

# AYSE KILIC, Ph.D.

## Professor

Department of Civil and Environmental Engineering and School of Natural Resources  
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## 1. Education and Employment History

### Section 1.1. Education History: Degrees received, Institutions and Dates

BS	Structures and Irrigation Engineering	Cukurova University, Adana/Turkey	1992
ME	Structures and Irrigation Engineering	Mediterranean Univ. Antalya/Turkey	1995
ME	Agricultural and Biological Engineering	University of Florida, Gainesville, FL	1998
Ph.D.	Agricultural and Biological Engineering -Minor in Computer Science & Urban and Regional Planning	University of Florida, Gainesville, FL	2002

### Section 1.2. Employment History: Employer, Position, Dates

Professor	Civil and Environmental Engineering and School of Natural Resources	University of Nebraska-Lincoln	2018- present
Assoc. Professor	Civil Engineering and School of Natural Resources	University of Nebraska-Lincoln	2013-2018
Asst. Professor	Civil Engineering and School of Natural Resources	University of Nebraska-Lincoln	2007-2013
Research Asst. Prof.	Biological Systems Engineering	University of Nebraska-Lincoln	2004-2007

### Section 1.3 Administrative Roles including those with Diversity, Inclusion, Equity and Access Components

1. Faculty representative to the Diversity and Inclusion Committee of the School of Natural Resources (SNR), UNL (at present)
2. Mission Area Leader of the Environmental Sciences Mission Area of the School of Natural Resources, 2015 – 2017, where administrative tasks included managing agendas, assembling the review document and organizing presentations for the five-year Accreditation in Public Relations (APR) review. I advocated for more women faculty and minorities on faculty. This led to the hiring of six new female faculty over the next two years (when I was hired, there were only two other women faculty out of 110 total faculty).
3. Chair of the SNR Advising and Recruitment Assessment Committee, 2015 – 2018. Tasks included recruiting committee members with full equity and access, including diversity in students, faculty and staff, creation of agendas, polling, interviews and reporting related to committee focus.

4. Chairwoman of the national American Society of Civil Engineers Technical Committee on Evapotranspiration in Irrigation and Hydrology, 2014-2016.
5. Chairwoman of the national American Society of Civil Engineers Task Committee on Remote Sensing of Evapotranspiration, 2013 – present, where the committee promotes diversity and inclusion of women and minorities.
6. Faculty advisor to the Turkish Student Association – enabling the celebration of the richness of diverse international cultures.
7. Core member of the national NASA and USGS-funded Landsat Science Team (2013-2018) and leader of the water resources group, where I promoted diversity and equity in satellite-image access and research funding, as well as within the Science Team itself.
8. One of two final candidates (not selected) for the Univ. Nebraska College of Engineering Associate Dean of Faculty and Inclusion (Fall, 2021).
9. Technical advisor to the Klamath Native American Tribe, Klamath, Oregon on satellite-based water consumption from irrigated crops and wetlands where I have supported the leveling of the playing field between the underrepresented Tribe and federal government regarding water consumption by various political and ethnic groups
10. Administrative leader of the Univ. Nebraska/Univ. Idaho/Desert Research Technical team of the national NASA-led OpenET consortium on producing national databases for evapotranspiration and water consumption and member of the administrative core group of OpenET (2015 – present) where I am one of three women in the technical group of more than 30 members.
11. Fellow of the international Daughtery Water for Food Institute that promotes inclusion, equity, diversity and access in food production systems around the globe.

## **2. Research Accomplishments**

### **Section 2.1. Publication Record**

#### **Summary of Publication Numbers and H-Index**

- Primary author or coauthor on **95** refereed publications and book chapters.
- Primary author on 22 refereed publications.
- Six papers have been recipients of national awards.
- My Web of Science H-Index (Oct. 2022) is **25** with 57 detected cited publications. My publications have been cited 3,764 times by other refereed journals. My Google Scholar H-Index is 36.

## Web of Science Core Collection metrics

**25**

H-Index

**57**

Publications in  
Web of Science

**3,764**

Sum of Times Cited

**2,521**

Citing Articles

### Top 13 cited journal papers:

[Landsat-8: Science and product vision for terrestrial global change research](#)

Roy, D. P. ; Wulder, M. A. ; (...); Zhu, Z.

Published Apr 2014 | [Remote Sensing of Environment](#)

**1,285**

Times  
Cited

[The future of evapotranspiration: Global requirements for ecosystem functioning, carbon and climate feedbacks, agricultural management, and water resources](#)

Fisher, Joshua B. ; Melton, Forrest ; (...); Wood, Eric F.

Published Apr 2017 | [Water Resources Research](#)

**402**

Times  
Cited

[Current status of Landsat program, science, and applications](#)

Wulder, Michael A. ; Loveland, Thomas R. ; (...); Zhu, Zhe

Published May 2019 | [Remote Sensing of Environment](#)

**363**

Times  
Cited

[Satellite-based ET estimation in agriculture using SEBAL and METRIC](#)

Allen, Richard ; Irmak, Ayse ; (...); Kjaersgaard, Jeppe

Published Dec 2011 | [Hydrological Processes](#)

**242**

Times  
Cited

Solar and net radiation-based equations to estimate reference evapotranspiration in humid climates  
Irmak, S ; Irmak, A ; (...); Jones, JW  
Published Sep 2003 | [Journal of Irrigation and Drainage Engineering - ASCE](#) **174**  
Times Cited

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Estimating Crop Coefficients Using Remote Sensing-Based Vegetation Index  
Kamble, Baburao ; Kilic, Ayse ; Hubbard, Kenneth  
Published Apr 2013 | [Remote Sensing](#) **142**  
Times Cited

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Sensitivity analyses and sensitivity coefficients of standardized daily ASCE-Penman-Monteith equation  
Irmak, Suat ; Payero, Jose O. ; (...); Howell, Terry A.  
Published Dec 2006 | [Journal of Irrigation and Drainage Engineering - ASCE](#) **126**  
Times Cited

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Automated Calibration of the METRIC-Landsat Evapotranspiration Process  
Allen, Richard G. ; Burnett, Boyd ; (...); Trezza, Ricardo  
Published Jun 2013 | [Journal of the American Water Resources Association](#) **77**  
Times Cited

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Estimation of Energy Balance Components over a Drip-Irrigated Olive Orchard Using Thermal and Multispectral Cameras Placed on a Helicopter-Based Unmanned Aerial Vehicle (UAV)  
Ortega-Farias, Samuel ; Ortega-Salazar, Samuel ; (...); Sepulveda, Daniel  
Published Aug 2016 | [Remote Sensing](#) **75**  
Times Cited

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On the scaling up leaf stomatal resistance to canopy resistance using photosynthetic photon flux density  
Irmak, S. ; Mutibwa, D. ; (...); Eisenhauer, D. E.  
Published Jun 2008 | [Agricultural and Forest Meteorology](#) **69**  
Times Cited

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Estimation of Crop Coefficients Using Satellite Remote Sensing  
Singh, Ramesh K. and Irmak, Ayse  
Published Oct 2009 | [Journal of Irrigation and Drainage Engineering - ASCE](#) **60**  
Times Cited

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Evapotranspiration data assimilation with genetic algorithms and SWAP model for on-demand irrigation  
Irmak, Ayse and Kamble, Baburao  
Published Nov 2009 | [Irrigation Science](#) **37**  
Times Cited

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OpenET: Filling a Critical Data Gap in Water Management for the Western United States  
Melton, Forrest S. ; Huntington, Justin ; (...); Anderson, Ray G.  
Published 2021 | [Journal of the American Water Resources Association](#) **36**  
Times Cited

### Section 2.1.1. Peer Reviewed Journal Publications in print<sup>1</sup>

\*1: Undergraduate student; 2: Masters student; 3: Ph.D. student; 4: Postdoctoral researcher

1. Volk, J.M., Huntington, J., Melton, F.S., Allen, R., Anderson, M.C., Fisher, J.B., **Kilic, A.**, Senay, G., Halverson, G., Knipper, K. and Minor, B., 2023. Development of a benchmark Eddy flux evapotranspiration dataset for evaluation of satellite-driven evapotranspiration models over the CONUS. *Agricultural and Forest Meteorology*, 331, p.109307.
2. Volk, J., Huntington, J., Melton, F., Allen, R., Anderson, M., Dunkerly, C., Fisher, J., Friedrichs, M., Hain, C., Halverson, G. and Johnson, L., Kang, Y., **Kilic, A.** 2022. OpenET Satellite-based ET Intercomparisons with Ground-based Measurements: Phase II Results. *Authorea Preprints*.
3. Melton, F.S., Huntington, J., Grimm, R., Herring, J., Hall, M., Rollison, D., Erickson, T., Allen, R., Anderson, M., Fisher, J.B. and **Kilic, A.**, 2022. OpenET: Filling a critical data gap in water management for the western united states. *JAWRA Journal of the American Water Resources Association*.
4. Borges, T.K.D.S., de Oliveira, A.S., Allen, R.G., **Kilic, A.**, Couto, J.P.C. and Santana, C.E., 2021. Analysis of the Radiation Balance Components Over Low-turbidity Water Stored in an Agricultural Reservoir in a Tropical Climate. *Brazilian Journal of Water. Research Square*. <https://www.researchsquare.com/article/rs-321889/v1>
5. Ortega-Salazar<sup>2</sup>, S., Ortega-Farías, S., **Kilic, A.** and Allen, R., 2021. Performance of the METRIC model for mapping energy balance components and actual evapotranspiration over a superintensive drip-irrigated olive orchard. *Agricultural Water Management*, 251, p.106861.
6. Volk, J., Huntington, J., Allen, R., Melton, F., Anderson, M. and **Kilic, A.**, 2021. flux-data-qaqc: A Python Package for Energy Balance Closure and Post-Processing of Eddy Flux Data. *Journal of Open Source Software*, 6(66), p.3418.
7. Melton, F.S., Huntington, J., Grimm, R., Herring, J., Hall, M., Rollison, D., Erickson, T., Allen, R., Anderson, M., Fisher, J.B. and **Kilic, A.**, 2021. OpenET: Filling a critical data gap in water management for the western united states. *JAWRA Journal of the American Water Resources Association*.
8. Allen, R.G., Dhungel<sup>3</sup>, R., Dhungana<sup>2</sup>, B., Huntington, J., **Kilic, A.** and Morton, C., 2021. Conditioning point and gridded weather data under aridity conditions for calculation of reference evapotranspiration. *Agricultural Water Management*, p.106531.
9. Blankenau<sup>2</sup>, P.A., **Kilic, A.** and Allen, R., 2020. An evaluation of gridded weather data sets for the purpose of estimating reference evapotranspiration in the United States. *Agricultural Water Management*, 242, p.106376.
10. Ramírez-Cuesta<sup>3</sup>, J.M., Allen, R.G., Intrigliolo, D.S., **Kilic, A.**, Robison, C.W., Trezza, R., Santos, C. and Lorite, I.J., 2020. METRIC-GIS: An advanced energy balance model for computing crop evapotranspiration in a GIS environment. *Environmental Modelling & Software*, 131, p.104770.
11. Allen, R.G., Dukes, M.D., Snyder, R.L., Kjelgren, R. and **Kilic, A.**, 2020. A Review of Landscape Water Requirements Using a Multicomponent Landscape Coefficient. *Transactions of the ASABE*, 63(6), pp.2039-2058.
12. Allen, R.G., Robison, C.W., Huntington, J., Wright, J.L. and **Kilic, A.**, 2020. Applying the FAO-56 Dual Kc Method for Irrigation Water Requirements over Large Areas of the Western US. *Transactions of the ASABE*, 63(6), pp.2059-2081.

