

Maggie R. Davis

R&D Associate Scientist

Oak Ridge National Laboratory, Environmental Sciences Division

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EDUCATION:

M.S., Forestry Wildlife and Fisheries Sciences (Eucalyptus in Brazil), 2011
University of Tennessee, TN, USA

B.A., Economics and Geography, 2007
University of Tennessee, TN, USA

PROFESSIONAL POSITIONS:

R&D Associate 2016 –present
Environmental Sciences Division, Oak Ridge National Laboratory, TN, USA

R&D Assistant 2014-2016
Postmasters Research Associate 2011–2014
Environmental Sciences Division, Oak Ridge National Laboratory, TN, USA

Research Specialist III 2006-2010
Institute for a Secure & Sustainable Environment, The University of Tennessee, TN, USA

RESEARCH INTERESTS:

(ORCID: <https://orcid.org/0000-0001-8131-9328>)

Data informatics, metadata management

Biomass resource modeling, soil carbon & short rotation woody crop production

Data science and High Performance Computing

Utilizing observational climate data in natural resource economics and land use efficiency, carbon valuation

Standards development: focused on trade of natural resources

SYNERGISTIC ACTIVITIES, SERVICE, AWARDS, AND HONORS:

- Award (Service): Atmospheric Radiation Measurement (ARM), Awarded June 2020
- Award (Distinguished Achievement): Science Serving Society, Awarded May 2017
- Service: Committee on Forest Policy: Society of American Foresters | Washington, DC, US; 2018 - Present
- E3 (Bioenergy, Climate Change & Carbon) Working Group: Society of American Foresters | Washington, DC, US; November 2020 -Present.
- Service: Secretariat (Working Group on Indirect Effects, ISO13065): International Standards Organization | Geneva, CH; 2012-01-01 to 2015-09-30
- Professional Society Memberships: AGU, AAAS, SAF, ASTM

REFEREED PUBLICATIONS (h-index =6, i10-index = 4, total citations = 248

[<https://tinyurl.com/yyfco6eg>]:

1. Davis M., D. Kainer, G. Tuskan, M. Langholtz, C. Hellwinckel, M. Shedden, L. Eaton, 2020. Modeled economic potential for Eucalyptus spp. production for jet fuel additives in the United States, Journal Biomass and Bioenergy, 143. <https://doi.org/10.1016/j.biombioe.2020.105807>
2. M. Langholtz, B. H. Davison, H. I. Jager, L. Eaton, L. M. Baskaran, M. Davis, Craig C. Brandt, 2020. Increased nitrogen use efficiency in crop production can provide economic and environmental

benefits, *Science of The Total Environment*, 2020, 143602, ISSN 0048-9697, <https://doi.org/10.1016/j.scitotenv.2020.143602>.

