Daniel "Burke" Brunson

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Education

Doctor of Philosophy of Science	University of North Dakota	(Present)
Geographic Information Science Certificate	University of North Dakota	August 2019
Master of Science	University of North Dakota	December 2017
Bachelor of Science (B.S.G. Track)	University of Alabama	December 2013
Bachelor of Science	University of Alabama	August 2006

Relevant Work Experience

Core Library Technician — North Dakota Geological Survey, Grand Forks, ND — June 2017 – June 2021

Image the cores sent for storage in the Core Library for posting on the North Dakota Geological Survey subscription services website, retrieve core for visitors of the Core Library, and place core boxes in the warehouse shelving for storage.

Mud Logging Analyst — Schlumberger, Lafayette, LA — May 2014 – August 2015

Log the lithological properties of rock chips and monitor drilling data to help maintain structural integrity of the well, monitor hydrocarbon gas data to help ensure safety of the rig site and help in formation evaluation, receive training on site and during off-time in industry techniques and protocols.

Research Experience

Research Assistant — University of North Dakota, Grand Forks, ND — June 2022 – Present

Create a library of 3-D digital models of rocks and minerals and set up 3-D printer-compatible CAD files to create replica rock and crystal models.

Research Assistant — University of Alabama, Tuscaloosa, AL — Summer 2013 – December 2013

Performed a study of a stalactite gathered from Ulupaka Cave of the island of Niue; collected isotopic compositions of carbon and oxygen via GC-Mass Spectrometry used in eliciting regional rainfall records

Lab Assistant — University of Alabama, Tuscaloosa, AL — Spring 2013 – December 2013

Prepared and carried out GC-Mass Spectrometry analysis of research samples for determination of carbon and oxygen isotopic compositions; maintained lab materials and equipment as necessary.

Research Assistant — University of South Alabama, Mobile, AL — Spring 2007 – Fall 2008

Performed population genetics studies of two plant species, *Liquidambar styraciflua* and *Illicium parviflorum*.

Research Assistant — University of Alabama, Tuscaloosa, AL — Summer 2004 – Summer 2006

Performed a study involving the introduction of nanoparticles into biological systems as a novel RNAi System; performed other studies involving magnetic tape polymer chemistry.

Peer-reviewed Scientific Publications

Gosnold, Will; Crowell, Anna; Keller, Kris; Brunson, Daniel; Tyler, Lindsay; Nwachukwu, Francis; Onwumelu, Chioma; Ogochukwu, Ozotta, Ruben Havsed and Joachim Karthäuser. 2017. Concept for a Distributed Baseload Binary Power Network. *GRC Transactions* **41**: 1814-1823.

Brunson, Daniel; Gosnold, Will; Ho, I-Hsuan; and Nordeng, Stephan. 2017. Geophysical Analysis of the Paleogeothermal Gradient and Heat Flow in the Williston Basin, ND. 53 pp. University of North Dakota, Grand Forks, ND, December 2017.

Peer-reviewed Scientific Publications (Continued)

Morris AB, SM Ickert-Bond, **DB Brunson**, DE Soltis, PS Soltis. 2008. Intraspecific divergence time estimation reveals temporal complexity in phylogeographic patterns of American sweetgum (*Liquidambar styraciflua*). *Molecular Ecology* **17**: 3889-3900.

Professional Appearances & Speaking Engagements

Brunson, Daniel. Thermal Modeling of the Yellowstone Volcanic Complex: Implications for Crustal Structure of the Magma System and Eruption Dynamics. Speech presented at 2021 NASA North Dakota Space Grant Student Symposium. Web Conference, Grand Forks, ND, 16 April 2021.

Brunson, Daniel. Untapped Unconventional Potential: Heat Flow & Source Bed Thermal Maturation. Speech presented at 2018 Williston Basin Petroleum Conference. Bismarck Event Center, Bismarck, ND, 23 May 2018.

Brunson, Daniel. Sedimentary Geothermal Energy. Speech presented at 2018 Williston Basin Geothermal Considerations Incubator Workshop. University of North Dakota, Grand Forks, ND, 15 February 2018.

Poster Presentations

Brunson, Daniel. Spatiotemporal Analysis of Urban Expansion in the Greater Grand Forks Area, ND. Poster presented at 2018 GIS Day Event. University of North Dakota, Grand Forks, ND, 14 November 2018.

Brunson, Daniel. Geophysical Analysis of the Paleogeothermal Gradient and Heat Flow in the Williston Basin, ND. Poster presented at 2018 SMU Power Plays Conference. Southern Methodist University, Dallas, TX, 09 January 2018.

Brunson, Daniel. Geostatistical Analysis of Bottom-Hole Temperatures and Heat Flow in the State of Texas, USA. Poster presented at 2017 GIS Day Event. University of North Dakota, Grand Forks, ND, 14 November 2017.

Teaching and Mentoring Experience

Teaching Assistant — University of North Dakota, Grand Forks, ND — Fall 2015 – Present
Taught and prepared lab materials for Geophysics, Structural Geology, Sedimentology/Stratigraphy, and Introductory Geology courses while completing M.S. and Ph.D. degrees.

