Kendall C. DeJonge, Ph.D., P.E.

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EDUCATION

Colorado State University, Fort Collins, CO — Jun 2008-Dec 2011
Ph.D., Civil and Environmental Engineering (Irrigation and Drainage)
3.91/4.00 GPA
Dissertation: "Evaluation and Improvement of CERES-Maize Evapotranspiration Simulations Under Full and Limited Irrigation Treatments in Northern Colorado"

Iowa State University, Ames, IA — Aug 2004-Aug 2006
M.S., Agricultural Engineering (Water Resources)
3.85/4.00 GPA
Thesis: "Development and Utilization of Irrigation Simulation with CERES-Maize in a Central Iowa Cornfield"

Iowa State University, Ames, IA — Aug 1999-May 2003
B.S., Agricultural Engineering (Power and Machinery)
3.40/4.00 GPA

University of Hoehnheim, Stuttgart, Germany — Aug 2002
Study abroad course in numerical modeling and VBA programming

Research Interests

Irrigated agriculture, evapotranspiration, infrared thermometry, sustainable water resources management, crop simulation modeling, field and modeling applications of agriculture and hydrology, precision agriculture, remote sensing, flood prediction and analysis.

Relevant Graduate Coursework

Irrigation Design and Management
Statistical Methods for Research
Groundwater Hydrology
Drainage and Wetlands Engineering
Hydrology and Hydraulics
Statistical Methods for Water Resources
Environmental Plant Stress Physiology
Computational Fluid Dynamics
Plant Canopy Meteorology
Natural Resource Conservation Engineering
Water Quality Engineering
Engineering Applications of GIS and GPS
Applied Agricultural Meteorology
Soil Physics
Risk Analysis of Water Resources
Water Control and Measurement

Software

Microsoft Office Suite, VBA, Matlab, JMP, DSSAT crop models (CERES-Maize), Campbell Dataloggers & CRBasic RZWQM2, HEC-HMS, HEC-DSS, HEC-ResSim, HEC-RAS, ArcGIS

RESEARCH EXPERIENCE

USDA-ARS, Fort Collins, CO
Agricultural Engineer / Research Scientist (GS12-GS14) April 2011-present
- Field data collection in deficit irrigation field experiments with multiple treatments.
- Data include water balance, evapotranspiration models, ground based remote sensing.
- Composition and editing five-year research plans, peer-reviewed publications, presentations.
- Supervise engineering technicians, farm manager, graduate and undergraduate students.
- Represent research Unit in technical and extension-based meetings, professional communities.

Colorado State University, Fort Collins, CO
Graduate Research Assistant, Soil and Crop Sciences Jul 2008-April 2011
- Collect field data, including soil moisture, plant biomass, leaf area index.
- Installation of field moisture monitoring equipment, including Decagon, Watermark, Acclima.
- Data organization, calibration with numerical crop models based on field observations.

Iowa State University, Ames, IA
Graduate Research Assistant, Agriculture and Biosystems Engineering Jan 2005-Aug 2006
- Performed irrigation and crop modeling research, improving existing models to assist research.
- Conducted field testing of soil moisture content to assist USDA-ARS SMEX05 project.

TEACHING EXPERIENCE

Colorado State University, Fort Collins, CO
Graduate Teaching Assistant, Civil and Environmental Engineering Jan-May 2010, 2011
- Supervised and led hands-on lab for CIVE 425, senior level soil and water engineering course.
- Graded lab assignments, homework, and exams; held office hours to assist student needs.

Iowa State University, Ames, IA
Graduate Teaching Assistant, College of Engineering Aug 2004-May 2005
- Instructed freshman-level introduction to engineering course ENGR 160.

OTHER PROFESSIONAL EXPERIENCE

US Army Corps of Engineers (USACE), Hydrology Section, Omaha, NE
Hydraulic Engineer (GS9-GS11) Aug 2006-Jun 2008
- Conducted hydrologic engineering investigations and interior drainage studies.
- Conducted field studies and surveys on project sites, prepared models and technical reports.
- Contributed in flood forecasting, monitoring, and post-flood documentation procedures.

GKN Walterscheid Inc., Woodridge, IL
OEM Account Manager Jun 2003-Jul 2004
- Managed over $2 million annual sales in agricultural driveline and gearbox industry.
- Served as both sales and engineering contact; made engineering design recommendations.

PEER REVIEWED PUBLICATIONS

In Review:

Katimbo, A., D.R. Rudnick, L. Weizhen, **K.C. DeJonge**, X. Qiao, Y. Ge, T.H. Lo, T. Franz, H. Nakabuye, J. Duan. (Major Revisions). Two source energy balance estimated maize evapotranspiration using mobile infrared radiometric thermometers. *Agriculture and Forest Meteorology*.

Published:

Trout, T.J., **K.C. DeJonge**. 2021. Evapotranspiration and water stress coefficient for deficit-irrigated maize. *ASCE Journal of Irrigation and Drainage*, 147(10). DOI 10.1061/(ASCE)IR.1943-4774.0001600

Liang, W., I. Possignolo, X. Qiao, **K.C. DeJonge**, S. Irmak, D. Heeren, D. Rudnick. 2021. Utilizing digital image processing and two source energy balance model for the estimation of evapotranspiration of dry edible beans in western Nebraska. *Irrigation Science* 39: 617-631. DOI 10.1007/s00271-021-00721-7

Lo, T.H., D.R. Rudnick, **K.C. DeJonge**, G. Bai, H.N. Nakabuye, A. Katimbo, Y. Ge, T.E. Franz, X. Qiao, D.M. Heeren. 2020. Maize differences in soil moisture changes and canopy temperature under varying water x nitrogen treatments. *Irrigation Science*, 38: 519-534. DOI 10.1007/s00271-020-00683-2

Thorp, K.R., **K.C. DeJonge**, G.W. Marek., S.R. Evett. 2020. Comparison of evapotranspiration methods in the DSSAT Cropping System Model: I. Global sensitivity analysis. *Computers and Electronics in Agriculture*, 177. DOI 10.1016/j.compag.2020.105658

