations

10:50am The following poster presentations will be presented in individual breakout rooms during the poster session. See Program at a Glance for links to the zoom meeting.

Room 1 “Trends in NFIP (National Flood Insurance Program) Participation after Major Hurricanes in North Carolina,”

Julia Cardwell, University of North Carolina, Chapel Hill

As the intensity and frequency of extreme events like flooding increase due to climate change, there must be an increasing focus on preventing these events and mitigating the damages when they occur. The National Flood Insurance Program offers federally backed flood insurance for at-risk homeowners. This study examines absolute and comparative novel insurance uptake in counties with and without federal disaster declarations after six major hurricane years in North Carolina to determine whether these major events were associated with an increase in policy uptake, and finds conflicting patterns depending on the year and the storm. In addition, it explores the impact of residential participation in hurricane recovery programs, like FEMA’s Individual Assistance Program, on insurance uptake after Hurricane Florence in North Carolina. The study models participation

in disaster assistance as it compares to insurance uptake after Florence and finds that participation in disaster assistance is positively associated with insurance uptake.

Room 2 “Dasymetric Mapping of 2016 Population of Washington, D.C. Using Hyperspectral Imagery,”

Jahmina Ollison, University of North Carolina at Greensboro

Dasymetric mapping has been utilized since the early nineteenth century for thematic cartography. As one of the most popular methods of thematic cartography, Choropleth mapping is often used to map to display statistical data, like demographic information. Compared to choropleth mapping, dasymetric mapping is a more accurate representation for displaying population data (Holt et al. 2004). This project aimed to use dasymetric mapping methods to display the 2016 population of Washington, DC using a very high-resolution hyperspectral sensor. The sensor, EO-1 Hyperion, collects 220 unique spectral channels ranging from 0.357 to 2.576 micrometers with a 10-nm bandwidth. ENVI was used to classify the hyperspectral image of the study area using the Spectral Angle Mapper (SAM) classification method. ArcGIS was utilized to overlay the classification with census data to model the distribution of the data. The overall classification accuracy was 83.08%.

Keynote

11:30am Presentation titled “Non-Traditional Career Pathways”

Jeff Dequattro, Director of Restoration, Gulf of Mexico, Nature Conservancy

Business Meeting

11:50am Meeting Agenda:

- Financial report
- Tentative plans for 2022
- Journal report
- Newsletter Updates
- Elections