

David J. Brown

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PROFESSIONAL APPOINTMENTS

- 2010 – *Associate Professor of Soil Science*
Dept. of Crop & Soil Sciences, Washington State University, Pullman, WA
- 2007 – 2010 *Assistant Professor of Soil Science*
Dept. of Crop & Soil Sciences, Washington State University, Pullman, WA
- 2002 – 2006 *Assistant Professor of Landscape Pedology*
Dept. Land Resources & Environ. Sci., Montana State Univ., Bozeman, MT
- 2001 – 2002 *Graduate Research Assistant*
Dept. of Soil Science, University of Wisconsin, Madison, WI
- 2001 (summer) *Lecturer, Field Experience in Soil Inventory Methods*
College of Natural Res., University of Wisconsin, Stevens Point, WI
- 2000 (fall) *Lecturer, Pedology*
Dept. of Soil Science, University of Wisconsin, Madison, WI
- 1999 – 2000 *Fulbright Scholar, Uganda*
- 1996 – 1999 *NSF Graduate Research Fellow, Penn State and UW-Madison*
- 1995 – 1996 *Penn State Graduate School Fellow*
- 1992 – 1995 *Energy Conservation Technical Specialist, Utilities Dept., Palo Alto, CA*
- 1988 – 1991 *High School Science Teacher, U.S. Peace Corps, Fiji*

EDUCATION

2002	Soil Science	Ph.D.	University of Wisconsin–Madison
2002	Biometry	M.S.	University of Wisconsin–Madison
1997	Geography	M.S.	The Pennsylvania State University, University Park
1988	Electrical Eng.	B.S.	University of Illinois, Urbana-Champaign
1988	Rhetoric	B.A.	University of Illinois, Urbana-Champaign

ACADEMIC AWARDS AND DISTINCTIONS

Soil Science Society of America Journal Outstanding Reviewer Award (2004)
NSF International Research Fellowship, World Agroforestry Centre (ICRAF), Nairobi (2003)
Fulbright Student Award, Uganda (1999-2000)
NSF Graduate Research Fellowship (1996-1999)
Graduate School Fellowship, The Pennsylvania State University (1995-1996)
Champ Tanner Scholarship, UW-Madison, Soil Science (2001)
William T. Dibble Scholarship, UW-Madison, College of Agriculture and Life Sciences (1999)

RESEARCH

Research Interests

Soil Geography. My research is focused on measuring, modeling and explaining the spatial variability of soil properties and processes at hillslope to regional scales. Currently that research is focused on short- and long-term greenhouse gas flux dynamics (CO₂, CH₄ and N₂O) for agricultural landscapes. In pursuing this research, I make extensive use of digital terrain modeling, optical remote sensing, spatial statistics, and proximal soil sensing techniques.

Grants and Contracts (^ALead investigator, ^BPortion of funding within larger grant, ^Cshared)

<u>Years</u>	<u>Funds (\$)</u>	<u>Description</u>
2012-2014	80,000 ^C	Field Phenomics Platform Development. WSU-ARC, Emerging Research Issues for Washington Agriculture, Internal Competitive Grant Program. (PI: M. Pumphrey. Co-PIs: A. Carter, K. Garland-Campbell, S. Hulbert, R. Knowles, C. Steber, Q. Zhang)
2011-2016	4,640,000 ^A	Site-specific climate friendly farming. USDA-NIFA-AFRI climate change program. (co-PIs: E. Brooks, J.U.H. Eitel, D.R. Huggins, K. Painter, K. Reardon, J.L. Smith, C.O. Stöckle, L. Vierling). USDA-NIFA Award No. 2011-67003-30341.
2010-2013	150,000 ^A	Soil Organic Carbon measurement and modeling in the vicinity of Mount Rainier National Park. USDA-NRCS.
2011-2013	458,174 ^B	Big Sky Regional Carbon Sequestration Partnership, Phase III. Lee Spangler, PI (DOE-NETL \$67 million, DE-FC26-05NT42587).
2008-2010	87,924 ^A	Mapping soil-water dynamics on the Palouse with proximal soil sensing. WSU-ARC, Emerging Research Issues for Washington Agriculture, Internal Competitive Grant Program. (Co-PI's: David Huggins, Colin Campbell, and Doug Cobos)
2006-2011	176,108 ^A	Modeling and measuring the spatio-temporal variability of methane emissions from tropical dambo wetlands. NSF Geog. & Reg. Sci. Grant No. 0620142. (Collaborator Philip Dennison, Univ. of Utah received \$84,892 on NSF Geog. & Reg. Sci. Grant No. 0620206.)
2005-2009	284,000 ^B	Big Sky Regional Carbon Sequestration Partnership, Phase II. Susan Capalbo, PI. (DOE DE-FC26-05NT42587, \$14.3 million). *Terrestrial group leader, group budget \$2.2 million
2005-2007	50,000 ^A	Soil-Landscape Modeling to Estimate the Potential Impact of Coal-Bed Methane (CBM) Development, Ashland District, Custer National Forest. (USDA-Forest Service cooperative agreement)
2004-2005	25,000 ^A	Landscape analysis for soil and ecological mapping in the Custer National Forest. (USDA-Forest Service cooperative agreement)
2003-2005	42,706 ^B	The Northern Rockies and Great Plains Regional Carbon Sequestration Partnership. Susan Capalbo, PI (DOE Award No. DE-FC26-03NT41995, \$2.0 million).