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\* I officially changed my last name from Irmak to Kilic in August 2012. Publications and documents prior to fall 2013 will reflect my former name 'Ayse Irmak'.

13. Wulder, M.A., Loveland, T.R., Roy, D.P., Crawford, C.J., Masek, J.G., Woodcock, C.E., Allen, R.G., Anderson, M.C., Belward, A.S., Cohen, W.B. and Dwyer, J., Erb, A., Gao, F., Griffiths, P., Helder, D., Hermosilla, T., Hipple, J.D., Hostert, P., Hughes, M.J., Huntington, J., Johnson, D.M., Kennedy, R., **Kilic, A.**, et al. 2019. Remote Sensing of Environment: Current status of Landsat program, science, and applications. *Remote Sensing of Environment* 50 year Anniversary Special Issue 225 (2019) 127–147
14. Ramírez-Cuesta<sup>3</sup>, J.M., R.G. Allen, P.J. Zarco-Tejada, **A. Kilic**, C. Santos, I.J. Lorite. 2019. Impact of the spatial resolution on the energy balance components on an open-canopy olive orchard. *Int J Appl Earth Obs Geoinformation*. 74:88-102. (25%)
15. Trezza, R., Allen, R.G., **Kilic, A.**, Ratcliffe, I. and Tasumi, M., 2018. Influence of Landsat Revisit Frequency on Time-Integration of Evapotranspiration for Agricultural Water Management. In *Evapotranspiration*. IntechOpen. DOI: 10.5772/intechopen.80946 (20%)
16. Li<sup>3</sup>, Y., Z. Tang, C. Liu and **A. Kilic**. 2017. Estimation and investigation of consumptive water use in residential area—Case cities in Nebraska, U.S.A. *Sustainable Cities and Society* Volume 35, pp 637-644. <https://doi.org/10.1016/j.scs.2017.09.012> (20%)
17. de la Fuente-Sáiz<sup>3</sup>, D., Ortega-Farías, S., Fonseca, D., Ortega-Salazar<sup>2</sup>, S., **Kilic, A.** and Allen, R., 2017. Calibration of METRIC Model to Estimate Energy Balance over a Drip-Irrigated Apple Orchard. *Remote Sensing*, 9(7), 18 p. doi:10.3390/rs9070670www.mdpi.com/journal/remotesensing (15%)
18. de la Fuente-Sáiz<sup>3</sup>, D., Ortega-Farías, S. Ortega-Salazar<sup>2</sup>, S., Benavides, M., **Kilic, A.**, Allen, R. G. 2017. Estimation of water requirements for a drip-irrigated apple orchard using Landsat 7 satellite images. January 2017 *Acta horticulturae* 1150(1150):181-188. DOI: 10.17660/ActaHortic.2017.1150.26 (10%)
19. Fisher, J.B., Melton, F., Middleton, E., Hain, C., Anderson, M., Allen, R., McCabe, M.F., Hook, S., Baldocchi, D., Townsend, P.A. and **Kilic, A.**, 2017. The future of evapotranspiration: Global requirements for ecosystem functioning, carbon and climate feedbacks, agricultural management, and water resources. *Water Resources Research*, 53(4), pp.2618-2626. (10%)
20. Ramírez-Cuesta<sup>3</sup>, J.M., **Kilic, A.**, Allen, R., Santos<sup>4</sup>, C. and Lorite, I.J., 2017. Evaluating the impact of adjusting surface temperature derived from Landsat 7 ETM+ in crop evapotranspiration assessment using high-resolution airborne data. *International Journal of Remote Sensing*, 38(14), pp.4177-4205. (35%)
21. Ortega-Farías, S., D. Fonseca, D. de la Fuente, **A. Kilic**, S. Ortega-Salazar<sup>2</sup>, R. Allen and M. Carrasco-Benavides. 2017. Remote sensing model to evaluate the spatial variability of vineyard water requirements. *Acta Hortic*. 1188. ISHS 2017. DOI 10.17660/ActaHortic.2017.1188.30, pp. 235-242. (10%)
22. Kukul<sup>3</sup>, M., Irmak, S. and **Kilic, A.**, 2017. Long-Term Spatial and Temporal Maize and Soybean Evapotranspiration Trends Derived from Ground-Based and Satellite-Based Datasets over the Great Plains. *Journal of Irrigation and Drainage Engineering*, ASCE, 143(9) . doi:10.1061/(ASCE)IR.1943-4774.0001212 (20%)
23. **Kilic, A.**, Allen, R., Trezza, R., Ratcliffe, I., Kamble<sup>4</sup>, B., Robison, C., & Ozturk<sup>2</sup>, D. 2016. Sensitivity of evapotranspiration retrievals from the METRIC processing algorithm to improved radiometric resolution of Landsat 8 thermal data and to calibration bias in Landsat 7 and 8 surface temperature. *Remote Sensing of Environment*, 185, 198-209. (60%)
24. Foolad<sup>3</sup>, F., Franz, T.E., Wang, T., Gibson, J., **Kilic, A.**, Allen, R.G. and Suyker, A., 2016. Feasibility analysis of using inverse modeling for estimating field-scale evapotranspiration in maize and soybean fields from soil water content monitoring networks. *Hydrology and Earth System Sciences*, 21(2), pp 1-50. doi:10.5194/hess-2016-437 (30%)

25. Ortega-Farías, S., Ortega-Salazar<sup>2</sup>, S., Poblete, T., **Kilic, A.**, Allen, R., Poblete-Echeverría<sup>4</sup>, C., Ahumada-Orellana, L., Zuñiga<sup>3</sup>, M. and Sepúlveda, D., 2016. Estimation of energy balance components over a drip-irrigated olive orchard using thermal and multispectral cameras placed on a helicopter-based unmanned aerial vehicle (UAV). *Remote Sensing*, 8(8), 12 p. (20%)
26. Sharma<sup>3</sup>, V., **Kilic, A.** and Irmak, S., 2016. Impact of scale/resolution on evapotranspiration from Landsat and MODIS images. *Water Resources Research*, 52(3), pp.1800-1819. (30%)
27. Wang, J., Kessner, A., Aegerter, C., Sharma, A., Wardlow, B., You, J., Shulski, M., Irmak, S., **Kilic, A.** and Zeng, J., 2016. A Multi-sensor View of the 2012 Central Plains Drought from Space. *Frontiers in Environmental Science*, 4, p.1:13. (10%)
28. Sharma<sup>3</sup>, V., Irmak, S., **Kilic, A.**, Sharma, V., Gilley, J.E., Meyer, G.E., Knezevic, S.Z. and Marx, D., 2016. Quantification and Mapping of Surface Residue Cover for Maize and Soybean Fields in South Central Nebraska. *Transactions of the ASABE*, 59(3), pp.925-939. (20%)
29. Sharma<sup>3</sup>, V., S. Irmak, **A. Kilic**, and D. Mutibwa<sup>3</sup>. 2015. Application of remote sensing for quantifying and mapping surface energy fluxes in south central Nebraska: Analyses with respect to field measurements. *Transactions of the ASABE* 58(5):1265-1285. (25%)
30. Wang, S.Y.S., Santanello, J., Wang, H., Barandiaran, D., Pinker, R.T., Schubert, S., Gillies, R.R., Oglesby, R., Hilburn, K., **Kilic, A.** and Houser, P., 2015. An intensified seasonal transition in the Central US that enhances summer drought. *Journal of Geophysical Research: Atmospheres*, 120(17), pp.8804-8816. (10%)
31. Carrasco-Benavides<sup>3</sup>, M., Ortega-Farías, S., Lagos, L.O., Kleissl, J., Morales-Salinas, L. and **Kilic, A.**, 2014. Parameterization of the Satellite-Based Model (METRIC) for the Estimation of Instantaneous Surface Energy Balance Components over a Drip-Irrigated Vineyard. *Remote Sensing*, 6(11), pp.11342-11371. (15%)
32. Irmak, S., J. O. Payero, **A. Kilic**, L. O. Odhiambo, D. Rudnick, V. Sharma<sup>3</sup>, David Billesbach. 2014. On the magnitude and dynamics of eddy covariance system residual energy (energy balance closure error) in subsurface drip irrigated maize field during growing and non-growing (dormant) seasons. *Irrigation Science*. ISSN 0342-7188. DOI 10.1007/s00271-014-0443-3 (15%)
33. Irmak, S., **A. Kilic**, S. Chatterjee<sup>3</sup>. 2014. On the Equality Assumption of Latent and Sensible Heat Energy Transfer Coefficients of the Bowen Ratio Theory for Evapotranspiration Estimations: Another Look at the Potential Causes of Inequalities. *Climate* 2(3):185-204. (25%)
34. Mutibwa<sup>3</sup>, D., **A. Kilic**, and S. Irmak. 2014. The effect of land cover/land use changes on the regional climate of the High Plains. *Climate* 2014, 2(3): 153-167 doi:10.3390/cli20x000x (30%)
35. Roy, D.P.; Wulder, M.A.; Loveland, T.R.; Woodcock, C.E.; Allen, R.G.; Anderson, M.C.; Helder, D.; Irons, J.R.; Johnson, D.M.; Kennedy, R.; Scambos, T.A.; Schaaf, C.B.; Schott, J.R.; Sheng, Y.; Vermote, E.F.; Belward, A.S.; Bindschadler, R.; Cohen, W.B.; Gao, F.; Hipple, J.D.; Hostert, P.; Huntington, J.; Justice, C.O.; **Kilic, A.**; Kovalsky, V.; Lee, Z.P.; Lymburner, L.; Masek, J.G.; McCorkel, J.; Shuai, Y.; Trezza, R.; Vogelmann, J.; Wynne, R.H.; Zhu, Z. Landsat-8: Science and product vision for terrestrial global change research. 2014. *Remote Sensing Environment* 145:154-172. <https://www.researchgate.net/deref/https%3A%2F%2Fwww.sciencedirect.com%2Fscience%2Farticle%2Fpii%2FS003442571400042X> (5%)
36. Kamble<sup>3</sup>, B., **A. Kilic**, and K. Hubbard. 2013. Estimating Crop Coefficients Using Remote Sensing-Based Vegetation Index. *Remote Sens.* 5:1588-1602. (35%)