Thorp, K.R., G.W. Marek, **K.C. DeJonge**, S.R. Evett. 2020. Comparison of evapotranspiration methods in the DSSAT Cropping System Model: II. Algorithm performance. *Computers and Electronics in Agriculture*, 177. DOI 10.1016/j.compag.2020.105679

DeJonge, K.C., K.R. Thorp, G.W. Marek. 2020. The apples and oranges of reference and potential evapotranspiration: Implications for agroecosystem models. *Agricultural and Environmental Letters*: 5(1): 1-6. DOI 10.1002/ael2.20011

Ale, S., R.D. Harmel, A.P. Nejadhashemi, **K.C. DeJonge**, S. Irmak, I. Chaubey, K.R. Douglas-Mankin. 2020. Global water security: current research and priorities for action. *Transactions of the ASABE*, 63(1): 49-55. DOI 10.13031/trans.13839

Harmel, R.D., I. Chaubey, S. Ale, A.P. Nejadhashemi, S. Irmak, **K. DeJonge**, S. Evett, E.M. Barnes, M. Catley-Carlson, S. Hunt, I. Mani. 2020. Perspectives on Global Water Security. *Transactions of the ASABE*, 63(1): 69-80. DOI 10.13031/trans.13524

DeJonge, K.C., H. Zhang, S. Taghvaeian, T.J. Trout. 2020. Canopy temperature bias from soil variability enhanced at high temperatures. *Transactions of the ASABE,* 63(1): 95-104. DOI 10.13031/trans.13554

Zhang, H., M. Han, L.H. Comas, **K.C. DeJonge**, T. J. Trout, L. Ma. 2019. Response of maize yield components to growth stage-based deficit irrigation. *Agronomy Journal*, 111: 1-9. DOI 10.2134/agronj2019.03.0214

Thorp, K.R., G.W. Marek, **K.C. DeJonge**, S.R. Evett, R.J. Lascano. 2019. Novel methodology to evaluate and compare evapotranspiration algorithms in an ecosystem model. *Environmental Modelling and Software*, 119: 214-227. DOI 10.1016/j.envsoft.2019.06.007

DeJonge, K.C., H. Zhang, S.M. Gleason. 2019. Simple background subtraction of thermal imagery for crop water stress detection in greenhouse. *Applied Engineering in Agriculture*, 35(3): 339-344. DOI 10.13031/aea.13090

Gleason, S.M., M. Cooper, D. Wiggans, C. Bliss, C. Romay, M. Gore, M. Mickelbart, C. Topp, H. Zhang, **K.C. DeJonge**, L. Comas. 2019. Stomatal conductance, xylem water transport, and root traits underpin improved performance under drought and well-watered conditions across a diverse panel of maize inbred lines. *Field Crops Research*, 234: 119-128. DOI 10.1016/j.fcr.2019.02.001

Varzi, M.M., T.J. Trout, **K.C. DeJonge**, R. Oad. 2019. Optimal water allocation under deficit irrigation in the context of Colorado Water Law. *ASCE Journal of Irrigation and Drainage Engineering*, 145(5): 05019003. DOI 10.1061/(ASCE)IR.1943-4774.0001374

Comas, L.H., T.J. Trout, **K.C. DeJonge**, H. Zhang, S.M. Gleason. 2019. Water productivity under strategic growth stage-based deficit irrigation in maize. *Agricultural Water Management*, 212: 433-440. DOI 10.1016/j.agwat.2018.07.015

Comas, L.H., T.J. Trout, G. Banks, H. Zhang, **K.C. DeJonge**, S.M. Gleason. 2018. USDA-ARS Colorado maize growth and development, yield and water-use under strategic timing of irrigation, 2012-2013. *Data in Brief*, 21: 1227-1231. DOI 10.1016/j.dib.2018.10.140

Han, M., H. Zhang, J. L. Chávez, L. Ma, **K.C. DeJonge**. 2018. Improved soil water deficit estimation through the integration of canopy temperature measurements into a soil water balance model. *Irrigation Science*, 36(3): 187-201. DOI 10.1007/s00271-018-0574-z

Trout, T.J., **K.C. DeJonge**. 2018. Crop water use and crop coefficients of maize in the US Great Plains. *ASCE Journal of Irrigation and Drainage Engineering*, 144(6). DOI 10.1061/(ASCE)IR.1943-4774.0001309

Han, M., H. Zhang, **K.C. DeJonge**, L.H. Comas, S.M. Gleason. 2018. Comparison of three crop water stress index models with sap flow measurements in maize. *Agricultural Water Management*, 203: 366-375. DOI 10.1016/j.agwat.2018.02.030

Kisekka, I., **K.C. DeJonge**, L. Ma, J. Paz, K. Douglas-Mankin. 2017. Crop modeling applications in agricultural water management. *Transactions of the ASABE*, 60(6): 1959-1964. DOI 10.13031/trans.12693

Fang, Q.X., L. Ma, T.J. Trout, L.H. Comas, **K.C. DeJonge**, L.R. Ahuja, L.A. Sherrod, R.W. Malone. 2017. Modeling crop N concentration and uptake for new maize hybrid under growth stage-based deficit irrigations. *Transactions of the ASABE*, 60(6): 2067-2081. DOI 10.13031/trans.12405

DeJonge, K.C., K.R. Thorp. 2017. Implementation of standardized reference evapotranspiration and dual crop coefficient approach in the DSSAT Cropping System Model. *Transactions of the ASABE*, 60(6): 1965-1981. DOI 10.13031/trans.12321

Carroll, D.A. III, N.C. Hansen, B.G. Hopkins, **K.C. DeJonge**. 2017. Water stress indices of maize with controlled deficit irrigation and variable nitrogen supply. *Irrigation Science*, 35(6): 549-560. DOI 10.1007/s00271-017-0558-4

Liang, H., Z. Qi, **K.C. DeJonge**, K. Hu, B. Li. 2017. Global sensitivity and uncertainty analysis of nitrate leaching and crop yield simulation under different water and nitrogen management practices. *Computers and Electronics in Agriculture*. 142: 201-210. DOI 10.1016/j.compag.2017.09.010

