**Curtis Jones**

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## Education

Ph.D. University of Florida, Agricultural & Biological Engineering, 2013

* Alumni Fellow
* Dissertation: “Assessing efficiencies in vegetable production: Hydrologic modeling of soil-water dynamics and estimation of greenhouse gas emissions”

B.S. University of Florida, Agricultural & Biological Engineering, 2006

* Graduated *magna cum laude*
* Honors thesis: “Early cutoff of supplemental irrigation for maize on sandy soils of Minnesota”

## Appointments

2020 - Assistant Research Professor, University of Maryland, Department of Geographical Sciences

2018 - 2020 Agricultural Risk Modeler, Risk Management Solutions, Inc.

2016 - 2018 Assistant Research Professor, University of Maryland, Department of Geographical Sciences

2013 - 2016 Postdoctoral Research Associate, University of Maryland, Department of Geographical Sciences

2013 – 2013 Postdoctoral Research Associate, Pacific Northwest National Laboratory, Joint Global Change Research Institute

2008 – 2013 Graduate Research Assistant, University of Florida, Department of Agricultural and Biological Engineering

## Grants Received

2019, Increasing Water Productivity, Nutrient Efficiency, and Soil Health in Rainfed Production Systems, USDA, Co-I (UMD awarded $1.84M)

2018, Agricultural Land Use Change in Central and Northeast Thailand: Effects on Biomass Emissions, Soil Quality, and Rural Livelihoods, NASA, Co-I (UMD awarded $720k)

2016, Calibration and Validation of the EPIC Model to Predict Nitrous Oxide Fluxes from Biofuel and Food Crops in the U.S. Great Plains, USDA-ARS, Institutional PI (UMD awarded $84k)

2016, Cropland Carbon Monitoring System (CCMS): A Satellite-Based System to Estimate Carbon Fluxes on U.S. Croplands, NASA, Other Professional (UMD awarded $1.25M)

2015, Scenarios for Assessing the Sustainability of Biofuel Landscapes in the U.S. Midwest, Department of Energy, DOE Office of Science Biological and Environmental Research EOP, Co-I (UMD awarded $174k)

## Refereed Publications

Sharara, M. A., Sahoo, K., Reddy, A. D., Kim, S., Zhang, X., Dale, B., Jones, C. D., Izaurralde, R. C., & Runge, T. M. (2020). Sustainable feedstock for bioethanol production: Impact of spatial resolution on the design of a sustainable biomass supply-chain. *Bioresource Technology*, *302*, 122896.

Franke, J. A., Muller, C., Elliott, J., Ruane, A. C., Jagermeyr, J., Balkovic, J., Ciais, P., Drury, M., Falloon, P. D., Folberth, C., et al. (2020). The GGCMI Phase 2 experiment: global gridded crop model simulations under uniform changes in CO2, temperature, water, and nitrogen levels (protocol version 1.0). *Geoscientific Model Development*, 13, 2315-2336.

Kim, S., Dale, B. E., Jin, M., Thelen, K. D., Zhang, X., Meier, P., Reddy, A. D., Jones, C. D., Izaurralde, R. C., Balan, V., et al. (2019). Integration in a depot-based decentralized biorefinery system: Corn stover-based cellulosic biofuel. *GCB Bioenergy*, *11*(7), 871–882.

Kim, S., Dale, B. E., Zhang, X., Jones, C. D., Reddy, A. D., & Izaurralde, R. C. (2019). The Renewable Fuel Standard May Limit Overall Greenhouse Gas Savings by Corn Stover-Based Cellulosic Biofuels in the U.S. Midwest: Effects of the Regulatory Approach on Projected Emissions. *Environmental Science & Technology*, *53*(5), 2288–2294.

Folberth, C., Elliott, J., Müller, C., Balkovič, J., Chryssanthacopoulos, J., Izaurralde, R. C., Jones, C. D., Khabarov, N., Liu, W., Reddy, A., et al. (2019). Parameterization-induced uncertainties and impacts of crop management harmonization in a global gridded crop model ensemble. *PLoS ONE*, *14*(9).

Kim, D., Stoddart, N., Rotz, C. A., Veltman, K., Chase, L., Cooper, J., Ingraham, P., Izaurralde, R. C., Jones, C. D., Gaillard, R., et al. (2019). Analysis of beneficial management practices to mitigate environmental impacts in dairy production systems around the Great Lakes. *Agricultural Systems*, *176*, 102660.