37. Kamble<sup>3</sup>, B., **A. Irmak**, K.G. Hubbard, and P. Gowda. 2013. Irrigation scheduling using remote sensing data assimilation approach *Advances in Remote Sensing 2* (2013): 258. DOI: 10.4236/ars.2013.23028 (30%)
38. Gengxin<sup>3</sup> O., X. Chen, **A. Kilic**, S. Bartelt-Hunt, Y. Li, and A. Samal. "Development of a cross-section based streamflow routing package for MODFLOW." *Environmental Modelling & Software* 50 (2013): 132-143. (35%)
39. Lagos<sup>3</sup>, L.O., D.L. Martin, D. L., S.B. Verma, S. Irmak, **A. Irmak**, D. Eisenhauer, and A. Suyker. 2013. Surface energy balance model of transpiration from variable canopy cover and evaporation from residue-covered or bare soil systems: model evaluation. *Irrigation Science*, 31(2), 135-150. (15%)
40. Allen, R.G., B. Burnett, W. Kramber, J. Huntington, J. Kjaersgaard, **A. Kilic-Irmak**, C. Kelly, R. Trezza. 2013. Automated Calibration of the METRIC-Landsat Evapotranspiration Process. *J. Am. Water Resources Assoc.* 49(3):563-576. (10%)
41. Allen, R.G., R. Trezza, **A. Kilic-Irmak**, M. Tasumi, H. Li. 2013. Sensitivity of Landsat-scale energy balance to aerodynamic algorithms in mountains and complex terrain. *J. Am. Water Resources Assoc.* 49(3):592-604 (25%)
42. Sharma<sup>3</sup>, V., **A. Irmak**, S. Irmak, and I. Kabenge<sup>3</sup>. 2012. Application of GIS to evaluate the spatial nonstationarity relationships between precipitation vs. irrigated and rainfed maize and soybean yields. *Trans. ASABE Vol. 54(3): 953-972.* (30%)
43. **Irmak, A.**, Ratcliffe, I., Ranade<sup>2</sup>, P., Allen, R.G., Kjaersgaard, J., Kamble, B., Choragudi, R., Hubbard, K., G., Singh, R., Mutiibwa<sup>3</sup>, D., Healey<sup>3</sup>, N. 2012. Seasonal evapotranspiration mapping using Landsat visible and thermal data with an energy balance approach in central Nebraska. In Neale, CMU; Cosh, MH (ed): *Remote Sensing and Hydrology*. Book Series: IAHS Publication, Volume 352, Pages: 84-88. (55%)
44. Kjaersgaard, J., Allen, R.G., Robison, C.W. **Irmak, A.**, Ratcliffe, I., Ranade<sup>2</sup>, P., Trezza, R., Dhungel<sup>3</sup>, R., Kra, E. 2012. Adjusting for background soil evaporation when interpolating evapotranspiration between satellite overpass dates. In Neale, CMU; Cosh, MH (ed): *Remote Sensing and Hydrology*. Book Series: IAHS Publication, Volume 352, Pages: 94-97 (20%)
45. Akasheh<sup>4</sup>, O. Z.; **Irmak, A.**; Irmak, S.; et al. 2012. Comparison of ET from two remote sensing-based surface energy models in south central Nebraska. In Neale, CMU; Cosh, MH (ed): *Remote Sensing and Hydrology*. Book Series: IAHS Publication, Volume 352, Pages: 106-110. (40%)
46. **Irmak, A.**; Kumar, R.; Allen, R. G. 2012. Local and global sensitivity analysis on METRIC. In Neale, CMU; Cosh, MH (ed): *Remote Sensing and Hydrology*. Book Series: IAHS Publication, Volume 352, Pages: 175-179. (60%)
47. Kjaersgaard<sup>4</sup>, J., R.G. Allen and **A. Irmak**. 2011. Improved methods for estimating monthly and growing season ET estimation using METRIC applied to moderate-resolution satellite imagery. *J. Hydrological Processes.* 25:4028–4036. (30%)
48. Allen, R.G., **A. Irmak**, R. Trezza, J. Hendrickx, W. Bastiaanssen, and J. Kjaesgaard. 2011. Satellite based ET estimation in agriculture using SEBAL and METRIC. *J. Hydrological Processes.* 25:4011–4027. (40%)
49. Healey<sup>3</sup>, N.C., **A. Irmak**, T.J. Arkebauer, D.P. Billesbach, J.D. Lenters, K.G. Hubbard, R.G. Allen, J. Kjaersgaard<sup>4</sup>. 2011. Remote Sensing and In Situ-Based Estimation of Evapotranspiration for Subirrigated Meadow, Dry Valley, and Upland Dune Ecosystems in the Semi-arid Sand Hills of NE, USA. *Irrigation and Drainage Systems* 25(3):151-178. (45%)
50. **Irmak, A.**, I. Ratcliffe, P. Ranade<sup>2</sup>, K.G. Hubbard, R.K. Singh<sup>3</sup>, B. Kamble<sup>3</sup> and J. Kjaersgaard. 2011. Estimation of land surface evapotranspiration: A satellite remote sensing procedure. *Great Plains Research.* 21(1):73-88, April 2011. (65%)

51. **Irmak, A.**, R.K. Singh<sup>3</sup>, E. Walter-Shea, S.B. Verma and A.E. Suyker<sup>4</sup>. 2011. Comp. and Anal. Empirical Equ. for Soil Heat Flux for Different Cropping Sys. and Irrig. Methods. *Trans. ASABE*. 54(1): 67-80 (45%)
52. Singh<sup>3</sup>, R. K., and **A. Irmak**. 2011. Treatment of anchor pixels in METRIC model for improved sensible and latent heat fluxes in a semi-arid region. *Hydrological Sciences Journal* 56(5): 895–906. (45%)
53. Singh<sup>3</sup>, R.K., **A. Irmak**, E. Walter-Shea, S.B. Verma and A.E. Suyker<sup>4</sup>. 2011. Spectral data-based estimation of soil heat flux. *Transactions of the ASABE* 54(5): 1589-1597. (40%)
54. Lagos<sup>3</sup>, L.O., D.L. Martin, S.B. Verma, S. Irmak, **A. Irmak**, D.E. Eisenhauer, and A. Suyker. 2011. Surface energy balance model of transpiration and evaporation from residue-covered or bare-soil systems: Model evaluation. *Irrigation Science*, (on-line) Aug. 2011. DOI10.1007/s00271-011-0298-9. (20%)
55. Healey<sup>3</sup>, N.C., **A. Irmak**, K.G. Hubbard, J.D. Lenters. 2011. Environmental variables controlling site suitability for corn-based ethanol production in Nebraska. *Biomass and Bioenergy* 35(7): 2852-2860. (45%)
56. Lenters, J.D., G.J. Cutrell<sup>5</sup>, E. Istanbuluoglu<sup>4</sup>, D.T. Scott, K.S. Herrman, **A. Irmak**, D.E. Eisenhauer. 2011. Seasonal energy and water balance of a Phragmites australis-dominated wetland in the Republican River basin of south-central Nebraska (USA). *Journal of Hydrology* 408(1-2): 19-34. (20%)
57. **Irmak, A.**, Ranade<sup>2</sup>, P., D. Marx, K.G. Hubbard, S. Irmak, G. Meyer, and D.L. Martin. 2010. Spatial interpolation of climate variables in Nebraska. *Trans. ASABE* 53(6): 1759-1771. (65%)
58. **Irmak, A.**, and B. Kamble<sup>3</sup>. 2009. Evapotranspiration Data Assimilation with Genetic Algorithms and SWAP Model for On-demand Irrigation. *Irrig. Sci.* 28:101-112 (DOI 10.1007/s00271-009-0193-9). (65%)
59. Singh<sup>3</sup>, R., and **A. Irmak**. 2009. Estimation of Crop Coefficients Using Satellite Remote Sensing. *J. Irrig. and Drain. Eng.*, ASCE 135(5): 597-608 (DOI 10.1061/(ASCE)IR.1943-4774.0000052). (60%)
60. **Irmak, A.**, S. Irmak, and D.L. Martin. 2008. Reference and crop evapotranspiration in south central Nebraska: I. Comparison and analysis of grass and alfalfa-reference evapotranspiration. *J. Irrig. and Drain. Eng.*, ASCE 134(6):690-699. (70%)
61. **Irmak, A.**, and S. Irmak. 2008. Reference and crop evapotranspiration in south central Nebraska: II. Meas. and est. of actual evapotranspiration. *J. Irrig. and Drain. Eng.*, ASCE 134(6):700-715. (70%)
62. Singh<sup>3</sup>, R.K., **A. Irmak**, S. Irmak and D.L. Martin. 2008. App. of SEBAL for mapping evapotranspiration and estimating surface energy fluxes in south central NE. *J. Irrig. and Drain. Eng.*, ASCE 134(3):273-285. (40%)
63. Irmak, S., **A. Irmak**, T.A. Howell, D.L. Martin, J.O. Payero, and K.S. Copeland. 2008. Variability of alfalfa-reference to grass-reference evapotranspiration ratios in growing and dormant seasons. *J. Irrig. and Drain. Eng.*, ASCE 134(2):147-159. (40%)
64. Irmak, S., D. Mutiibwa<sup>3</sup>, **A. Irmak**, T.J. Arkebauer, A. Weiss, D.L. Martin, and D.E. Eisenhauer. 2008. On the scaling up leaf stomatal resistance to canopy resistance using photosynthetic photon flux density. *Agricultural and Forest Meteorology* 148:1034-1044. (20%)
65. Irmak, S., E. Istanbuluoglu<sup>4</sup>, and **A. Irmak**. 2008. An evaluation of evapotranspiration model complexity vs performance in comparison with Bowen ratio energy balance meas. *Trans. ASABE* 51(4):1295-1310. (20%)
66. **Irmak, A.**, J.W. Jones, W.D. Batchelor, S. Irmak, J.O. Paz and K.J. Boote. 2006. Analysis of spatial yield variability using a combined crop model-empirical approach. *Transactions of the ASABE* 49(3):811-818. (70%)