Trout, T.J., **K.C. DeJonge**. 2017. Water productivity of maize in the U.S. High Plains. *Irrigation Science*. 35(3): 251-266. DOI 10.1007/s00271-017-0540-1

Gleason, S.M., D.R. Wiggans, C.A. Bliss, L.H. Comas, M.S. Cooper, **K.C. DeJonge**, J.S. Young, H. Zhang. 2017. Coordinated decline in electron transport, PEP carboxylase activity, and maximal net CO_2 assimilation with loss of hydraulic conductance during water stress in Zea mays. *Flora.* 227: 1-9. DOI 10.1016/j.flora.2016.11.017

Kullberg, E.G., **K.C. DeJonge**, J.L. Chávez. 2017. Evaluation of thermal remote sensing indices to estimate crop evapotranspiration coefficients. *Agricultural Water Management.* 179: 64-73. DOI 10.1016/j.agwat.2016.07.007

Han, M., H. Zhang, **K.C. DeJonge**, L. Comas, T.J. Trout. 2016. Estimating maize water stress by standard deviation of canopy temperature in thermal imagery. *Agricultural Water Management.* 177: 400-409. DOI 10.1016/j.agwat.2016.08.031

DeJonge, K.C., B.S. Mefford, J.L. Chávez. 2016. Assessing corn water stress using spectral reflectance. *International Journal of Remote Sensing*. 37(10): 2294-2312. DOI 10.1080/01431161.2016.1171929

Mkhwanazi, M., J.L. Chávez, A.A. Andales, **K.C. DeJonge**. 2015. SEBAL-A: A remote sensing ET algorithm that accounts for advection with limited data. Part II: Test for transferability. *Remote Sensing.* 7(11): 15068-15081. DOI 10.3390/rs71115068

DeJonge, K.C., S. Taghvaeian, T.J. Trout, L.H. Comas. 2015. Comparison of canopy temperature-based water stress indices for maize. *Agricultural Water Management.* 156: 51-62. DOI 10.1016/j.agwat.2015.03.023

DeJonge, K.C., M. Ahmadi, J.C. Ascough II, K.D. Kinzli. 2015. Sensitivity analysis of reference evapotranspiration to sensor accuracy. *Computers and Electronics in Agriculture.* 110: 176-186. DOI 10.1016/j.compag.2014.11.013

Kinzli, K.D., D. Gensler, **K.C. DeJonge**, R. Oad, N. Shafike. 2014. Validation of a decision support system for improving irrigation system performance. *Journal of Irrigation and Drainage Engineering.* DOI 10.1061/(ASCE)IR.1943-4774.0000829

Taghvaeian, S., L.H. Comas, **K.C. DeJonge**, T.J. Trout. 2014. Conventional and simplified canopy temperature indices predict water stress in sunflower. *Agricultural Water Management.* 144: 69-80. DOI 10.1016/j.agwat.2014.06.003

Ahmadi, M., J.C. Ascough II, **K.C. DeJonge**, M. Arabi. 2014. Multisite-multivariable sensitivity analysis of distributed watershed models: enhancing the perceptions from computationally frugal methods. *Ecological Modelling.* 279: 54-67. DOI 10.1016/j.ecolmodel.2014.02.013

McMaster, G.S., J.C. Ascough II, D.A. Edmunds, L.E. Wagner, F.A. Fox, **K.C. DeJonge**, N.C. Hansen. 2014. Simulating unstressed crop development and growth using the Unified Plant Growth Model (UPGM). *Environmental Modeling and Assessment.* 19:407-424. DOI 10.1007/s10666-014-9402-x

Taghvaeian, S., J.L. Chávez, W.C. Bausch, **K.C. DeJonge**, T.J. Trout. 2014. Minimizing instrumentation requirement for estimating crop water stress index and transpiration of maize. *Irrigation Science. 32(1):53-65.* DOI 10.1007/s00271-013-0415-z

DeJonge, K.C., J.C. Ascough II, A.A. Andales, N.C. Hansen, L.A. Garcia, M. Arabi. 2012. Improving evapotranspiration simulations in the CERES-Maize model under limited irrigation. *Agricultural Water Management.* 115: 92-103. DOI 10.1016/j.agwat.2012.08.013

DeJonge, K.C., J.C. Ascough II, M. Ahmadi, A.A. Andales, and M. Arabi. 2012. Global sensitivity analysis of a dynamic agroecosystem model under different irrigation treatments. *Ecological Modelling.* 231: 113-125. DOI 10.1016/j.ecolmodel.2012.01.024

DeJonge, K.C., A.A. Andales, J.C. Ascough II, and N.C. Hansen. 2011. Modeling of full and limited irrigation scenarios for corn in a semiarid environment. *Transactions of the ASABE.* 54(2): 481-492. DOI 10.13031/2013.36451

Ascough II, J.C., A.A. Andales, L.A. Sherrod, G.S. McMaster, N.C. Hansen, **K.C. DeJonge,** E.M. Fathelrahman, L.R. Ahuja, G.A. Peterson, and D.L. Hoag. 2009. Simulating landscape catena effects in no-till dryland agroecosystems using GPFARM. *Agricultural Systems*. 103(8): 569-584. DOI 10.1016/j.agsy.2010.06.005

Thorp, K.R., **K.C. DeJonge,** A.L. Kaleita, W. D. Batchelor, and J.O. Paz. 2008. Methodology for the use of DSSAT models for precision agriculture decision support. *Computers and Electronics in Agriculture*. 64(2): 276-285. DOI 10.1016/j.compag.2008.05.022

Thorp, K.R., W.D. Batchelor, J.O. Paz, A.L. Kaleita, and **K.C. DeJonge.** 2007. Using cross validation to evaluate CERES-Maize yield simulations within a decision support system for precision agriculture. *Transactions of the ASABE*. 50(4): 1467-1479. DOI 10.13031/2013.23605

DeJonge, K. C., A. L. Kaleita, and K. R. Thorp. 2007. Simulating the effects of spatially variable irrigation on corn yields, costs, and revenue in Iowa. *Agricultural Water Management*. 92(1-2): 99-109. DOI 10.1016/j.agwat.2007.05.008

PRESENTATIONS

Presenting Author

"Deficit irrigation management using canopy cover and temperature to inform crop coefficient methods." ASABE and Irrigation Association 6th Decennial Irrigation Symposium. San Diego CA (virtual). December 2021.