3. Langholtz M., I. Busch, A. Kasturi, M. Hilliard, J. McFarlane, C. Tsouris, S. Mukherjee, O. Omitaomu, S. Kotikot, M. Ree Allen, C. DeRolph, M.R. Davis, E.S. Parish, 2020. The economic accessibility of CO₂ sequestration through bioenergy with carbon capture and sequestration (BECCS) in the US. *Land* 2020, 9(9), 299; <https://doi.org/10.3390/land9090299>.
4. Langholtz, M., Eaton, L., Davis, M., ...Brandt, C., Hilliard, M. (2019), Cost and profit impacts of modifying stover harvest operations to improve feedstock quality. *Biofuels, Bioproducts and Biorefining*, 2019, 13(4), pp. 1098-1105
5. Langholtz, M., Eaton, L., Davis, M., ... Volk, T., Richard, T. (2019). Economic comparative advantage of willow biomass in the Northeast USA. *Biofuels, Bioproducts and Biorefining*, 2019, 13(1), pp. 74-85
6. Davis, M.R.; Alves, B.J.R.; Karlen, D.L.; Kline, K.L.; Galdos, M.; Abulebdeh, D., 2018. Review of Soil Organic Carbon Measurement Protocols: A US and Brazil Comparison and Recommendation. *Sustainability* 2018, 10, 53.
7. Eaton L., M. Langholtz M. Davis, 2018. The impact of alternative land and yield assumptions in herbaceous biomass supply modeling: one-size-fits-all resource assessment? *Journal of Biofuels, Bioproducts and Biorefining*, 2018. Volume13, Issue1. P. 120-128. <https://doi.org/10.1002/bbb.1946>
8. Kline, K.L., M.R. Davis, J. Dunn, L. Eaton, R.A. Efroymsen, 2017. Land, crops, and landmanagement: Understanding potential direct and indirect "land-use change" (LUC) under BT16 simulations. 2016 Billion-Ton Report: Advancing Domestic Resources for a Thriving Bioeconomy, Volume 2: Environmental Sustainability Effects of Select Scenarios from Volume 1. doi: 10.2172/1338837
9. Brandt C., M. Langholtz, M. Davis, Bryce Stokes, Chad Hellwinckel, Keith Kline, and Laurence Eaton, 2017. Chapter 2 – BT16 Feedstock Assessment Methods and Focal Scenarios U.S. Department of Energy. Appearing in Volume 2: Environmental Sustainability Effects of Select Scenarios from Volume 1 (2016 Billion-Ton Report: Advancing Domestic Resources for a Thriving Bioeconomy). doi 10.2172/1338837
10. Davis, M.R., L.M. Eaton, M.H. Langholtz, A. Turhollow, C. Brandt, and M.H. Hillard, 2016. Agricultural residues and biomass crops at the farmgate. U.S. Department of Energy. 2016 Billion-Ton Report: Advancing Domestic Resources for a Thriving Bioeconomy, Volume 1: Economic Availability of Feedstocks. doi: 10.2172/1271651.
11. Dale V.H., Efroymsen R.A., Kline K.L., Langholtz M.H., Leiby P.N., Oladosu G.A., Davis M.R., Downing M.E., Hilliard M.R., 2013. Indicators for assessing socioeconomic sustainability of bioenergy systems: A short list of practical measures. *Ecological Indicators* 26: 87-102. <http://dx.doi.org/10.1016/j.ecolind.2012.10.014>
12. Oladosu G, Kline K, Leiby P, Uria-Martinez R, Davis M, Downing M and Eaton L. 2012. Global economic effects of US biofuel policy and the potential contribution from advanced biofuels. *Future Science – Biofuels* 3(6):703-723.
13. J. Peine, B. Jacobs, K. Franzreb, M. Stevens, 2011. Ecosystem Management - The Law and Politics of Sustainability, *Berkshire Encyclopedia of Sustainability*
14. Slayton, J.D., M.R. Stevens, H.D. Grissino-Mayer, and C.H. Faulkner, 2009. The Historical Dendroarchaeology of Two Log Structures At the Marble Springs Historic Site, Knox County, Tennessee, U.S.A *Tree-Ring Research* 65(1):23-36. 2009. doi: <http://dx.doi.org/10.3959/2007-5.1>

Conference Papers

1. Davis, M., Langholtz, M., Kainer, D. 2019. The potential for eucalyptus spp. production in the U.S, sustainability considerations. *Bioenergy Sustainability Conference 2019*, pp. 13-14
2. Davis, M. 2014. Indirect effects of bioenergy: International standards and science. *RCN Conference on Pan American Biofuels and Bioenergy Sustainability 2014*, pp. 264-276

Book Chapters

Esther Parish, Virginia Dale, Maggie Davis, Rebecca Efroymsen, Michael Hilliard, Henriette Jager, Keith Kline, Fei Xie. 2020. An Indicator-based Approach to Sustainable Management of Natural Resources.