21. Totman, M.E., M.E. Swanson, T.M. Rodgers, P.A. McDaniel, R.A. Rupp, **D.J. Brown**, 2014. Soil organic carbon stocks in the forests of Mount Rainier National Park, Washington USA. *Soil Science Society of America Journal*, 78: S270-S280. doi: 10.2136/sssaj2013.08.0374nafsc
20. Bricklemeyer, R.S., **D.J. Brown***, P.J. Turk and S.M. Clegg, 2013. Improved intact soil core carbon determination applying regression shrinkage and variable selection techniques to complete-spectrum laser-induced breakdown spectroscopy (LIBS). *Applied Spectroscopy*, 67(10): 1185-1199.
19. Bricklemeyer, R.S., **D.J. Brown***, J. Barefield, S.M. Clegg, 2011. Intact soil core total, inorganic and organic carbon measurement using laser-induced breakdown spectroscopy (LIBS). *Soil Sci. Soc. of Am. J.*, 75(3): 1006-1018.
18. Ge, Yufeng, C.L.S. Morgan, S. Grunwald, **D.J. Brown**, 2011. Comparison of Soil Reflectance Spectra and Calibration Models Obtained Using Multiple Spectrometers, *Geoderma*, 161(3-4): 202-211.
17. **Brown, D. J.***, E.R. Hunt, R.C. Izaurralde, K.H. Paustian, C.W. Rice, B.L. Schumaker, T.O. West, 2010. Soil Organic Carbon Change Monitored Over Large Areas. *EOS*, 91(47): 441-442.
16. Bricklemeyer, R.S., **D.J. Brown***, 2010. On-the-go VisNIR: Potential and limitations for mapping soil clay and organic carbon. *Comput. Electron. Agr.*, 70(1): 209-216. doi:10.1016/j.compag.2009.10.006
15. Campbell, C.S., Bissey, L.L., Cobos, D.R., Dunne, K.M., Campbell, G.S., **Brown, D.J.** 2010. Insights into soil water use through interpreting moisture sensor data. *Japanese Soil Science Society Journal*. 114:19-22.
14. Eitel, J.U.H., D.S. Long, P.E. Gessler, E.R. Hunt, **D.J. Brown**, 2009. Sensitivity of ground-based remote sensing estimates of wheat chlorophyll content to variation in soil reflectance. *Soil Sci. Soc. of Am. J.*, 73:1715-1723. doi: 10.2136/sssaj2008.0288
13. Serbin, G., C.S.T. Daughtry, E.R. Hunt Jr., **D.J. Brown**, 2009. Effect of soil spectral properties on remote sensing of crop residue cover. *Soil Sci. Soc. of Am. J.*, 73: 1545-1558. doi:10.2136/sssaj2008.0311
12. Morgan, C.L.S, T.H. Waiser, **D.J. Brown**, D.J., and C.T. Hallmark, 2009. Simulated in situ characterization of soil organic and inorganic carbon with visible near-infrared diffuse reflectance spectroscopy. *Geoderma*, 151:249-256. doi:10.1016/j.geoderma.2009.04.010
11. Hansen, M.K., **D.J. Brown***, P.E. Dennison, S.A. Graves, and R.S. Bricklemeyer, 2009. Inductively mapping expert-derived soil-landscape units within dambo wetland catenae using multispectral and topographic data. *Geoderma*, 150(1-2): 72-84. doi:10.1016/j.geoderma.2009.01.013
10. Serbin, G., C.S.T. Daughtry, E.R. Hunt Jr, J.B. Reeves III and **D.J. Brown**, 2009. Effects of soil composition and mineralogy on remote sensing of crop residue cover. *Remote Sens. Environ.*, 113(1), 224-238. doi:10.1016/j.rse.2008.09.004
9. Sankey, J.B., **D.J. Brown***, Melisa L. Bernard, Rick L. Lawrence, 2008. Comparing local vs. global visible and near-infrared (VisNIR) diffuse reflectance spectroscopy (DRS)

- calibrations for the prediction of soil clay, organic C and inorganic C. *Geoderma*, 148(2): 149-158. doi:10.1016/j.geoderma.2008.09.019
8. **Brown***, **D.J.**, 2007. Using a global VNIR soil-spectral library for local soil characterization and landscape modeling in a 2nd-order Uganda watershed. *Geoderma*, 140(4): 444-453. doi:10.1016/j.geoderma.2007.04.021.
 7. Waiser, T.H., C.L.S. Morgan, **D.J. Brown**, and C.T. Hallmark, 2007. In situ characterization of soil clay content with visible near-infrared diffuse reflectance spectroscopy. *Soil Sci. Soc. of Am. J.*, 71(2): 389-396.
 6. Mahan, S.A. and **D.J. Brown**, 2007. An optical age chronology of late Quaternary extreme fluvial events recorded in Ugandan dambo soils. *Quaternary Geochronology*, 2: 174–180.
 5. **Brown***, **D.J.**, K.D. Shepherd, M.G. Walsh, M.D. Mays, T.G. Reinsch, 2006. Global soil characterization with VNIR diffuse reflectance spectroscopy. *Geoderma*, 132:273-290.
 4. **Brown***, **D.J.**, R.S. Brickleyer and P.R. Miller, 2005. Validation requirements for diffuse reflectance soil characterization models with a case study of VNIR soil C prediction in Montana. *Geoderma*, 129(3-4): 251-267.
 3. **Brown***, **D.J.**, K. McSweeney, and P.A. Helmke, 2004. Statistical, geochemical, and morphological analyses of stone line formation in Uganda. *Geomorphology*, 62(3-4): 217-237.
 2. **Brown***, **D.J.**, M.K. Clayton, and K. McSweeney, 2004. Potential terrain controls on soil color, texture contrast and grain-size deposition for the original catena landscape in Uganda. *Geoderma*, 122(1): 51-72.
 1. **Brown***, **D.J.**, P.A. Helmke, and M.K. Clayton, 2003. Robust geochemical indices for redox and weathering on a granitic laterite landscape in central Uganda. *Geochimica et Cosmochimica Acta*, 67(15): 2711-2723.