"Evapotranspiration Methods: The Need for Standardized Language and Practice for Agroecosystem Modelers." ASABE International Annual Meeting. Omaha, NE (virtual). July 2020.

"How CoAgMet Meteorological Data is Used at the USDA-ARS Limited Irrigation Research Farm." Northern Colorado Water Conservancy District, 2020 Weather Network Users Meeting. Berthoud, CO. March 2020.

"Limited Irrigation Management Strategies." Colorado Master Irrigator certification program. Wray, CO. February 2020.

"Research at the Limited Irrigation Research Farm, USDA-ARS." Colorado State University graduate chapter of ASCE-EWRI. Fort Collins, CO. February 2020.

"Using crop coefficient and standardized evapotranspiration methods to evaluate crop model behavior." iCROPM Congress: Crop modelling for Agriculture and Food Security under Global Change. Montpellier, France. February 2020. Abstract accepted but not attend due to Agency travel issues.

"Evapotranspiration: concepts, measurement, and modeling." Iowa State University lecture series. Ames, IA. November 2019.

"Evaluating and improving model behavior of evapotranspiration: dual crop coefficient in DSSAT." ASABE International Annual Meeting. Boston, MA. July 2019.

"Using canopy cover and temperature in deficit irrigation scheduling: a concept." Colorado State University Hydrology Days. Fort Collins, CO. March 2019.

"Crop water productivity and techniques using infrared thermometry." Central Plains Irrigation Conference & Exposition. Kearney, NE. February 2019.

"Evapotranspiration in DSSAT: Using Global Sensitivity Analysis and Standardized Crop Coefficient Methods to Evaluate Model Sensitivity and Behavior." ASA-SSSA International Annual Meeting. Baltimore, MD. November 2018.

"Deficit irrigation management and evapotranspiration methods with thermal remote sensing." The Agri-hydrological Models and Precise Water Management Workshop. China Agricultural University, Beijing, China. October 2018.

"Limited Irrigation Water Management Research in Colorado, USA." (Poster). Global Water Security for Agriculture and Natural Resources conference, in partnership with ASABE. Hyderabad, India. October 2018.

"Emerging Tech for Using Canopy Temperature in Irrigation Management." University of Nebraska-Lincoln West Central Research and Extension Center, Crops and Water Field Day.

In partnership with USDA-NIFA OWCAP and the Nebraska Water Balance Alliance. North Platte, NE. August 2018.

"Bringing crop model evapotranspiration up to standard: dual crop coefficient in DSSAT." 9th International Congress on Environmental Modelling and Software. Fort Collins, CO. June 2018.

Gave three-hour seminar and demonstration on irrigation concepts and soil moisture sensors, to several high school teachers in Stratton, CO. June 2018.

"USDA-ARS Limited Irrigation Research in Northern Colorado" USDA-ARS Symposium sponsored by University of Nebraska Panhandle Research and Extension Center. Scottsbluff, NE. April 2018.

"The USDA-ARS Limited Irrigation Research Farm in Greeley Colorado" Northeast Colorado Progressive Ag Symposium, Greeley, CO. March 2018.

"UAV and Ground Based Remote Sensing Technologies." Southern Rocky Mountain Agricultural Conference and Trade Fair. Monte Vista, CO. February 2018.

"Using UAV technology at the USDA-ARS Limited Irrigation Research Farm." Rocky Mountain Farmers Union – Innovation Fair. Denver, CO. November 2017.

"Canopy Temperature and Image Based Irrigation Scheduling: Proof of Concept." ASA-CSSA-SSSA International Annual Meeting, Tampa, FL. October 2017.

"The Limited Irrigation Research Farm in Northern Colorado." Universities Council on Water Resources / National Institutes for Water Resources (UCOWR/NIWR) annual meeting. Fort Collins, CO. June 2017.

"Researcher's Points on Soil Moisture Sensors, Monitoring, and Water Stress Detection." Educational Soil Moisture Sensor Workshop, West Greeley Conservation District, Greeley CO. March 2017.

"Limited Irrigation Research and Infrared Thermometry for Detecting Water Stress." Central Plains Irrigation Conference & Exposition. Burlington, CO. February 2017.

"Estimation of Evapotranspiration." National Ground Water Association special Technical Session at the Irrigation Association Show & Education Conference. Las Vegas, NV. December 2016.

"The Northern Colorado Limited Irrigation Research Farm: past and future experiments." Irrigation Association Show & Education Conference. Las Vegas, NV. December 2016.

"The Limited Irrigation Research Farm in Northern Colorado – irrigation plot research methods, design considerations, and limitations." ASA-CSSA-SSSA International Annual Meeting, Phoenix, AZ. November 2016.

"Integrating Standardized Reference Evapotranspiration and Dual Crop Coefficient in the DSSAT-CSM." ASA-CSSA-SSSA International Annual Meeting, Phoenix, AZ. November 2016.

"Deficit irrigation options in Colorado and need for ET monitoring." With J. Altenhofen and J.L. Chávez. Colorado Evapotranspiration Conference, held in conjunction with USCID Conference. Fort Collins, CO. October 2016. Video Link

"Sensitivity of reference ET to weather station sensor accuracy." USCID Ninth International Conference on Irrigation and Drainage. Fort Collins, CO. October 2016. Slides

"Crop/plant water requirements and considerations." NRCS Irrigation Water Management Training, Colorado State University – Agriculture, Research, Development, and Education Center, Fort Collins, CO. August 2016.

"Sensitivity analysis of reference ET to sensor accuracy." ASA-CSSA-SSSA International Annual Meeting. Minneapolis, MN. November 2015.

"Soil variability effects on canopy temperature in a limited irrigation experiment." ASABE / IA Irrigation Symposium. Long Beach, CA. November 2015.

"Infrared thermometry of water-stressed crops – emerging methods and technologies." Sino-USA Water Saving Technologies Flagship Program Conference. Long Beach, CA. November 2015.