67. **Irmak, A.**, J.W. Jones, W.D. Batchelor, S. Irmak, K.J. Boote, and J.O. Paz. 2006. Artificial neural network model as a data analysis tool in precision farming. *Transactions of the ASABE* 49(6):2027-2037. (80%)
68. Irmak, S., J.O. Payero, D.L. Martin, **A. Irmak**, and T.A. Howell. 2006. Sensitivity analyses and sensitivity coefficients of the standardized ASCE-Penman-Monteith equation to climate variables. *J. Irrig. and Drain. Eng.*, ASCE 132(6):564-578. (25%)
69. **Irmak, A.**, J.W. Jones, and S.S. Jagtap. 2005. Evaluation of the CROPGRO-Soybean model for Assessing Climate Impacts on Regional Soybean Yields. *Transactions of the ASAE* 48(6):2343-2353. (85%)
70. Irmak, S., and **A. Irmak**. 2005. Performance of frequency-domain, capacitance, and pseudo-transit time-based soil water content probes in four coarse-textured soils. *Applied Engineering in Agriculture* 21(6):999-1008. (40%)
71. Irmak, S., D.Z. Haman, **A. Irmak**, J.W. Jones, B. Tonkinson, D. Burch, T.H. Yeager, and C. Larsen. 2005. Root-zone temperatures of *V. odoratissimum* grown in the MPBS and conventional systems: Measurement and analyses of temperature profiles and predicting root-zone temperatures. *J. of Am. Soc. of Hort. Sci.* 40(3):808-818. (20%)
72. Rymph, S.J., K.J. Boote, **A. Irmak**, P. Mislevy, and G.W. Evers. 2004. Adapting the CROPGRO model to predict growth and composition of tropical grasses: developing physiological parameters. *Soil and Crop Science Society of Florida* 63:37–51. (20%)
73. Irmak, S., D. Z. Haman, **A. Irmak**, J. W. Jones, K. L. Campbell, and T. L. Crisman. 2004. Measurement and analyses of growth and stress parameters of *Viburnum odoratissimum* (Ker-gawl) grown in a Multi-Pot Box System. *J. Am. Soc. Hort. Sci.* 39(6):1445-1455. (20%)
74. Irmak, S., D. Z. Haman, **A. Irmak**, J. W. Jones, K. L. Campbell, and T. H. Yeager. 2003. New irrigation-plant production system for water conservation in ornamental nurseries: Quantification and evaluation of irrigation, runoff, plant biomass, and irrigation efficiencies. *Applied Engineering in Agriculture*, ASAE 19(6):651-655. (25%)
75. Irmak, S., **A. Irmak**, J.W. Jones, T.A. Howell, J.M. Jacobs, R.G. Allen, and G. Hoogenbom. 2003. Predicting daily net radiation using minimum climatological data. *J. Irrig. and Drain. Eng.*, ASCE 129(4):256-269. (40%)
76. Irmak, S., **A. Irmak**, and J.W. Jones. 2003. Predicting multiple layers of bare soil temperatures: A model evaluation and modifications for sandy soils. *Soil and Crop Science Society of Florida* 62:20-29. (40%)
77. Irmak, S., **A. Irmak**, R.G. Allen, and J.W. Jones. 2003. Solar and net radiation-based equations to estimate reference evapotranspiration in humid climates. *J. Irrig. and Drain. Eng.*, ASCE 129(5):336-347. (35%)
78. **Irmak, A.**, W.D. Batchelor, J.W. Jones, S. Irmak, J.O. Paz, H. Beck, and M. Engel. 2002. Relationship between plant available soil water and yield for explaining soybean yield variability. *Applied Engineering in Agriculture*, ASAE 18(4):471-482. (55%)
79. **Irmak, A.**, J.W. Jones, W.D. Batchelor, and J.O. Paz. 2002. Linking multi-variables for diagnosing causes of spatial yield variability in soybean. *Transactions of the ASAE* 45(3): 839-849. (70%)
80. **Irmak<sup>3</sup>, A.**, J.W. Jones, W.D. Batchelor, and J.O. Paz. 2001. Estimating spatially variable soil properties for crop model use in precision farming. *Transactions of the ASAE* 42(6):1867-1877. (80%)
81. Mavromatis, T., K.J. Boote, J.W. Jones, **A. Irmak<sup>3</sup>**, D. Shinde, and G. Hoogenboom. 2001. Developing genetic coefficients for crop simulation models with data from crop performance trials. *Crop Science* 41: 40-51. (20%)
82. Irmak<sup>3</sup>, S., D.Z. Haman, and **A. Irmak<sup>3</sup>**. 2001. Dew point hygrometers for irrigation scheduling in fine-textured soils. *Applied Engineering in Agriculture*, ASAE 17(1):17-25. (25%)

83. **Irmak<sup>3</sup>, A.**, J.W. Jones, T. Mavromatis, S.M. Welch, K.J. Boote, and G.G. Wilkerson. 2000. Evaluating methods for simulating soybean responses using cross-validation. *Agronomy Journal* 92(6):1140-1149. (80%)
84. **Irmak<sup>3</sup> A.**, and J.W. Jones. 2000. Use of crop simulation to evaluate antitranspirant effects on tomato growth and yield. *Transactions of the ASAE* 43(5):1281-1289. (80%)
85. **Irmak<sup>3</sup>, A.**, J.W. Jones, C.D. Stanley, J.W. Hansen, S. Irmak<sup>3</sup>, and K.J. Boote. 1999. Some effects of an antitranspirant (Vapor Gard) on tomato growth and yield. *Soil and Crop Science Society of Florida* 58:118-122. (75%)
86. Hansen, J.W., **A. Irmak<sup>3</sup>**, and J.W. Jones. 1998. El Nino-Southern Oscillation influences on Florida crop yields. *Soil and Crop Science Society of Florida* 57: 12-16. (30%)
87. Hakgoren, F., and **A. Irmak<sup>2</sup>**. 1995. Cooling of greenhouses. Mediterranean University, *Journal of Agriculture* (8):238-252. Antalya, Turkey. (40%)

## Section 2.1.2. Books and Book Chapters

### Books

1. **Irmak, A.**, 2012. *Evapotranspiration -- Remote Sensing and Modeling*. 512 p. Published online by InTech (<http://www.intechopen.com/books/evapotranspiration-remote-sensing-and-modeling> ). (100%)

### Book Chapters

1. Allen, Richard, Thomas Foken, **Ayse Kilic**, Ricardo Trezza, A. Samuel Ortega Farias. **2021**. Evapotranspiration Measurements and Calculations. Chapter 58 in *Handbook of Atmospheric Measurements*, Editor: Thomas Foken, Publisher: Springer. ISBN: 978-3-030-52171-4, Pages 1545-1581.
2. Mutiibwa<sup>3</sup>, D., **A. Kilic**, and S. Irmak. 2017. Identifying changes in trends of summer air temperatures of the USA High Plains. Book Chapter, *InTech Publications* (accepted). (35%)
3. Okalebo<sup>3</sup>, J.A., R.J. Oglesby, S. Feng, K. Hubbard, **A. Kilic**, M. Hayes and C. Hays. 2016. An evaluation of the Community Land Model (Version 3.5) and Noah Land Surface Models for Temperature and Precipitation over Nebraska (Central Great Plains): Implications for Agriculture in Simulations of Future Climate Change and Adaptation. Chapter 2 in *Climate Change Adaptation, Resilience and Hazards* (W.L. Filho, H. Musa, G. Cavan, P. O'Hare and J. Seixas (ed). pp. 21-34. (15%)
4. Kamble<sup>3</sup>, B., **A. Irmak (Kilic)**, D.L. Martin, K.G. Hubbard, I. Ratcliffe, G. Hergert, S. Narumalani and R.J. Oglesby. 2013. *Satellite-Based Energy Balance Approach to Assess Riparian Water Use. Evapotranspiration - An Overview*. Edited by Stavros G. Alexandris, ISBN 978-953-51-1115-3, 276 pages, Publisher: InTech, Chapters published April 30, 2013 under CC BY 3.0 license (2013). (40%)
5. **Irmak (Kilic), A.**, R.G. Allen, J. Kjaersgaard, J. Huntington, B. Kamble<sup>3</sup>, R. Trezza, and I. Ratcliffe. 2012. Operational Remote Sensing of ET and Challenges. Chapter 21 in *Evapotranspiration – Remote Sensing and Modeling* (A. Irmak, editor), Publisher: InTech. (70%)
6. Kamble<sup>3</sup>, B., and **A. Irmak**. 2010. Remotely-Sensed Evapotranspiration Data Assimilation for Crop Growth Modeling, IN-TECH, chapter 18 in *Evapotranspiration*. ISBN: 978-953-7619-X-X. (40%)
7. Sadler, E.J., E.M. Barnes, W.D. Batchelor, J. Paz, and **A. Irmak**. 2002. Addressing spatial and temporal variability in crop model applications. In L.A. Ahuja, L. Ma, and T.A. Howell

(eds.). Agricultural System Models in Field Research and Technology Transfer. Chapter 12. Lewis Publishers, American Society of Agronomy Special publication. pp 253-263. (15%)

8. Hansen, J.W., J.W. Jones, **A. Irmak**<sup>3</sup>, and F. Royce. 2001. ENSO impacts on crop production in the Southeast U.S. Chapter in book entitled "*Impacts of El Nino and Climate Variability on Agriculture*". ASA Special publication: 63:57-78. (30%)