Asseng, S., Martre, P., Maiorano, A., Rotter, R. P., O’Leary, G., Fitzgerald, G., Girousse, C., Motzo, R., Giunta, F., Babar, M., et al. (2019). Climate change impact and adaptation for wheat protein. *Global Change Biology*, *25*, 155–173.

Liu, B., Martre, P., Ewert, F., Porter, J. R., Challinor, A. J., Müller, C., Ruane, A. C., Waha, K., Thorburn, P. J., Aggarwal, P. K., et al. (2019). Global wheat production with 1.5 and 2.0°C above pre-industrial warming. *Global Change Biology*, *25*(4), 1428–1444.

Müller, C., Elliott, J., Kelly, D., Arneth, A., Juraj Balkovic, Ciais, P., Deryng, D., Folberth, C., Hoek, S., Izaurralde, R. C., et al. (2019). The Global Gridded Crop Model Intercomparison phase 1 simulation dataset. *Scientific Data*, *6*(1), 1–22.

Jones, C. D., Oates, L. G., Robertson, G. P., & Izaurralde, R. C. (2018). Perennialization and Cover Cropping Mitigate Soil Carbon Loss from Residue Harvesting. *J. Environ. Qual*, *47*(4), 710–717.

Gaillard, R. K., Jones, C. D., Ingraham, P., Collier, S., Izaurralde, R. C., Jokela, W., Osterholz, W., Salas, W., Vadas, P., & Ruark, M. (2018). Underestimation of N2O emissions in a comparison of the DayCent, DNDC, and EPIC models. *Ecological Applications*, *28*, 694–708.

Veltman, K., Rotz, A., Chase, L., Ingraham, P., Izaurralde, R. C., Jones, C., Gaillard, R., Larson, R., Ruark, M., Salas, W., et al. (2018). A quantitative assessment of Beneficial Management Practices to reduce carbon and reactive nitrogen footprints and phosphorus losses of dairy farms in the US Great Lakes region. *Agricultural Systems*, *166*, 10–25.

Kim, S., Zhang, X., Dale, B., Reddy, A. D., Jones, C. D., Cronin, K., Izaurralde, R. C., Runge, T., & Sharara, M. (2018). Corn stover cannot simultaneously meet both the volume and GHG reduction requirements of the renewable fuel standard. *Biofuels, Bioproducts and Biorefining*, *12*, 203–212.

Kim, S., Zhang, X., Dale, B., Reddy, A., Jones, C. D., & Izaurralde, R. (2018). EISA (Energy Independence and Security Act) compliant ethanol fuel from corn stover in a depot‐based decentralized system. *Biofuels, Bioproducts and Biorefining*, *12*(5), 873–881.

Muller, C., Elliott, J., Pugh, T., Ruane, A., Ciais, P., Balkovic, J., Deryng, D., Folberth, C., Izaurralde, R. C., Jones, C., et al. (2018). Global patterns of crop yield stability under additional nutrient and water inputs. *PLOS ONE*, *13*(6), e0198748.

Wallach, D., Martre, P., Liu, B., Asseng, S., Ewert, F., Thorburn, P., van Ittersum, M., Aggarwal, P. K., Ahmed, M., Basso, B., et al. (2018). Multi-model ensembles improve predictions of crop-environment-management interactions. *Global Change Biology*, *24*(11), 5072–5083.

Martre, P., Kimball, B., Ottman, M., Wall, G., White, J., Asseng, S., Ewert, F., Cammarano, D., Maiorano, A., Aggarwal, P., et al. (2018). The Hot Serial Cereal Experiment for modeling wheat response to temperature: Field experiments and AgMIP-Wheat multi-model simulations. *Open Data Journal for Agricultural Research*, *4*, 28–34.

Jones, C. D., Zhang, X., Reddy, A. D., Robertson, G. P., & Izaurralde, R. C. (2017). The greenhouse gas intensity and potential biofuel production capacity of maize stover harvest in the US Midwest. *GCB Bioenergy*, *9*(10), 1543–1554.

Veltman, K., Jones, C. D., Gaillard, R., Cela, S., Chase, L., Duval, B. D., Izaurralde, R. C., Ketterings, Q. M., Li, C., Matlock, M., et al. (2017). Comparison of process-based models to quantify nutrient flows and greenhouse gas emissions associated with milk production. *Agriculture, Ecosystems & Environment*, *237*, 31–44.

Doro, L., Jones, C., Williams, J. R., Norfleet, M. L., Izaurralde, R. C., Wang, X., & Jeong, J. (2017). The Variable Saturation Hydraulic Conductivity Method for Improving Soil Water Content Simulation in EPIC and APEX Models. *Vadose Zone Journal*, *16*(13).