"A new DSSAT-CSM evapotranspiration module: ASCE Standardized Reference Evapotranspiration with dual crop coefficient." ASABE International Meeting. New Orleans, LA. July 2015.

"Infrared thermometry and canopy temperature to quantify water stress." High-efficient Water Use In Agriculture (Project 111 Plan) Workshop, China Agricultural University, Beijing, China. June 2015.

"Remote sensing at the USDA-ARS Limited Irrigation Research Farm." USDA-ARS Plains Area Weekly Seminar. Fort Collins, CO. March 2015.

"Infrared thermometry and stress monitoring of corn, and sensitivity analysis of reference evapotranspiration to sensor accuracy." Colorado State University, Soil and Crop Sciences Departmental Seminar. February 2015.

"Infrared Thermometry for Maize Water Stress: Soil Effects and Alternative Indices." ASA-CSSA-SSSA International Annual Meeting. Long Beach, CA. November 2014.

"Improved Evapotranspiration Simulation in the CERES-Maize Crop Model Under Limited Irrigation Management." Evapotranspiration Measurement and Modeling Community Symposium, ASA-CSSA-SSSA International Annual Meeting. Long Beach, CA. November 2014.

"Limited Irrigation Experiments in Northern Colorado." Seminar for Oklahoma Water Center and Biosystems & Agricultural Engineering, Oklahoma State University. Stillwater, OK. October 2014.

"Ground-Based Thermal and Multispectral Imaging of Limited Irrigation Crops." ASCE-EWRI Congress. Portland, OR. June 2014.

"Managing Deficit Irrigation in Northern Colorado." Central Plains Irrigation Association Conference. Burlington, CO. February 2014.

"Potential to Use Limited Irrigation and Conservation Agriculture to Adapt to Drought and Climate Change." 14th Annual SWCS-SSSA Joint Symposium, ASA-CSSA-SSSA International Annual Meeting. Tampa, FL. November 2013.

"Sensitivity and Uncertainty of Input Sensor Accuracy for Grass-Based Reference Evapotranspiration." ASA-CSSA-SSSA International Annual Meeting. Tampa, FL. November 2013.

"Ground-Based Remote Sensing of Water-Stressed Crops: Thermal and Multispectral Imaging." USCID Conference, Denver, CO. October 2013.

"Limited Irrigation Research Project in Semi-Arid U.S." Given at Institute of Water Saving Agriculture in Arid Areas of China, Northwest A&F University, Yangling, Shaanxi Province, China. Also given at Shiyanghe Experimental Station for Water-Saving in Agriculture and Ecology, Wuwei, Ghansu Province, China. September 2013.

"Improving Crop Model Evapotranspiration Simulations Under Limited Irrigation." Given at Institute of Water Saving Agriculture in Arid Areas of China, Northwest A&F University,

Yangling, Shaanxi Province, China. Also given at China Agricultural University, Beijing, China. September 2013.

"Sensitivity Analysis of Sensor Accuracy for the ASCE Standardized Evapotranspiration Equation." USCID Conference, Scottsdale, AZ. April 2013.

"Water Production Function Studies for Limited Irrigation Cropping Systems." Nebraska Water Center, Water: Science, Practice and Policy Conference, Lincoln, NE. November 2012.

"Addressing Water Scarcity through Limited Irrigation Cropping: Field Experiments and Modeling." Colorado State University – GRAD592 Interdisciplinary Water Resources Seminar, Fort Collins, CO. October 2012.

"Improving Evapotranspiration Simulations under Water Stress with the CERES-Maize Crop Model." ASCE Environmental & Water Resources Institute Congress, Albuquerque, NM. May 2012.

"Improvement of CERES-Maize Evapotranspiration Under Water Stress and Application for New Water Production Functions." (Poster). USCID Conference, San Diego, CA. November 2011.

"Field Experiments, Instrumentation, and Modeling in Water-Limited Cropping Systems." UCOWR/NIWR Conference, Boulder, CO. July 2011.

"Yield Potential and Water Use in Irrigated Cropping Systems: Field Experiments, Instrumentation, and Modeling." (Poster). USCID Conference, Albuquerque, NM. April 2011.

"Modeling and Evaluation of Maize Under Full and Limited Irrigation." (Poster). ASA-CSSA-SSSA International Annual Meeting, Long Beach, CA. November 2010.

"Comparison of Neutron Moisture Meter and Watermark Sensor Readings in a Field Experiment of Full and Limited Irrigation of Corn." (Poster). USCID Conference, Fort Collins, CO. September 2010.

"Quantification of Consumptive Use and Return Flows in Irrigated Agriculture Using Decagon Watershed Characterization Package." (Poster). Regenesis Site Tour, Greeley, CO. July 2010.

"Modeling of Full and Limited Irrigation of Corn in a Semiarid Environment." ASABE Annual International Meeting. Pittsburgh, PA. June 2010.

"Calibration and Evaluation of CERES-Maize in Full and Limited Irrigation Scenarios for Corn in a Semiarid Environment." ASA-CSSA-SSSA International Annual Meeting. Pittsburgh, PA. November 2009.

"Plot-Scale Modeling of Full and Limited Irrigation of Corn in Northern Colorado." (Poster). Western Society of Crop Science and Western Society of Soil Science Joint Annual Meeting. Fort Collins, CO. June 2009.

"Bacon Creek Section 22 – Hydrology and Hydraulics: Past and Current Efforts." 46th Annual ASCE Environmental and Water Resources Design Conference, Ames, IA. March 2008.

"Wetland Hydrologic Modeling and Analysis for Langdon Bend Site near Missouri River." US Army Corps of Engineers Infrastructure Systems Conference, Detroit, MI. June 2007.

"Irrigation Simulation of Central Iowa Cornfield Using CERES-Maize Crop Model." 8th International Conference on Precision Agriculture, Minneapolis, MN. July 2006.

"Simulation of Spatially Variable Precision Irrigation and Its Effects On Corn Growth Using CERES-Maize." ASABE Annual International Meeting, Portland, OR. July 2006.

Co-author on Presentation

Thorp, K.R., K.C. DeJonge, G.W. Marek. Comparison of Evapotranspiration Methods in the DSSAT Cropping System Model. ASA-SSSA-CSSA International Annual Meeting. San Antonio, TX. November 2019.