### Section 2.1.2. Conference Proceedings: Peer reviewed extended abstract or peer reviewed paper

1. **Kilic, Ayse**, Richard G Allen, Phillip Blankenau, Peter Reville, Doruk Ozturk, Justin Huntington. 2021. Global Production and Free Access to Landsat-Scale Evapotranspiration with EEFlux and eeMETRIC. DOI: 10.13031/irrig.2020-038. ASABE 6th Decennial National Irrigation Symposium, 6-8, December 2021, San Diego, CA.
2. **Kilic, Ayse**, Richard G Allen, Phillip Blankenau, Peter Reville, Doruk Ozturk, Justin Huntington. 2021. Global Production and Free Access to Landsat-Scale Evapotranspiration with EEFlux and eeMETRIC. DOI: 10.13031/irrig.2020-038. ASABE 6th Decennial National Irrigation Symposium, 6-8, December 2021, San Diego, CA.
3. Allen, Richard G., **Ayse Kilic**, Clarence W. Robison. 2021. Current Frameworks for Reference ET and Crop Coefficient Calculation. DOI: 10.13031/irrig.2020-070. ASABE 6th Decennial National Irrigation Symposium, 6-8, December 2021, San Diego, CA.
4. **Kilic, Ayse**, Richard Allen, Justin Huntington, Philip Blankenau, Peter Reville, Doruk Ozturk, Samuel Ortega, Charles Morton, Tyler Erickson, David Thau. 2018. EEFLUX: A Landsat-based evapotranspiration mapping tool on the Google Earth Engine. Proceedings of the New Mexico Water Law Conference, Santa Fe, NM. 5 p.
5. Allen, R.G., **A. Kilic** and J. Huntington. 2016. METRIC/EEFlux - Application, Parameterization, Accuracy, Challenges, Successes. Presentation at the Remote Sensing of Water Consumption Workshop for Philanthropic Organizations, Technology Companies, and Key Decision Makers. NASA Ames, Mountain View, CA, March 24-25, 2016. (invited). 5p.
6. Sharma<sup>3</sup>, V., S. Irmak and **A. Kilic**. July 28, 2015. Impact of scale/resolution on evapotranspiration from Landsat and MODIS over various land surfaces. ASABE Annual Conference. New Orleans, LA. July 26-29, 2015. 6p.
7. Sharma<sup>3</sup>, V., S. Irmak and **A. Kilic**. July 29, 2015. Remote sensing mapping of tillage practices over south central Nebraska, USA using Landsat imagery. ASABE Annual Conference. New Orleans, LA. July 26-29, 2015. 7p.
8. **Kilic, A.**, Allen, R.G., Morton, C., Kamble, B., Huntington, J., Thau, D., Gorelick, N., Erickson, T., Moore, R., Trezza, R. and Ratcliffe, I., 2015. EEFlux: A Landsat-based Evapotranspiration mapping tool on the Google Earth Engine. In 2015 ASABE/IA Irrigation Symposium: Emerging Technologies for Sustainable Irrigation (pp. 1-11). American Society of Agricultural and Biological Engineers. Dec. 2015.
9. Allen, R.G., **Kilic, A.**, Suyker, A. and Okalebo<sup>3</sup>, J., 2015. Fitting measured evapotranspiration data to the FAO56 dual crop coefficient method. In 2015 ASABE/IA Irrigation Symposium: Emerging Technologies for Sustainable Irrigation. Conference Proceedings (pp. 1-35). American Society of Agricultural and Biological Engineers. Dec. 2015

### Section 2.1.3.

#### Section 2.1.4. Conference Presentations during past eight years (presenter is underlined)

1. Kilic, A. 2022. Accelerating Adoption of Irrigation Scheduling with Satellite-based Precision Evapotranspiration from OpenET. Annual meeting of the NASA Water Resources Research Group. Salt Lake City, UT. (invited)
2. Kilic, A. 2022. Google Earth Engine Evapotranspiration Flux --- EEFlux --- eeMETRIC on OpenET: Global production and free access to Landsat-scale Evapotranspiration and ECOSTRESS. SENSECO meeting of the European Cooperation in Science & Technology (COST). Izmir, Turkey. (invited)
3. Allen, R. and A. Kilic. 2022. Landsat-based (Field-Scale) Evapotranspiration Estimates - METRIC Overview and Applications. SENSECO meeting of the European Cooperation in Science & Technology (COST). Izmir, Turkey. (invited)
4. Allen, R.G. and A. Kilic. 7 December 2021. Applying the FAO-56 dual Kc method for irrigation water requirements over large areas of the western U.S. --- ASABE/Irrigation Association Symposium: Improving Crop Coeff & Usage of ET Info., San Diego, CA (invited)
5. Kilic, A. 7 December 2021. Global production and free access to Landsat-scale Evapotranspiration with EEFlux and eeMETRIC --- ASABE/Irrigation Association Symposium: Improving Crop Coeff & Usage of ET Info., San Diego, CA (invited)
6. Allen, R.G. and A. Kilic. 8 December 2021. A review of landscape water requirements using a multicomponent landscape coefficient --- ASABE/Irrigation Association Symposium: Improving Crop Coeff & Usage of ET Info., San Diego, CA (invited)
7. Allen, R.G. and A. Kilic. 1 December 2021. Session 23: *Let's bet on what we know best: CIMEC (Calibration using Inverse Modeling at Extreme Conditions) to mitigate uncertainties and biases in satellite-based ET*, United Nations FAO Webinar "Remote Sensing Determination of Evapotranspiration" presented to professional and political audiences in the Middle East and North Africa. <https://www.fao.org/in-action/water-efficiency-nea/webinars/rs-et/module-1/en/> (invited)
8. Kilic, A. and Allen, R.G.. 16 June 2021. Session 12: *EEFlux (Earth Engine Evaporation Flux)*, United Nations FAO Webinar "Remote Sensing Determination of Evapotranspiration" presented to professional and political audiences in the Middle East and North Africa. <https://www.fao.org/in-action/water-efficiency-nea/webinars/rs-et/module-1/en/> (invited)
9. Allen, R.G. and A. Kilic. 7 April 2021. Session 3: *METRIC – Mapping Evapotranspiration at high Resolution using Inverse Calibration*, United Nations FAO Webinar "Remote Sensing Determination of Evapotranspiration" presented to professional and political audiences in the Middle East and North Africa. <https://www.fao.org/in-action/water-efficiency-nea/webinars/rs-et/module-1/en/> (invited)
10. Kilic, A., Univ. of Nebraska—Lincoln, Lincoln, NE; and P. Reville, P. Blankenau, R. Allen, C. Morton, J. Huntington, D. Ozturk, B. Kamble, R. Trezza, T. A. Erickson, and C. W. Robison. January 2020. "Challenges and Successes in Automated Calibration and Operation of Extreme Condition Models such as the METRIC Model in OpenET" American Meteorological Society, 34th Conference on Hydrology. Boston. (invited)
11. Allen, R.G. and A. Kilic. January 2020. Historical Perspective on the Science and Estimation of Evapotranspiration for Operational Water Management, Systems Design, Research, and Monitoring—Successful Evolutions. American Meteorological Society, 34th Conference on Hydrology. Boston. (invited)

12. Allen, R., Kilic, A., P. Revelle, S. Ortega, P. Blankenau. September 2019. Presentation: "Progress on the OpenET METRIC application and comparisons among models" OpenET Conference, Reno, NV.
13. Kilic, A. April 2019. Presentation: "Close-range and Remote Sensing Technologies and their Role in Mitigating Drought Stress" Water for Food Conference, Lincoln, NE.
14. Kilic, A. October 2018. Presentation: "Google Earth Engine Evapotranspiration Flux --- EEFlux" Chinese Academy of Science Agricultural Research Conference, Shijiazhuang, China (invited)
15. Kilic, A. October 2018. Presentation: "Google Earth Engine Evapotranspiration Flux and Calibration --- EEFlux" Guangxi Teachers College, Nanning, China (invited)
16. Kilic, A. and R.Allen. September 2018. Presentation: "Evapotranspiration from Satellite – EEFlux and METRIC" New Mexico Water Law Conference, Santa Fe, NM (invited)
17. Kilic, A. October 2017. *Google Earth Engine EEflux Application plus Surface Reflectance Calibration of NAIP Imagery to Produce 1-m Vegetation Indices for Precision Agriculture.* Annual meeting of the American Society of Agronomy. Tampa, FL. October 24, 2017. (invited)
18. Kilic, A., and R.G. Allen. October 2017. *Google Earth Engine Evapotranspiration Flux --- EEFlux -- - Application, Parameterization, Accuracy, Challenges, Successes.* Fourth International INOVAGRI Conference, Fortaleza, Brazil, October 2, 2017. (invited)
19. Allen, R. and A. Kilic. October 2017. *Google Earth Engine App for Residential Water Use and Preservation---* GEARUP. Fourth International INOVAGRI Conference, Fortaleza, Brazil, October 2, 2017. (invited)
20. Allen, R., B. Burnett, R. Trezza and A. Kilic. October 2017. *A Procedure for Estimating Total Evapotranspiration for Time Integration of Satellite-Thermal-Based Imagery or in the Absence of Thermal Imagery using Vegetation Indices and a Soil Evaporation Model.* Fourth International INOVAGRI Conference, Fortaleza, Brazil, October 2, 2017. (invited)
21. Kilic, A., and R.G. Allen. January 2017. *Analyses to Determine Needed Specifications for Thermal Imaging at Field scale.* Landsat Science Team Meeting, Boston, Mass.
22. Huntington, J., A. Kilic, R.Allen. January 2017. *Satellite Revisit Needs for Water Consumption Mapping.* Landsat Science Team Meeting, Boston, Mass.
23. Kilic, A. *Arc-GIS Methodologies, METRIC Applications in Nebraska, and Application of the Google Earth Engine Remote Sensing of Evapotranspiration Application – EEFlux.* METRIC Training Course, August 22 - 25, 2016, Univ. California-Davis, Davis, CA (Instructor)
24. Kilic, A., J. Huntington, R.Allen. July 24, 2016. *Google Earth Engine Evapotranspiration Flux --- EEFlux.* Landsat Science Team Meeting, Brookings, SD
25. Trezza, R., C. Robison, R. Allen, A. Kilic. July 24, 2016. *Impacts of 30 meter georegistration on VIIRS spatial fidelity: improvements for water consumption mapping.* Landsat Science Team Meeting, Brookings, SD
26. Kilic, A. *Application of the Google Earth Engine Remote Sensing of Evapotranspiration Application – EEFlux and METRIC Applications in Nebraska.* Metropolitan Water District METRIC Training Course, May 9 – May 13, 2016, Los Angeles, CA (Instructor)
27. Kilic, A., Allen, R.G., Morton, C., Kamble, B., Huntington, J., Thau, D., Gorelick, N., Erickson, T., Moore, R., Trezza, R. and Ratcliffe, I., 2015. *EEFlux: A Landsat-based Evapotranspiration mapping tool on the Google Earth Engine.* In 2015 ASABE/IA Irrigation Symposium: Emerging Technologies for Sustainable Irrigation (pp. 1-11). American Society of Agricultural and Biological Engineers. Dec. 2015
28. Allen, R.G., Kilic, A., Suyker, A. and Okalebo<sup>3</sup>, J., 2015. *Fitting measured evapotranspiration data to the FAO56 dual crop coefficient method.* In 2015 ASABE/IA Irrigation Symposium: Emerging Technologies for Sustainable Irrigation. Conference

