**BJORN BROOKS, PhD**

North Caroline State University

Cooperative Institute for Satellite Earth System Studies (CISESS) at NOAA’s National Centers for Environmental Information

151 Patton Ave #514, Asheville, NC 28801

Tel: (828) 271 - 4709; E-mail: bbrooks@ncics.org

# PROFESSIONAL SUMMARY

10+ years professional research experience in big data including atmospheric, ecological, and geophysical data sources. 6+ years experience in environmental remote sensing, optical and SAR. University research experience in the US and Canada as well as within the USDA Forest Service. US patent holder and co-developer of a gas emission detection technology in use in oil and gas fields.

* Expert knowledge in environmental remote sensing, landscape change, spatial pattern analysis
* Extensive experience in tracer-transport atmospheric modeling, data assimilation
* Extensive experience in scientific data management and cloud services and applications
* Extensive experience in UNIX/Linux, C, Fortran, IDL, R, Matlab, SAS
* Strong background in GIS tools, GDAL, Google Earth Engine, Esri, GRASS
* Strong background in NetCDF CF conventions and data life cycle management

# EDUCATION

PhD, Geology, Iowa State University, Ames, IA

M.Sc., Palaeobiology, University of Bristol, England

B.S., Biology, Iowa State University, Ames, IA

# EMPLOYMENT

2020 – present, *Research Associate*, North Carolina State University, Asheville, North Carolina

2014 – 2019, *ORISE Research Fellow*, USDA Forest Service

2013 – 2014, *Visiting Assistant Professor*, St. Francis Xavier University, Nova Scotia

2011 – 2013, *Research Post-doc*, University of Illinois, Urbana, IL

2009 – 2011, *Research Post-doc*, University of Wisconsin, Madison, WI

# PROFESSIONAL ASSOCIATIONS & SERVICES

Frontiers in Big Data, Data-driven Climate Sciences, Review Editor (2018-present)

Data Mining in Earth System Science, Conference Program Committee (2011-present)

SC Dept. of Education Teacher Professional Development Institute, Invited Speaker (2018-2019)

# RECENT PUBLICATIONS

**Brooks, B.-G. J.**, D. C. Lee, L. Y. Pomara, and W. W. Hargrove, 2020: Monitoring Broadscale Vegetational Diversity and Change across North American Landscapes Using Land Surface Phenology. Forests, 11, 606. [DOI](http://dx.doi.org/10.3390/f11060606)

**Brooks, B.**, Lee, D., 2019: Feasibility of Pattern Type Classification for Landscape Patterns Using the AG-curve. Landscape Ecology. [DOI](http://dx.doi.org/10.1007/s10980-019-00869-w)

**Brooks, B.**, Lee, D., Pomara, L., Hargrove, W., Desai, A., 2017: Quantifying Seasonal Patterns in Disparate Environmental Variables Using the PolarMetrics R Package, IEEE. [DOI](https://dx.doi.org/10.1109/ICDMW.2017.45)

Hurry, J., Risk, D., Lavoie, M., **Brooks, B.**, Phillips, C., Gӧckede, M., 2016: Atmospheric monitoring and detection of fugitive emissions for Enhanced Oil Recovery. International Journal of Greenhouse Gas Control. [DOI](https://dx.doi.org/10.1016/j.ijggc.2015.11.031)

**Brooks, B.**, Desai, A., Stephens, B., Bowling, D., Burns, S., Watt, A., Heck, S., Sweeney, C., 2012: Assessing filtering of mountaintop CO2 mole fractions for application to inverse models of biosphere-atmosphere carbon exchange. Atmospheric Chemistry and Physics. [DOI](https://dx.doi.org/10.5194/acp-12-2099-2012)

Kumar, J., **Brooks, B.**, Thornton, P., Dietze, M., 2012: Subdaily Statistical Downscaling of Meteorological Variables Using Neural Networks. Procedia Computer Science. [DOI](https://doi.org/10.1016/j.procs.2012.04.095)

Desai, A., Moore, D., Ahue, W., Wilkes, P., de Wekker, S., **Brooks, B.**, Campos, T., Stephens, B., Monson, R., Burns, S., Quaife, T., Aulenbach, S., Schimel, D., 2011: Seasonal pattern of regional carbon balance in the central Rocky Mountains from surface and airborne measurements. Journal of Geophysical Research. [DOI](https://dx.doi.org/10.1029/2011JG001655)

Hoffman, F., Larson, J., Mills, R., **Brooks, B.**, Ganguly, A., Hargrove, W., Huang, J., Kumar, J., Vatsava, R., 2011: Data Mining in Earth System Science. Procedia Computer Science. [DOI](https://dx.doi.org/10.1016/j.procs.2011.04.157)

**Brooks, B.**, 2011: Earth Scientist's Guide to Discrete-Time Power Spectrum Analysis. Chapter in: Goran Nikolic (Ed.) Fourier Transforms-New Analytical Approaches and FTIR Strategies, ISBN 978-953-307-232-6. [DOI](https://dx.doi.org/10.5772/16113)

**Brooks, B.**, Cervato, C., 2010: A Habitat-based Perspective of Marine Biogeography in Passive and Convergent Tectonic Settings. Palaeontologia Electronica. [URL](https://palaeo-electronica.org/2010_3/209/index.html)

**Brooks, B.**, 2009: Applying Wavelet and Fourier Transform Analysis to Large Geophysical Datasets. Lecture Notes in Computer Science. [DOI](https://dx.doi.org/10.1007/978-3-642-01973-9_47)

# LATEST PRESENTATIONS & SESSIONS

**Brooks, B.**, 2020: Transitioning local to cloud-native data processing, lessons from an environmental dataset. *NOAA Environmental Data Management Workshop, Virtual*, August 19, 2020.

**Brooks, B.**, 2020: A joint private-public citizen science collaboration to ‘Fight Forest Fragmentation’. *NOAA Environmental Data Management Workshop, Virtual*, August 18, 2020.