Wenz, J.A., L.H. Comas, J. Altenhofen, K.R. Willi, H. Zhang, S.M. Gleason, J.L. Chavez, K.C. DeJonge, K.R. Douglas-Manklin. Using canopy stomatal conductance calculated from remotely sensed plant parameters to determine plant water status. Hydrology Days, Colorado State University. Fort Collins, CO. March 2019.

Comas, L.H., S.M. Gleason, H. Zhang, K.C. DeJonge, T.J. Trout. Using strategic deficit irrigation to increase water productivity under limited water availability. Hydrology Days, Colorado State University. Fort Collins, CO. March 2019.

Thorp, K.R., G.W. Marek, **K.C. DeJonge**, S.R. Evett, R.L. Lascano. Comparison of evapotranspiration methods in the Cotton2k model. Beltwide Cotton Conferences: Cotton Agronomy, Physiology, and Soil Conference. New Orleans, LA. January 2019.

Thorp, K.R., G.W. Marek, **K.C. DeJonge**. Multiobjective optimization approach to compare evapotranspiration methods in the Cotton2K agroecosystem model. International Congress on Envioronmental Modelling and Software. Fort Collins, CO. June 2018.

Thorp, K.R., **K.C. DeJonge**. A new DSSAT-CSM evapotranspiration module: ASCE standardized rerference ET with dual crop coefficient. DSSAT Development Sprint, Gainesville, FL. January 2018.

Comas, L.H., T.J. Trout, **K.C. DeJonge**, H. Zhang, S.M. Gleason. Can crop water-use efficiency be improved through strategic seasonal deployment of limited irrigation? ASA-CSSA-SSSA International Annual Meeting, Tampa, FL. October 2017.

Comas, L.H., K. Willi, H. Zhang, J. Altenhofen, J.L. Chávez, S. Gleason, **K. DeJonge**, J. Young. Determining stomatal conductance and transpiration from remotely-sensed plant parameters. ASA-CSSA-SSSA International Annual Meeting, Phoenix, AZ. November 2016.

Han, M., H. Zhang, **K.C. DeJonge**, L.H. Comas, S.M. Gleason. Evaluation of accuracy and consistency of CWSI by empirical and theoretical models for maize. Irrigation Association Show and Education Conference. Las Vegas, NV. December 2016.

Banks, G.T., **K.C. DeJonge**, T.J. Trout. Seasonal ETc estimation: random and systemic error. USCID Conference, Fort Collins, CO. October 2016.

Trout, T.J., **K.C. DeJonge**. Crop water use by corn in the Central High Plains under full and deficit irrigation. USCID Conference, Fort Collins, CO. October 2016.

Comas, L.H., K. Willi, J. Young, J. Altenhofen, H. Zhang, S. Gleason, J.L. Chávez, **K.C. DeJonge**. Calculating and verifying canopy temperature, stomatal conductance and transpiration from remotely-sensed plant parameters. International Symposium on Sensing Plant Water Status – Methods and Applications in Horticultural Science. Postdam, Germany. October 2016.

Thorp, K.R., K. Bronson, D. Hunsaker, **K.C. DeJonge**. Comparison of the FAO-56 water balance model and the DSSAT cropping system model for cotton irrigation scheduling in Arizona. ASABE International Annual Conference. Orlando, FL. July 2016.

Zhang, H., H. Ming, **K.C. DeJonge**, L.H. Comas, T.J. Trout. Estimating crop water stress with standard deviation of canopy temperature in thermal imagery. Autonomous Air and Ground Sensing Systems for Agricultural Optimization and Phenotyping Conference. Baltimore, MD. April 2016.

Gleason, S.M., D.R. Wiggans, C.A. Bliss, L.H. Comas, M.S. Cooper, **K.C. DeJonge**, J.S. Young, H. Zhang. Electron transport, pep carboxylase activity, and maximal net CO_2 assimilation exhibit coordinated and proportional decline with loss of hydraulic conductance during water stress in *Zea mays*. American Society of Plant Biologists - Western Photosynthesis Conference. Tabersnash, CO. January 2016.

Trout, T.J., and **K.C. DeJonge**. Does deficit irrigation of field crops increase water productivity? ASABE/IA Irrigation Symposium. Long Beach, CA. November 2015.

Kullberg, E.G., J.L. Chávez, and **K.C. DeJonge**. Evaluation of water stress coefficient methods to estimate actual corn evapotranspiration in Colorado. Colorado State University Hydrology Days. March 2015.

Comas, L.H., T.J. Trout, **K.C. DeJonge**, and J.S. Young. Contrasting root patterns: seasonal root growth and soil water depletion in maize and sunflower under deficit irrigation. China Agricultural University. Beijing, China. December 2014.

Green, T.R., S.A.Saseendran, R.H. Erskine, A.A. Andales, W.C. Bausch, **K.C. DeJonge**, and L.R. Ahuja. "Theory and Application of a Residual Energy Balance Method to Estimate Evapotranspiration of Irrigated Corn (Maize)." ASA-CSSA-SSSA International Annual Meeting. Long Beach, CA. November 2014.

Trout, T.J., and **K.C. DeJonge**. "Corn and Sunflower ET with Deficit Irrigation." ASCE-EWRI World Congress. Portland, OR. June 2014.

Comas, L.H., T.J. Trout, and **K.C. DeJonge**. "Contrasting Strategies of Water Use: Seasonal Root Growth and Soil Water Depletion in Maize and Sunflower Under Deficit Irrigation." ASA-CSSA-SSSA International Annual Meeting. Tampa, FL. November 2013.

Hansen, N.C., **K.C. DeJonge**, and L.R. Ahuja. "Improving Crop Water Productivity in Dryland and Limited Irrigation Cropping Systems in the West Central Great Plains." ASA-CSSA-SSSA International Annual Meeting. Tampa, FL. November 2013.

Taghvaeian, S., J.L. Chávez, J. Altenhofen, T.J. Trout, and **K.C. DeJonge**. "Remote sensing for evaluating crop water stress at field scale using infrared thermography: Potentials and limitations." Hydrology Days. Fort Collins, CO. March 2013.