- Proceedings (pp. 1-35). American Society of Agricultural and Biological Engineers. Dec. 2015.
29. **Kilic, A. R. Allen** September 2015. *Google Earth Engine App for Residential Water Use and Preservation – G.E.A.R.U.P.* INOVAGRI International Innovations in Irrigation Conference, Fortaleza, Brazil. (invited).
  30. **Kilic, A.** July 2015. *Google GEARUP Landscape Water Management Application.* Landsat Science Team Meeting, EROS Center, USGS, Sioux Falls
  31. **Allen, R., A. Kilic, J. Huntington.** May 2015. *Surface-Energy Balance Methods for Estimating ET: Current State-of-the-Art and Recent Developments.* Montana State Workshop on Remote Sensing of Evapotranspiration. (invited).
  32. **Sharma<sup>3</sup>, V., S. Irmak and A. Kilic.** July 28, 2015. *Impact of scale/resolution on evapotranspiration from Landsat and MODIS over various land surfaces.* ASABE Annual Conference. New Orleans, LA. July 26-29, 2015. 6p.
  33. **Sharma<sup>3</sup>, V., S. Irmak and A. Kilic.** July 29, 2015. *Remote sensing mapping of tillage practices over south central Nebraska, USA using Landsat imagery.* ASABE Annual Conference. New Orleans, LA. July 26-29, 2015. 7p.
  34. **Kilic, A.** July 2015. *Google GEARUP Landscape Water Management Application.* Landsat Science Team Meeting, EROS Center, USGS, Sioux Falls
  35. **Kilic, A.** and R. Allen. Feb. 5, 2015. *Near-Real Time Monitoring of ET in the Klamath River basin and Lower Colorado River Basin for Endangered Fish Recovery and to Mitigate Drought Effects on Cities.* NASA Goddard Space Flight Center, Greenbelt, MD,. (seminar).

**Section 2.1.5. Invited Talks or Keynote Speeches during past eight years (presenter is underlined)**

1. **Kilic, A.** 2022. Accelerating Adoption of Irrigation Scheduling with Satellite-based Precision Evapotranspiration from OpenET. Annual meeting of the NASA Water Resources Research Group. Salt Lake City, UT. (invited)
2. **Kilic, A.** 2022. Google Earth Engine Evapotranspiration Flux --- EEFlux --- eeMETRIC on OpenET: Global production and free access to Landsat-scale Evapotranspiration and ECOSTRESS. SENSECO meeting of the European Cooperation in Science & Technology (COST). Izmir, Turkey. (invited)
3. **Allen, R. and A. Kilic.** 2022. Landsat-based (Field-Scale) Evapotranspiration Estimates - METRIC Overview and Applications. SENSECO meeting of the European Cooperation in Science & Technology (COST). Izmir, Turkey. (invited)
4. **Allen, R.G. and A. Kilic.** 7 December 2021. Applying the FAO-56 dual Kc method for irrigation water requirements over large areas of the western U.S. --- ASABE/Irrigation Association Symposium: Improving Crop Coeff & Usage of ET Info., San Diego, CA (invited)
5. **A. Kilic.** 7 December 2021. Global production and free access to Landsat-scale Evapotranspiration with EEFlux and eeMETRIC --- ASABE/Irrigation Association Symposium: Improving Crop Coeff & Usage of ET Info., San Diego, CA (invited)
6. **Allen, R.G. and A. Kilic.** 8 December 2021. A review of landscape water requirements using a multicomponent landscape coefficient --- ASABE/Irrigation Association Symposium: Improving Crop Coeff & Usage of ET Info., San Diego, CA (invited)
7. **Allen, R.G. and A. Kilic.** 1 December 2021. Session 23: *Let's bet on what we know best: CIMEC (Calibration using Inverse Modeling at Extreme Conditions) to mitigate uncertainties and biases in satellite-based ET*, United Nations FAO Webinar "Remote Sensing Determination of Evapotranspiration" presented to professional and political

audiences in the Middle East and North Africa. <https://www.fao.org/in-action/water-efficiency-nea/webinars/rs-et/module-1/en/>

- 8.** Kilic, A. Oct. 21, 2021. Commentary on OpenET national evapotranspiration data platform and Landsat 9 history and utility in evapotranspiration estimation. NASA Media Briefing. <https://www.nasa.gov/press-release/nasa-invites-media-to-briefing-on-new-water-data-platform>
- 9.** Kilic, A., and Allen, R.G.. 16 June 2021. Session 12: *EEFlux (Earth Engine Evaporation Flux)*, United Nations FAO Webinar “Remote Sensing Determination of Evapotranspiration” presented to professional and political audiences in the Middle East and North Africa. <https://www.fao.org/in-action/water-efficiency-nea/webinars/rs-et/module-1/en/>
- 10.** Allen, R.G. and A. Kilic. 7 April 2021. Session 3: *METRIC – Mapping Evapotranspiration at high Resolution using Inverse Calibration*, United Nations FAO Webinar “Remote Sensing Determination of Evapotranspiration” presented to professional and political audiences in the Middle East and North Africa. <https://www.fao.org/in-action/water-efficiency-nea/webinars/rs-et/module-1/en/>
- 11.** Kilic, A., Univ. of Nebraska—Lincoln, Lincoln, NE; and P. Reville, P. Blankenau, R. Allen, C. Morton, J. Huntington, D. Ozturk, B. Kamble, R. Trezza, T. A. Erickson, and C. W. Robison. January 2020. “Challenges and Successes in Automated Calibration and Operation of Extreme Condition Models such as the METRIC Model in OpenET” American Meteorological Society, 34th Conference on Hydrology. (invited)
- 12.** Allen, R.G. and A. Kilic. January 2020. Historical Perspective on the Science and Estimation of Evapotranspiration for Operational Water Management, Systems Design, Research, and Monitoring—Successful Evolutions. American Meteorological Society, 34th Conference on Hydrology. (invited)
- 13.** Kilic, A. April 2019. Presentation: “Close-range and Remote Sensing Technologies and their Role in Mitigating Drought Stress” Water for Food Conference, Lincoln, NE.
- 14.** Kilic, A. October 2018. Presentation: “Google Earth Engine Evapotranspiration Flux --- EEFlux” Chinese Academy of Science Agricultural Research Conference, Shijiazhuang, China
- 15.** Kilic, A. October 2018. Presentation: “Google Earth Engine Evapotranspiration Flux and Calibration --- EEFlux” Guangxi Teachers College, Nanning, China
- 16.** Kilic, A. and R.Allen. September 2018. Presentation: “Evapotranspiration from Satellite – EEFlux and METRIC” New Mexico Water Law Conference, Santa Fe, NM
- 17.** Kilic, A. October 2017. *Google Earth Engine EEflux Application plus Surface Reflectance Calibration of NAIP Imagery to Produce 1-m Vegetation Indices for Precision Agriculture.* Annual meeting of the American Society of Agronomy. Tampa, FL. October 24, 2017.
- 18.** Kilic, A., and R.G. Allen. October 2017. *Google Earth Engine Evapotranspiration Flux -- - EEFlux -- - Application, Parameterization, Accuracy, Challenges, Successes.* Fourth International INOVAGRI Conference, Fortaleza, Brazil, October 2, 2017.
- 19.** Allen, R.G. and A. Kilic. October 2017. *Google Earth Engine App for Residential Water Use and Preservation---* GEARUP. Fourth International INOVAGRI Conference, Fortaleza, Brazil, October 2, 2017.
- 20.** Allen, R.G., B. Burnett, R. Trezza and A. Kilic. October 2017. *A Procedure for Estimating Total Evapotranspiration for Time Integration of Satellite-Thermal-Based Imagery or in the Absence of Thermal Imagery using Vegetation Indices and a Soil Evaporation Model.* Fourth International INOVAGRI Conference, Fortaleza, Brazil, October 2, 2017.

- 21.** Allen, R.G. and **A. Kilic**. October 11-14, 2016. *EEFlux: Google Earth Engine ET — ET Maps for the Public — Current Status*. USCID 9th International Conference on Irrigation and Drainage, Fort Collins, CO. (invited)
- 22.** Allen, R.G. and **A. Kilic**. September 22, 2016. *Landsat-based (Field-Scale) Evapotranspiration Estimates - METRIC Overview and Applications*. Seminar presented to the NASA Applied Remote Sensing Training Program (ARSET) -- SMAP and ET Applications Webinar series, (invited)
- 23.** Allen, R.G., **A. Kilic** and J. Huntington. March 24, 2016. *METRIC/EEFlux - Application, Parameterization, Accuracy, Challenges, Successes*. Presentation at the Remote Sensing of Water Consumption Workshop for Philanthropic Organizations, Technology Companies, and Key Decision Makers. NASA Ames, Mountain View, CA,. (invited)
- 24.** **Kilic, A.** *Google Earth Engine Remote Sensing of Evapotranspiration Application - EEFlux*. UC Davis Evapotranspiration Remote Sensing Workshop, February 10, 2016, Davis, CA (Invited)
- 25.** Allen, R.G., **A. Kilic** and J. Huntington. February 10, 2016. *METRIC/EEFlux - Application, Parameterization, Accuracy, Challenges, Successes*. Presentation at the Remote Sensing of Evapotranspiration Workshop, Davis, CA,. (invited)
- 26.** Allen, R.G., C. Robison, **A. Kilic**, and R. Trezza. January 12, 2016. *A Technique to Retain Original Georegistration Accuracy of VIIRS Imagery for use at Landsat Scales*. Presentation to the Landsat Science Team, , Blacksburg, VA. (invited)
- 27.** **Kilic, A.** and R.Allen. September 6, 2015. *Google Earth Engine Evapotranspiration Flux: EFLUX*, Presentation to the National Water Authority, Brasilia, Brasil. (invited).
- 28.** **Kilic, A.**, Doruk Ozturk<sup>2</sup>, and R. Allen. September 2015. *EEFlux: Landsat-based ET on the Google Earth Engine and Use of METRIC-based Diagnostic ET from MODIS to Assess ET simulated by Weather Research Forecast – Land Simulation Models*. International Workshop on Remote Sensing of Evapotranspiration. World Bank, Washington, D.C. (invited).
- 29.** **Kilic, A.** September 2015. *EEFlux and Global ET Mapping*. International Workshop on Remote Sensing of Evapotranspiration. Panel on Emerging Technologies: Opportunities and Challenges for International Applications, World Bank, Washington, D.C. (invited).
- 30.** Allen, R., W. Bastiaanssen, **A.Kilic**. September 2015. *Additional ET Observation Platforms: Towards an Integrated Observation Capability*. International Workshop on Remote Sensing of Evapotranspiration. World Bank, Washington, D.C. (invited).
- 31.** Allen, R., **A. Kilic**, Tony Morse. September 2015. *Field-Scale ET Applications in Water Rights Management: Why Thermal? Why Field-Scale? Why more 30 m Satellites?* International Workshop on Remote Sensing of Evapotranspiration. World Bank, Washington, D.C. (invited).
- 32.** Allen, R., **A. Kilic**. August 2015. *Evapotranspiration Estimation with FAO56: The Next Fifteen Years*. INOVAGRI International Innovations in Irrigation Conference, Fortaleza, Brazil. Invited Speaker.
- 33.** **Kilic, A.** March 16-20, 2015. *Remote Sensing of Evapotranspiration from Satellite – Applications in the US and Turkey*. DSI – Turkish National Commission for Hydrology – Water Balance Workshop for Turkey, Istanbul, Turkey (Invited)