Izaurralde, R. C., McGill, W. B., Williams, J. R., Jones, C. D., Link, R. P., Manowitz, D. H., Schwab, D. E., Zhang, X., Robertson, G. P., & Millar, N. (2017). Simulating microbial denitrification with EPIC: Model description and evaluation. *Ecological Modelling*, *359*, 349–362.

Zilverberg, C. J., Williams, J., Jones, C., Harmoney, K., Angerer, J., Metz, L. J., & Fox, W. (2017). Process-based simulation of prairie growth. *Ecological Modelling*, *351*, 24–35.

Wang, E., Martre, P., Zhao, Z., Ewert, F., Maiorano, A., Rötter, R. P., Kimball, B. A., Ottman, M. J., Wall, G. W., White, J. W., et al. (2017). The uncertainty of crop yield projections is reduced by improved temperature response functions. *Nature Plants*, *3*, 17102.

Porwollik, V., Müller, C., Elliott, J., Chryssanthacopoulos, J., Iizumi, T., Ray, D. K., Ruane, A. C., Arneth, A., Balkovič, J., Ciais, P., et al. (2017). Spatial and temporal uncertainty of crop yield aggregations. *European Journal of Agronomy*, *88*, 10–21.

Müller, C., Elliott, J., Chryssanthacopoulos, J., Arneth, A., Balkovic, J., Ciais, P., Deryng, D., Folberth, C., Glotter, M., Hoek, S., et al. (2017). Global Gridded Crop Model evaluation: Benchmarking, skills, deficiencies and implications. *Geoscientific Model Development Discussions*, *10*, 1403–1422.

Martre, P., Reynolds, M. P., Asseng, S., Ewert, F., Alderman, P. D., Cammarano, D., Maiorano, A., Ruane, A. C., Aggarwal, P. K., Anothai, J., et al. (2017). The International Heat Stress Genotype Experiment for modeling wheat response to heat: Field experiments and AgMIP-Wheat multi-model simulations. *Open Data Journal for Agricultural Research*, *3*, 23–28.

Folberth, C., Elliott, J., Müller, C., Balkovic, J., Chryssanthacopoulos, J., Izaurralde, R. C., Jones, C. D., Khabarov, N., Liu, W., Reddy, A., et al. (2016). Uncertainties in global crop model frameworks: Effects of cultivar distribution, crop management and soil handling on crop yield estimates. *Biogeosciences Discussions*, 1–30.

Liu, B., Asseng, S., Muller, C., Ewert, F., Elliott, J., Lobell, D. B., Martre, P., Ruane, A. C., Wallach, D., Jones, J. W., et al. (2016). Similar estimates of temperature impacts on global wheat yield by three independent methods. *Nature Clim. Change*, *6*, 1130–1136.

Asseng, S., Ewert, F., Martre, P., Rotter, R. P., Lobell, D. B., Cammarano, D., Kimball, B. A., Ottman, M. J., Wall, G. W., White, J. W., et al. (2015). Rising temperatures reduce global wheat production. *Nature Clim. Change*, *5*(2), 143–147.

Jones, C. D., Morgan, K. T., Porter, C. H., Wu, J. Z., Fraisse, C. W., & Zotarelli, L. (2014). Addition of a Two-Dimensional Water Balance Model to the DSSAT-CSM. *Transactions of the ASABE*, *57*(6), 1643–1656.

Jones, C. D., Fraisse, C. W., & Ozores-Hampton, M. (2012). Quantification of greenhouse gas emissions from open field-grown Florida tomato production. *Agricultural Systems*, *113*, 64–72.

Jones, C. D., Jones, J. B., & Lee, W. S. (2010). Diagnosis of bacterial spot of tomato using spectral signatures. *Computers and Electronics in Agriculture*, *74*(2), 329–335.

**Skills**

Process-based models: EPIC, DSSAT, APEX, HYDRUS

Programming languages: R, Fortran, Java, Python

Techniques: Monte Carlo simulation, stochastic modeling, uncertainty analysis, parameterization, optimization, statistical modeling, machine learning, geospatial analysis, numerical analysis

**Service**

Departmental Voting Representative, University of Maryland Department of Geographical Sciences

Reviewer

* Agricultural Systems
* Energy
* Journal of Environmental Quality
* Scientia Horticulturae
* Global Change Biology Bioenergy
* Agronomy Journal
* Environmental Pollution
* Agroecosystems, Geosciences & Environment
* Science of the Total Environment

**Affiliations**

* ASABE
* Soil Science Society of America
* American Society of Agronomy
* American Geophysical Union