Teacher (Full Time) — St. Paul's Episcopal School, Mobile, AL — Jan 2011 – May 2012
Taught two High School Science courses – Human Anatomy & Physiology and Marine Biology; faculty advisor for the Science Research Club that explores the topic of modern scientific study and research.

Teacher (Substitute) — St. Paul's Episcopal School, Mobile, AL — March 2011 – May 2011
Taught three separate Alternative Instruction Program (AIP) classes of Mathematics while a teacher was away on maternity leave of absence; developed all course materials during position tenure.

Teaching Assistant — University of South Alabama, USA, Mobile, AL — Spring 2007 – Fall 2008
Taught and prepared lab materials for Introductory Biology Lab Courses.

Substitute Teacher — St. Paul's Episcopal School, Mobile, AL — Fall 2006 – March 2011
Taught classes of scientific and mathematical subject material upon request.

Teaching Assistant — University of Alabama, Tuscaloosa, AL — Fall 2005 – Spring 2006
Taught Introductory Biology Lab Courses for Non-majors.

Volunteer Youth Mentor — University of Alabama, Tuscaloosa, AL — Fall 2004 – Spring 2006
Helped Holt High School students in afternoon hours with homework assignments and class projects as a member of the UA JUMP mentoring program.

Work Projects

"Tahiti" Exploration Well Schlumberger, Green Canyon, Gulf of Mexico July 2015
Operator: Chevron, Rig: Deepwater Asgard, Position: Mud Logging Analyst

Data Analyst Training Program Schlumberger, Sugar Land, TX June 2015
Learned the theory behind and analysis of formation pressure, pore pressure, lithostatic gradient, effective static & circulating densities, bottom hole pressure and bottom hole circulating pressure, kick detection, and report the GSS standard deliverable services to the client

"Gunflint" Exploration Well Schlumberger, Mississippi Canyon, Gulf of Mexico May 2015 – May 2015
Operator: Noble Energy, Rig: Atwood Advantage, Position: Mud Logging Analyst

"Thorvald" Exploration Well Schlumberger, Mississippi Canyon, Gulf of Mexico March 2015 – April 2015
Operator: Statoil, Rig: Maersk Developer, Position: Mud Logging Analyst

"Yeti" Exploration Well Schlumberger, Walker Ridge, Gulf of Mexico January 2015 – March 2015
Operator: Statoil, Rig: Maersk Developer, Position: Mud Logging Analyst

Acquisitions Training Program Schlumberger, Sugar Land, TX February 2015
Learned the setup and functions of the GeoNEXT4 hardware and software, the WITS and InterACT communication packages, and the Reserval Gas Analysis hardware

FLAG Training Program Schlumberger, Sugar Land, TX February 2015
Learned about the proprietary technology developed by Schlumberger used in the rapid detection of drilling fluid gains or losses, along with other enhanced applications of the FLAG system

"King" Exploration Well Schlumberger, Mississippi Canyon, Gulf of Mexico January 2015
Operator: Freeport-McMoran, Rig: Noble Tom Madden, Position: Mud Logging Analyst

"Perseus" Exploration Well Schlumberger, DeSoto Canyon, Gulf of Mexico November 2014 - January 2015
Operator: Statoil, Rig: Maersk Developer, Position: Mud Logging Analyst

"Tahiti" Exploration Well Schlumberger, Green Canyon, Gulf of Mexico September 2014
Operator: Chevron, Rig: Discoverer Inspiration, Position: Mud Logging Analyst

Full Mud Logger Training Program Schlumberger, Sugar Land, TX July 2014
Learned about the responsibilities of the Mud Logging Analyst and extended on the responsibilities of the Trainee Mud Logger.

"Guadalupe" Exploration Well Schlumberger, Keathley Canyon, Gulf of Mexico May 2014 – August 2014
Operator: Chevron, Rig: Discoverer Inspiration, Position: Mud Logging Analyst

Oil Field Services Training Program Schlumberger, Sugar Land, TX June 2014
Learned the role of Schlumberger and its subsidiaries in the oil field services business sector of the Oil & Gas industry; learned the responsibilities of the Geoservices (GSS) segment

Relevant Geoscience Tool and Software Familiarity

"Arc" - Finite Difference Heat Flow Simulation
Surfer - 2D & 3D mapping, modeling, and analysis
Voxler - 3D mapping, modeling, and analysis
ArcGIS -- general mapping and Play Fairway Analysis (PFA)
SPSS -- statistics
Microsoft Excel -- spreadsheets and statistics, gravimetry study
Geometrics Seismodule Controller - Seismology Equipment Software Package
PickWin and PicoScope - Divided Bar Thermal Conductivity Software Package

Relevant Geoscience Tool and Software Familiarity (Continued)

Genie 2000 - Gamma Ray Spectrometer Acquisition & Analysis
Python
Petra
Thermistor Temperature Probe (calibration to ± 0.001°C; accuracy to 0.009°C; up to 800m depth)
LaCoste & Romberg Model G Land Gravity Meter
Geometrics Geode Exploration Seismograph
Canberra Gamma Ray Spectrometer (Germanium-type Detector)