### **3. Research Funding Record**

#### **i. Internally Funded Research Grants during past five years**

	<b>PI's and SAP WBS Account Number</b>	<b>Funding Agency</b>	<b>Title</b>	<b>Year funded</b>	<b>Amount</b>
	<b>Total</b>				<b>\$905,932</b>

#### **ii. Externally Funded Research Grants during past five years**

	<b>PI's and SAP WBS Account Number</b>	<b>Funding Agency</b>	<b>Title</b>	<b>Year funded</b>	<b>Amount</b>
1.	A.Kilic (50%)	NASA	Accelerating adoption of irrigation scheduling with satellite-based precision evapotranspiration from OpenET	2022	\$700,000.
2.	A.Kilic (100%) 2662380899001	Windward Fund	METRIC/EEFlux Evapotranspiration Tool in OpenET: Phase III	2021	\$198,000
3.	A.Kilic (100%) 2662380899001	Gordon & Betty Moore Foundation	METRIC/EEFlux Evapotranspiration Tool	2019	\$220,000
4.	A.Kilic (100%) 2662380829001	California St Water Resources Control Bd	METRIC: Ground Water Management	2019	\$25,000
5.	A.Kilic (100%) 2662380893001	NASA	EEFlux to the NASA ECOSTRESS Mission	2019	\$20,227
6.	Christopher Neale, M.Hayes, D. Heeren, A.Kilic (10%), M. Svoboda, T. Tadesse, B. Wardlow 2662110031001	US-India Educational Foundation	US-India Partnership -Water, Agriculture, and Food Security	2017	\$182,452
7.	A.Kilic (100%) 2662380522002	Central Platte Nat Resources District*	Project ID 13019: CPNRD Mapping Evapotranspiration with High Resolution Satellite Data---Mapping evapotranspiration with satellite remote sensing for Central Platte Natural Resources District. -- Mapping for years 2015 and 2016	2017	\$64,127
8.	A. Kilic (16%) 2562380811001	NASA	Project ID 44830: Operational Remote Sensing of Agricultural Water Use in Cooperation with Western State Water Resource Agencies for Improved Water Management	2017	\$375,000 (\$60,695)
	<b>Total</b>				<b>\$1,784,806</b>

#### **iii. External Research Grants Submitted through UNL-OSP (Submitted) during past five years**

	<b>PI's and SAP WBS Account Number</b>	<b>Funding Agency</b>	<b>Title</b>	<b>Year Submit</b>	<b>Amount</b>
1.	A.Kilic, primary PI (20%) Form ID : 145504	NASA	OPEN FARMS: Advancing the Operational Use of Satellite Data for Farm and Ranch Management Support (FARMS) in the United States through a User Driven and Consortium-based Approach	2022	\$599,898
2.	A.Kilic, primary PI (40%) Form ID : 142036	NASA	Irrigation Scheduling from OpenET	2021	\$1,200,013
3.	A.Kilic, PI (100%) Form ID : 141837	Nebraska Env. Trust	Real-time Irrigation Scheduling on Farmers Smartphones with Satellite Imagery	2021	\$400,845
4.	A.Kilic (100%) 2662380899001	Windward Fund	METRIC/EEFlux Evapotranspiration Tool in OpenET: Phase III	2021	\$198,000
5.	A.Kilic, PI (100%) Form ID : 136912	Nebraska Env. Trust	High Resolution Geospatial Agricultural Weather Data for Agricultural uses in Nebraska	2021	\$542,140
	<b>Total</b>				<b>\$2,940,896</b>

**iv. External Research Grants Submitted through other Institutions (Submitted) during past five years**

	<b>PI's and SAP WBS Account Number</b>	<b>Funding Agency</b>	<b>Title</b>	<b>Year funded</b>	<b>Amount</b>
	<b>Total</b>				<b>\$</b>

**v. External Research Grants Submitted through UNL-OSP (Not Funded) during past five years**

	<b>PI's and SAP WBS Account Number</b>	<b>Funding Agency</b>	<b>Title</b>	<b>Year submit</b>	<b>Amount</b>
1.	A.Kilic (100%) Project ID 55234	Nebr. Env.Trust	Real-time Irrigation Scheduling on Farmers Smartphones with Satellite Imagery	2021	\$251,678
2.	A.Kilic (100%) Project ID 53006	Nebr. Env.Trust	High Resolution Geospatial Agricultural Weather Data for Agricultural Uses in Nebraska	2021	\$372,397
3.	SPN: 21-149	Nebr. Env.Trust	Real-time Irrigation Scheduling on Farmers Smartphones with Satellite Imagery	2020	\$372,397
4.	SPN: 21-219	Nebr. Env. Trust	High Resolution Geospatial Agricultural Weather Data for Nebraska	2020	\$585,732
5.	A.Kilic (40%) RFP Title:	NASA ROSES	Project ID 47463: Real-time on-the-fly Irrigation Scheduling	2018	\$1,307,857
6.	A.Kilic (100%) RFP Title: NNH18ZDA001N-	NASA JPL	Project ID 48535: Adaptation of EEFlux to the NASA ECOSTRESS Mission	2018	\$30,000

	WATER:Earth Science Applications: Water Resources				
7.	R.Allen (Univ. Idaho), A.Kilic (55%) RFP Title: G17PS00256	USGS	Project ID 45721: Advancing the science and operational application of Landsat based evapotranspiration and usability of thermal data: 2017-2022 Landsat science team	2017	\$994,820 (\$551,960)
	<b>Total – past five years Total (over faculty time)</b>				<b>\$3,914,881 \$24,013,726</b>

**vi. External Research Grants Submitted through other institutions (Not Funded)**

	<b>PI's and SAP WBS Account Number</b>	<b>Funding Agency</b>	<b>Title</b>	<b>Year funded</b>	<b>Amount</b>
1	A.Irmak (100%)	Subcontract with the University of Iowa	Clear Creek Watershed Observatory	20--	\$198,021
	<b>Total</b>				<b>\$198,021</b>

#### 4. Teaching Accomplishments

##### List of courses taught since 2006 at UNL and summary of student evaluation scores.

Term	Course	Course Title	Cr.	Enrollment	NRES Evaluation (max. of 4.0)	NRES Department Ave. (max. of 4.0)	CIVE Evaluation (max. of 5.0)	CIVE Department Ave. (max. of 5.0)
Fall 2006	BSEN 496/896	GIS in Water Resources	3	25	3.15		3.94	3.88
Spring 2008	NRES / GEOG 312	Geospatial Information Technology	3	25	3.57		---	---
Spring 2008	CIVE 898	Special Topics	3	2	---	---	5.00	3.88
Fall 2008	NRES / GEOG 312	Geospatial Information Technology	3	25	2.56		---	---
Fall 2008	CIVE 898	GIS in Water Resources	3	16	---	---	4.01	3.88
Spring 2009	CIVE 998 - 876	Special Topics	3	2 <sup>*</sup>	---	---	---	---
Summer 2009	NRES 996	Special Topics: Remote Sensing	3	n/a <sup>1</sup>	---		---	---
Summer 2009	CIVE 898	METRIC Satellite-based Energy Balance	3	5 <sup>1</sup>	---	---	---	3.88
Fall 2009	CIVE 898	GIS in Water Resources	3	14	---	---	3.88	3.88
Spring 2010	NRES / GEOG 312	Geospatial Information Technology	3	45	2.06		---	---
Fall 2010	CIVE 898	GIS in Water Resources	3	17	---	---	3.71	3.88
Fall 2010	NRES / GEOG 312	Geospatial Information Technology	3	25	2.15		---	---
Fall 2010	NRES 898	MATLAB for Data Analysis	3	15	3.57		---	---
Spring 2011	CIVE 456 / 856	Surface Water Hydrology	3	16	---	---	3.41	3.88
Spring 2011	NRES / GEOG 312	Geospatial Information Technology	3	25	2.50		---	---
Fall 2011	CIVE 898	GIS in Water Resources	3	13	---	---	2.28 <sup>†</sup>	3.88
Fall 2011	NRES / GEOG 312	Geospatial Information Technology	3	28	3.02		---	---

<sup>\*</sup> These special topics courses had enrollments of only a few students and were not evaluated. CIVE 998 has been taught multiple times with topics customized to individual students over several years.

<sup>†</sup> Only five students out of 13 enrolled submitted an evaluation. The 13 students included 3 students from Omaha.