OTHER PROFESSIONAL ACTIVITIES

Professional Affiliations

Associate Editor – *Transactions of ASABE*	2017-present
ASABE Rocky Mountain Section – Co-Chair	2016-present
ASA Evapotranspiration Measurement and Modeling Community Vice Chair and Chair	2014-2016, 2018-2020
Associate Editor – ICID Journal *Irrigation and Drainage*	2015-2019
Nominee for USCID Board of Directors	Apr 2014
USCID Conference Planning Committee – Fort Collins, Denver	2013, 2016
Affiliate Faculty, Civil & Environmental Engineering, CSU	2012-present
ASCE-EWRI Evapotranspiration in Irrigation and Hydrology Committee Secretary (2020-2021), Vice Chair (2021-2023), Chair (2023-2025)	2011-present
U.S. Committee on Irrigation and Drainage (USCID)	2011-present
DISARM Committee (Deficit Irrigation Strategies and Returnflow Maintenance)	2010-2014
Licensed Professional Agricultural Engineer (PE), State of Nebraska, #E-13177	2010-present

American Society of Agronomy (ASA), Crop Science Society of America (CSSA), and Soil Science Society of America (SSSA)	2009-present
Alpha Epsilon (Agricultural Engineering Honor Society)	2005
American Society of Agricultural and Biological Engineers (ASABE)	2002-present

Professional Awards

USDA-ARS Associate Director Internship Program, funding for undergrad	March 2021
ASCE Honorable Mention Best Paper Award, J. of Irr. & Drainage Engineering	Feb 2021
ASCE Best Paper Award, Journal of Irrigation and Drainage Engineering	Jan 2020
ASCE Environmental & Water Resources Institute – Honorable Mention Paper	Feb 2017
USCID Service to the Profession Award (group award)	Oct 2016
USDA-ARS-NPA Project Plan – No Revisions Award	Jan 2012
USCID Summers Engineering Scholarship	Apr 2011
Water Tables 2011 Graduate Student Scholarship Award	Feb 2011
Irrigation Association Education Foundation, Student Essay Winner (Agriculture)	Nov 2010
Whitney Borland Advanced Graduate Student Scholarship, CSU	Oct 2010
Decagon Instruments G.A. Harris Fellowship	Feb 2010
SSSA Annual Meeting, Division S-6, Graduate Student Award	Nov 2009
Western Society of Soil Science Conference – First Place, Poster Presentation	Jun 2009
U.S. Department of Army Certificate of Achievement (Flood Fight)	Jun 2007
Outstanding MS Graduate Student Scholarship, ISU Agricultural Engineering	Mar 2006

Grants

"Decision Support Tools, Drought Tolerance, and Innovative Soil and Water Management Strategies to Adapt Semi-arid Cropping Systems to Drought"
PI: Neil Hansen
Role: Advisory Committee
Funding Source: USDA-NRCS Conservation Innovation Grant Program
Total Budget: $1,775,000
Dates: 2014-2016

"A Tool for Monitoring and Managing Water Stress in Corn"
PI: Louise Comas
Role: Cooperator
Funding Source: Colorado Corn Growers Association
Total Budget: $15,604
Dates: 3/2015 – 3/2016

Technical Reviewer - Journals
Transactions of the ASABE (13 reviews)
Journal of Irrigation and Drainage Engineering (9 reviews)
Agricultural Water Management (8 reviews)
Applied Engineering in Agriculture (5 reviews)
Computers and Electronics in Agriculture (4 reviews)
Irrigation and Drainage (3 reviews)
Field Crops Research (2 reviews)
Agricultural Systems (2 reviews)
Agriculture and Forest Meteorology (2 reviews)
Ecological Modelling (1 review)
Journal of Soil and Water Conservation (1 review)
River Research and Applications (1 review)
ASA, CSSA, SSSA Books (1 review)
Irrigation Science (1 review)

Technical Reviewer – Grants and Proceedings
I have served as both Panelist and Panel Manager for USDA-NIFA calls for grants.
(Details are omitted for anonymity)
Colorado State Conservation Innovation Grant (CIG) Review Panel, 2013
International Congress on Environmental Modelling & Software, 2012 (3 reviews), 2014 (2 revs)
18th IMACS World Congress MODSIM, 2009 (1 review)

Selected Invited Presentations and Travel
Invited talks to 2020 and 2021 Northeastern Colorado Progressive Ag Symposium, hosted by West Greeley Conservation District. 2020 meeting cancelled and 2021 travel not allowed by employer, due to COVID-19.
Invited symposium presenter to 2020 and 2021 ASA-SSSA-CSSA meetings (both virtual).
Invited talk to University of Nebraska virtual Water and Crops Field Day, August 2020.
Invitation to serve as External Foreign Examiner for Ph.D. candidate, School of Agriculture and Environment, Massey University (New Zealand). 2020-2021.
Invitation to attend The Agri-hydrological Models and Precise Water Management Workshop. Beijing, China. October 2018. All travel funds provided by China Agricultural University.
Invited panelist to review USDA-NIFA Water for Food Production Systems grants in Washington, DC. February 2018. All travel funds provided by USDA-NIFA.
Guided farm tour and UAV demonstration for U.S. Senators from Colorado, Sen. Cory Gardner and Sen. Michael Bennet, and Colorado Corn Growers Association. August 2017.
Invitations for two symposium presentations at the ASA-SSSA-CSSA meetings in Phoenix AZ. November 2016.
Invitation to the 2nd Workshop of the China Agricultural University 111 Project: Water and Food Security under Changing Environments, in Beining, China, June 2015. All funds provided in kind by CAU and the 111 Project.
Invitation to the Colorado Water Summit to serve as panelist on Colorado Agriculture Perspectives. Other panelists included Colorado Commissioner of Agriculture, VP of

Colorado Farm Bureau, and VP of Colorado Cattlemen's Association. Denver, CO. March 2015.

Invitation to participate and present at DSSAT Development Sprint meeting in December 2014 in Washington, D.C. All travel funds offered to be reimbursed by Washington State University.