Standards and reports

1. International standard: ASTM E3066, 2017. ASTM E3066: Standard Practice for Evaluating Relative Sustainability Involving Energy or Chemicals from Biomass. Available at: <https://www.astm.org/Standards/E3066.htm> (direct involvement in development)
2. International standard: ISO (The International Organization for Standardization). 2015. *13065:2015 - Sustainability criteria for bioenergy*. Paris, France: ISO. <https://www.iso.org/obp/ui/#iso:std:iso:13065:ed-1:v1:en> (direct involvement in development)
3. Report: "Bioenergy trade and Domestic Biomass Resource Implications – a Scenario Analysis" led by M. Davis and submitted to BETO in support of Multi Year Project Plan objectives. 2017.
4. Report: "Brief Perspectives on Expanding Advanced Energy Sources in Brazil: Part 1: Biofuels and Bioenergy" led by Brian Davison, with contributions by K. Kline and M. Davis, and submitted in January 2015 as requested by the office of intelligence and counterintelligence.
5. Oladosu, G., M.M.R. Moreira, K. Kline, M. Davis, W. Kmura, 2014. Comparison of Regions and Modeling of Land in the GTAP-DEPS and BLUM. Available from ICONE: http://www.iconebrasil.org.br/datafiles/publicacoes/estudos/2014/comparison_of_regions_and_modeling_of_land_in_the_gtap_deps_and_blum_1404.pdf

Datasets

1. Davis, Maggie R., 2020. RegionalDemand-CornStover_INL_BT16BC1030-40-50 (data available 6/19/20) doi 10.11578/1633888
2. Davis, Maggie R., 2020. stovertilage2019-bc1040-060 (data available 6/9/20) doi 10.11578/1632327
3. Langholtz, Matthew; Busch, Ingrid; Kasturi, Abishek; Hilliard, Mike R.; McFarlane, Joanna; Tsouris, Costas; Mukherjee, Srijib; Omitaomu, Olufemi A.; Kotikot, Susan M.; Allen-Dumas, Melissa R.; DeRolph, Christopher R.; Davis, Maggie R.; Paris, Esther S. Data and interactive visualization for "The economic accessibility of CO2 sequestration through bioenergy with carbon capture and sequestration (BECCS) in the US" submitted to the journal "Land", 2020 (data available 8/6/20) doi 10.11578/1647453
4. Davis, MR. CH Hellwinkel, L. Eaton, MH Langholtz, A. Turhollow, C Brandt, A Myers, 2016. Agricultural Baseline (BL0) scenario of the 2016 Billion-Ton Report (data available 7/13/16) doi 10.11578/1337884
5. Davis, MR. CH Hellwinkel, L. Eaton, MH Langholtz, A. Turhollow, C Brandt, A Myers, 2016. Base-Case 1% Yield Increase (BC1), All Energy Crops scenario of the 2016 Billion Ton Report (data available 7/13/16) doi 10.11578/1340497
6. Davis, MR. CH Hellwinkel, L. Eaton, MH Langholtz, A. Turhollow, C Brandt, A Myers, 2016. 2% Yield Increase (HH2), All Energy Crops scenario of the 2016 Billion Ton Report (data available 7/13/16) doi 10.11578/1340541
7. Davis, MR. CH Hellwinkel, L. Eaton, MH Langholtz, A. Turhollow, C Brandt, A Myers, 2016. 3% Yield Increase (HH3), All Energy Crops scenario of the 2016 Billion Ton Report (data available 7/13/16) doi 10.11578/1340543
8. Davis, MR. CH Hellwinkel, L. Eaton, MH Langholtz, A. Turhollow, C Brandt, A Myers, 2016. 4% Yield Increase (HH4), All Energy Crops scenario of the 2016 Billion Ton Report (data available 7/13/16) doi 10.11578/1340546

Technology/Infrastructure Capability development within ARM program:

1. [Sustainability landing page on Bioenergy KDF](#) (lead)
2. [ARM Data Discovery](#) update (contributor)
3. [Instrument management portal](#) (contributor)
4. [ARM Metadata Service](#) tool development (contributor)
5. Field Campaign Dashboard – in development (contributor)

Additional information and references available on request