BJORN BROOKS, PhD

North Caroline State University
Cooperative Institute for Satellite Earth System Studies (CISESS)
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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](#)

Brooks, B., Lee, D., 2019: Feasibility of Pattern Type Classification for Landscape Patterns Using the AG-curve. Landscape Ecology. [DOI](#)

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](DOI)

Hurry, J., Risk, D., Lavoie, M., **Brooks, B.**, Phillips, C., Göckede, M., 2016: Atmospheric monitoring and detection of fugitive emissions for Enhanced Oil Recovery. International Journal of Greenhouse Gas Control. [DOI](DOI)

Brooks, B., Desai, A., Stephens, B., Bowling, D., Burns, S., Watt, A., Heck, S., Sweeney, C., 2012: Assessing filtering of mountaintop CO_2 mole fractions for application to inverse models of biosphere-atmosphere carbon exchange. Atmospheric Chemistry and Physics. [DOI](DOI)

Kumar, J., **Brooks, B.**, Thornton, P., Dietze, M., 2012: Subdaily Statistical Downscaling of Meteorological Variables Using Neural Networks. Procedia Computer Science. [DOI](DOI)

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](DOI)

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](DOI)

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](DOI)

Brooks, B., Cervato, C., 2010: A Habitat-based Perspective of Marine Biogeography in Passive and Convergent Tectonic Settings. Palaeontologia Electronica. [URL](URL)

Brooks, B., 2009: Applying Wavelet and Fourier Transform Analysis to Large Geophysical Datasets. Lecture Notes in Computer Science. [DOI](DOI)

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.