Relevant Coursework

Research and Dissertation Hours	(Present)
Computer Science II	Summer 2019
Introduction to Statistics	Spring 2019
Computer Science I	Spring 2019
Field Methods & Analysis	Fall 2018
Remote Sensing	Fall 2018
Cold Region Hydrologic Modeling	Fall 2018
Isostasy and Flexure of the Continental Lithosphere	Spring 2018
System Dynamics II	Spring 2018
Advanced Techniques in GIS	Spring 2018
Sedimentology	Fall 2017
Reservoir Geophysics	Fall 2017
Introduction to GIS	Fall 2017
Geothermics II	Spring 2017
Research	Spring 2017
Thesis	Spring 2017
Geomechanics	Fall 2016
Research	Fall 2016
Thesis	Fall 2016
Geothermics I	Spring 2016
Advanced Structural Geology	Spring 2016
GIS & T in the GeoSciences	Spring 2016
Heat Flow	Fall 2015

Relevant Coursework (Continued)

Topics in Advanced Stratigraphy	Fall 2015
System Dynamics I	Fall 2015
Visual Presentation for Geologists	Fall 2013
Environmental Isotopes (Graduate-level Course)	Fall 2013
Hydrogeology	Fall 2013
Undergraduate Research – Geology	Fall 2013
Calculus II	Fall 2013
Field Geology Course	Summer 2013
Igneous and Metamorphic Petrology	Spring 2013
Sedimentology/Stratigraphy	Spring 2013
Invertebrate Paleontology	Spring 2013
Structural Geology	Fall 2012
Geophysics	Fall 2012
Mineralogy	Fall 2012
Calculus I	Fall 2012
The Dynamic Earth	Spring 2012
The Earth Through Time	Spring 2012
Biology of Environmental Resource Development	Summer 2006
Elementary Organic Chemistry II	Fall 2005
Elementary Organic Chemistry Lab II	Fall 2005
Quantitative Analysis	Summer 2005
General Physics w/ Calculus II	Summer 2005
Elementary Physical Chemistry	Spring 2005
Elementary Physical Chemistry Lab	Spring 2005
Undergraduate Research II – Chemistry	Spring 2005
Elementary Organic Chemistry Lab I	Fall 2004
Undergraduate Research I - Chemistry	Fall 2004
General Physics w/ Calculus I	Fall 2004

Relevant Coursework (Continued)

Elementary Organic Chemistry I — Spring 2004

General Chemistry II — Summer 2003

General Chemistry I — Fall 2002

Scholarships, Awards, and Honors

ND Space Grant Consortium Final Report Scholarship — Spring 2021
ND Space Grant Consortium

ND Space Grant Consortium Graduate Student Fellowship — Fall 2020
ND Space Grant Consortium

Geothermal Resources Council Graduate Award Scholarship — Fall 2017
Geothermal Resources Council

Student Council President and Ex-Officio Member of Board of Directors — Spring 2016
Geothermal Resources Council

Geothermal Resources Council Student Chapter President — Spring 2016
University of North Dakota

Sigma Gamma Epsilon Geology Honor Society — Fall 2015
University of North Dakota

NDIC Teaching Assistantship Appointment — Fall 2015 – Spring 2021
University of North Dakota

Top HSE Performer – FLAG Training Program — Spring 2015
Schlumberger

Top HSE Performer – Acquisitions (AQ-2) Training Program — Spring 2015
Schlumberger

Dean's List — Fall 2013; Fall 2003
University of Alabama

Alacare Hospice "Student Volunteer of the Year" — Spring 2006
University of Alabama

Phi Eta Sigma Freshman Honor Society — Spring 2003
University of Alabama

Capstone Summer Honors Program Scholarship — 2002-2006
University of Alabama

Paul "Bear" Bryant Scholarship — 2002-2006
University of Alabama

Test Scores

GRE — December 2013
Score: 313 (Verbal: 163, Quantitative: 150, Analytical Writing: 4.0)

Certifications

U.S. Passport — May 2014 to May 2024
CTC/US Department of State

U.S. Global Entry — June 2014 to October 2024
U.S. Customs and Border Protection

Transportation Worker Identification Credential (TWIC) July 2014 to July 2019
TSA

RigPass (Includes SafeGulf and SafeLandUSA) — June 2014 to June 2017
International Association of Drilling Contractors

Tropical Helicopter Underwater Egress Training (T-HUET 5195) — June 2014 to June 2018
OPITO

Personnel Transfer Basket / Swing Rope — June 2014
Falck Safety Services (US)

Personal Driver's License (Class D) — October 2021
State of North Dakota

U.S. Social Security Number — October 1983
Social Security Administration

U.S. Birth Certificate — October 1983
State of [REDACTED]

Professional Associations

Professional Member	Geothermal Rising	2023
Student Member	Society of Exploration Geophysicists	2023
Student Member	American Association of Petroleum Geologists	2023
Student Member	Geological Society of America	2023
Student Member	American Institute of Professional Geologists	2023