Invitation to present in Evapotranspiration Measurement and Modeling Community symposium at November 2014 ASA Meeting in Long Beach, CA.

Invitation to present in Irrigation Strategies Community symposium at November 2014 ASA Meeting in Long Beach, CA [declined].

Invitation to give seminar to Oklahoma Water Resources Center, Stillwater OK in October 2014. All travel and lodging provided in-kind.

Invited two-week visit to China in September 2013 to foster collaborative research and present existing research results to places including China Agricultural University, Northwest A&F University, and Wuwei Experimental Station. All funds were provided in kind by China.

Featured in Publications

Northern Colorado Water Conservancy District, YouTube page. Collaborating with Partners Throughout the Region. Limited Irrigation Research Farm projects, and January 2021 Northern Water newsletter article "Northern Water Examining Ways Crops Can Reduce Consumptive Use".

The University of Nebraska TAPS program has produced a series of videos, and much of this research has been done in close collaboration. One example here.

Channel 7 News from Denver, in a video and online article "USDA researchers in Greeley are using technology to maximize water use for farmers". August 2019.

Associated Press. Farms turn to technology amid water warnings in Southwest US. August 2019. Versions of this story were reprinted in the Denver Post, Greeley Tribune, New York Times, Washington Post, USA Today, Chicago Tribune, Houston Chronicle, MSN, and many other media outlets on Twitter.

NebraskaFarmer. A novel way to measure water demand. September 2018.

USDA-ARS Axon photo of the month. August 2017.

Successful Farming. "Thirsty crops run a temp: research is establishing a fast way to determine crop water needs." Nov 2016.

Agriculture.com. "Creating a simple system to pinpoint irrigation using crop temperatures." July 2016.

The Sunflower. "Maximizing Value of Limited Water." Feb 2016.

USDA Radio. "Taking temperatures of water stressed plants." October 2015.

ASABE Resource Magazine. "Taking the temperature of water-thirsty plants." Nov/Dec 2015.

High Plains Journal. "Taking the temperature of water-thirsty plants." Aug 2015.

AgResearch Magazine. "Taking the temperature of water thirsty plants". August 2015.

FLIR Inc. Application Note. "U.S. Department of Agriculture relies on FLIR cameras to study water-stressed crops." 2014.

Graduate Student Committee Member

Brenna Mefford, M.S. Civil Engineering, Colorado State University, 2014.
Thesis: "Assessing corn water stress using spectral reflectance"

Emily Kullberg, M.S. Civil Engineering, Colorado State University, 2015.
Thesis: "Evaluation of stress coefficient methods to estimate crop evapotranspiration"

Manijeh Mahmoudzadeh, Ph.D., Civil Engineering, Colorado State University, 2017.
Dissertation: "Optimal water allocation for joint sustainability of irrigated agriculture and urban growth."

Isabella Presotto Possignolo, M.S., Biological Systems Engineering, University of Nebraska. 2020. Thesis: "Using infrared radiometry thermometer for irrigation management of dry edible beans in western Nebraska"

Garrett Banks, M.S., Civil & Environmental Engineering, Colorado State University, (did not graduate).

Garvey Smith, Ph.D., Soil & Crop Sciences, Colorado State University, 2022 (expected).

Hope Njuki Nakabuye, Ph.D., Biological Systems Engineering, University of Nebraska. 2022 (expected).

External Foreign Examiner

Guopeng Jiang, Ph.D., School of Agriculture and Environment, Massey University, New Zealand. 2020. Thesis title: "Predicting spatiotemporal yield variability to aid arable precision agriculture in New Zealand: A case study of maize-grain crop production in the Waikato Region"

Currently Supervised Personnel

-Katie Ascough (2018-present), Engineering Aide, M.S. student at CSU in Evironmental Engineering
-Kit Bellefeuille (2021-present), Engineering Aide, B.A. student at University of Minnesota-Morris in Environmental Science

Former Employees and Current Positions

I am proud to have supervised several bright undergraduate and graduate students (most from Colorado State University) and other professionals who have moved on to promising careers in engineering, agriculture, and other important ventures.

-Brenna Mefford (2011-2014), Water Resources Engineer, Colorado Water Conservation Board
-Caitlin Condon (2013), Ph.D. candidate at Oregon State University in Radiation Health Physics
-Keith Wakefield (2012-2014), Flood Recovery EIT for Colorado DOT
-Kayla Moden (2014), Geotechnical Engineer at Golder Associates
-Cory Arnold (2014-2015), Air Weapons Officer, United States Air Force
-Bailey Kraich (2014-2015), Project Engineer for Entact, LLC
-KaMele Sanchez (2016), Horticulturalist at Chicago Botanic Garden
-Ben Choat (2015-2016), PhD student at CSU in Environmental Engineering
-Liam Cummins (2011-2017), Assistant Division EIT, CO Division of Water Resources
-Michelle Ondrejka (2017), Civil Egineering EIT, RockSol Consulting
-Tyler Gilkerson (2017-2018), Hydrogeologist, National Parks Service
-Gerald Buchleiter (2015-2018), Retired (former Farm Manager)
-Jace Heryford (2019), CSU undergraduate in Soil and Crop Sciences
-Ross Steward (2016-2019), Farm Manager, USDA-ARS Water Management & Systems
-Horacio Garza (2015-2020), Retired, Shop Manager at CSU
-Bobby Baxter (2019), Inspection & Licensing Program Specialist, USDA-APHIS
-Garrett Banks (2015-2021), Entrepreneur

PERSONAL DETAILS

I take great pride in that I grew up on an irrigated farm in south-central Nebraska, developing practical agricultural skills raising corn and cattle. I have always had an avid interest in water and irrigation, and the broad experiences in my career have developed perspective of water resources on multiple scales. Ultimately my goal is to develop practical technology that will help farmers make management decisions resulting in efficient and sustainable water use. I also enjoy working with undergraduate and graduate students, and helping to advance early careers for those interested in researching water resources and agriculture.

My wife and I, and our two active dogs, try to enjoy as much of the Colorado outdoors as possible. These hobbies include hiking, snowboarding, snowshoeing, biking, hunting, fishing, homebrewing, pinball, college football, amateur wrestling, and music concerts.