Fall 2012	CIVE 898	GIS in Water Resources	3	21	---	---	4.41	3.88
Fall 2012	NRES / GEOG 312	Geospatial Information Technology	3	28	3.07		---	---
Spring 2013	CIVE 456	Surface Water Hydrology	3	10	---	---	4.56	3.88
Spring 2014	CIVE 456	Surface Water Hydrology	3	9	---	---	3.70	3.88
Fall 2014	CIVE 898	GIS in Water Resources	3	25	---	---	4.38	3.88
Spring 2015	NRES / GEOG 312	Geospatial Information Technology	3	36	2.75		---	---
Fall 2015	CIVE 898	GIS in Water Resources	3	10	---	---	4.35	3.88
Spring 2016	CIVE 456	Surface Water Hydrology	3	19 <sup>3</sup>	---	---	4.19	3.88
Spring 2016	NRES 898	GIS and RS in Natural Resources	4	5	3.59		---	---
Fall 2016	CIVE 853	GIS in Water Resources	3	16	---	---	4.11	3.88
Spring 2017	NRES 898	GIS and RS in Natural Resources	4	8	n/r		---	---
Fall 2017	CIVE 853	GIS in Water Resources	3	12	---	---		
Spring 2018	CIVE 456	Surface Water Hydrology	3		---	---		
Fall 2018	CIVE 456	Surface Water Hydrology	3	14	---	---		
Spring 2019	NRES 898	Python Programming in Natural Resources	3	12				
Fall 2019	CIVE 456	Surface Water Hydrology	3	11	---	---		
Spring 2020	CIVE 853	GIS in Water Resources	3	15	---	---	4.22	3.88
Spring 2021	NRES 498	Introduction to Google Earth Engine for Geospatial Systems and Remote Sensing	2	16				
Fall 2021	CIVE 456	Surface Water Hydrology	3	17	---	---		
Spring 2022	NRES 498/898	GIS and Earth Engine in a Water Environment	3	10				
Wtd. Ave.					2.77		3.98	3.88

<sup>3</sup>These are summaries from students at UNL Campus. Evaluations for UNO students were not available to the instructor.

The CIVE Department uses an average of 3.88 out of 5.0 for Questions 22-29 on the pre-2020 course evaluation questionnaire for both UN campuses and all class ranks (100, 200, 300, 400/800, 800, etc.). That number is based on historical data as discussed and compiled by Dr. Dan Linzell and the CIVE P&T Committee in the fall of 2015.

For 2020, with the new format for course evaluation, questions no. 3, 4, 5 and 6 are averaged (out of 5.0)

#### 4-1. Postdoctoral Researchers

##### i. Postdoctoral researchers supervised

<b>Name</b>	<b>% Funding</b>	<b>Specialty</b>	<b>Period</b>
Baburao Kamble	100	HIS and GIS	May 2012 – May 2014
Ramesh K. Singh	100	Remote Sensing of ET	May 2009 – May 2010
Sami Akasheh	100	Remote Sensing of ET	Aug. 2009 – June 2011

##### *Research Assistant Professors I have Supervised*

<b>Name</b>	<b>% Funding</b>	<b>Specialty</b>	<b>Period</b>
Baburao Kamble	100	Remote Sensing, GIS, Python Programming, Google Earth Engine	May 2014 – May 2015
Xiaomao Lin	100	Remote Sensing of ET	Aug. 2009 – May 2010

##### *Data Analysts I have supervised*

<b>Name</b>	<b>% Funding</b>	<b>Specialty</b>	<b>Period</b>
Ian Ratcliffe	100	GIS and Remote Sensing Data Analyst	Aug. 2008 – Aug. 2020
Philip Blankenau	100	GIS and Remote Sensing and Google Earth Engine and Python programming	May 2017 – July 2019
Samuel Ortega-Salazaar	100	Remote Sensing, Python Programming, Google Earth Engine	May 2019 – pres
Peter ReVelle, Univ. Idaho, now UNL	100	Remote Sensing, Python Programming, Google Earth Engine	May 2018 – pres
Doruk Ozturk	100	Remote Sensing, Python Programming, Google Earth Engine	May 2015 – Apr. 2016
Parikshit Ranade	100	GIS and Remote Sensing Data Analyst	June 2009 – Jan. 2011

##### ii. Postdoctoral researchers currently in progress

## 4-2. PhD Students

### i. PhD students supervised

I have served as the chair or co-chair of nine Ph.D. students, five of whom have completed their degrees. I have served on five Ph.D. committees. Names, academic homes, and completion dates are listed in the following tables. “(F)” indicates full funding, “(P)” indicates partial funding of students from grants.

<b>Name</b>	<b>Degree</b>	<b>Graduation Date</b>
Ou, Wenqi (P) <sup>0</sup>	Ph.D. (SNR)	Dec. 2021
Foad Foolad (P) <sup>1</sup>	Ph.D. (Civil Engineering)	May 2019
Pun, Mahesh (P) <sup>2</sup>	Ph.D. (Civil Engineering)	May 2019
Okalebo, Jane (P) <sup>3</sup>	Ph.D. (Natural Resources)	July 2015
Geng Xin-Ou (P) <sup>4</sup>	Ph.D. (Civil Engineering)	December 2014
Kamble, Baburao (F)	Ph.D. (Civil Engineering)	April 2012
Healey, Nathan <sup>5</sup> (F)	Ph.D. (Natural Resources)	December 2011
Singh, Ramesh (F)	Ph.D. (Biological Sys. Eng)	May 2009

<sup>0</sup>Chair for first year. She switched to another chair to obtain better funding. <sup>1</sup>Co-chair with Dr. Trenton Frantz. <sup>2</sup>I was supervisor of Mahesh Pun and partially supported his research from 2013-2016. In 2017 Mr. Pun requested a change in supervisors. <sup>3</sup>I was co-chair with major-advisor Dr. Ken Hubbard. <sup>4</sup>I was major advisor (co-chair was Dr. John Lenters). I funded N. Healey at full funding for his last two and half years. <sup>5</sup>I was the major advisor with co-chairs Dr. Shannon Bartelt-Hunt and Dr. Hong Chen.

### ii. PhD students currently in progress

<b>Name</b>	<b>Degree</b>	<b>Expected Graduation</b>
Noordiah Helda (F)	Ph.D. (Civil Engineering)	May 2022

## 4-3. MS Students

### i. MS students supervised

I have served as the chair or co-chair of five M.S. students, four of whom have completed their degrees. I have served on six M.S. committees. Names, academic homes, and completion dates are listed in the following tables. “(F)” indicates full funding, “(P)” indicates partial funding of students from grants.

<b>Name</b>	<b>Degree</b>	<b>Graduation Date</b>
Atif Atiqullah	M.S. (Civil Engineering)	Dec 2022
Samuel Ortega	M.S. (Natural Resources)	May 2019
Putri Brikke Sukmahartati	M.S. (Civil Engineering)	Dec 2017

Mathew Nelson	M.S. (Civil Engineering)	May 2017
Philip Blankenau	M.S. (Civil Engineering)	May 2017
Doruk Ozturk (P)	M.S. (Earth Atm. Science)	May 2015
Tim Hubbard*	M.S. (Earth & Atmos. Sci)	May 2015
Sharma, Sonisa (F)	M.S. (Natural Resources)	December 2012
Hirsh, Aaron (P)	M.S. (Civil Engineering)	December 2012
Choragudi Ravi Kumar (F)	M.S. (Civil Engineering)	December 2011
Ahmad, Chu	M.S. (Civil Engineering)	December 2010
Healey, Nathan	M.S. (Natural Resources)	May 2010
Ranade, Parikshit (F)	M.S. (Biological Sys. Eng)	May 2009

\*I was a member during the first part of the program.

## ii. MS students currently in progress under my supervision

Name	Degree	Expected Graduation
Atif Atiqullah	M.S. (Civil Engineering)	May 2022

## 4-4. Undergraduate Students

### i. Undergraduate students supervised in independent research

### ii. Undergraduate students advised per year

## 4-5. Teaching Awards and Recognition

### i. International and National Teaching Awards and Recognition

### ii. Regional, Local and University Teaching Awards and Recognition during past five years

1. 2019. Holling Family Distinguished Senior Faculty Teaching Award, UNL College of Engineering.

### iii. Other Teaching Accomplishments during past five years

1. Created the NRES 498/898 course: "GIS and Earth Engine in a Water Environment." (3 cr.). 2022 and delivered it Spring 2022. The course included extensive programming.
2. Created the NRES 498/898 course: "Introduction to Google Earth Engine for Analysis of Remote Sensing and Geospatial Data." (2 cr.). 2020 for delivery in Jan. 2021.
3. Created the "Python Programming in Natural Resources" course (3 cr.). 2019.
4. Created and delivered the NRES 898 course: "GIS and Remote Sensing in Natural Resources and Environment" 2015 - 2017.
5. Created the CIVE Surface Hydrology Course Curriculum. 2012-2019.
6. Created the SNR GIS in Water Resources Curriculum. 2009 - 2021. Originally cotaught via the web with Dr. David Maidment, Univ. Texas-Austin and Dr. David Tarboton, Utah State University. Taught separately at UNL since 2012.
7. Supervised the development of specialty courses in computer programming in Python and R, SNR, 2011 and 2015.

## **6. Service Accomplishments**

### **a. Professional Service**

#### **i. Journal Editorships or Associate Editorships**

Associate Editor - Agricultural Water Management, 2021- present

#### **ii. Journals for which I have reviewed papers**

1. ASCE Journal of Irrigation and Drainage Engineering, 2001- present (9)
2. Applied Engineering in Agriculture, 2000- present (3)
3. Water Resources Research, 2007-present (4)
4. Agricultural and Forest Meteorology, 2006-present (3)
5. Transactions of the ASABE, 2000- present (7)
6. Agricultural Water Management, 2004- present (3)
7. Irrigation Science, 2005- present (5)
8. Agronomy Journal, 2003- present (4)

#### **iii. Leadership Positions in International and National Organizations**

1. Chair of Remote Sensing Task Committee of ASCE-EWRI. 2013-present.
2. Chair of the ASCE-EWRI Evapotranspiration in Irrigation and Hydrology Standing Committee. 2015-2017. Vice-Chair from 2013-2015.

#### **iv. Leadership Positions in Regional and Local Organizations**

#### **v. Memberships in Professional Organizations during past five years**

1. American Society of Civil Engineers (ASCE)- Environmental and Water Resources Institute (EWRI) (Full member), 2004-present.
  - a. Member of the ASCE-EWRI Crop Coefficient **Task Committee**. 2006-2012.
  - b. Member of the ASCE-EWRI Standardization of Reference Evapotranspiration in Irrigation Hydrology **Task Committee**. 2006-2010.
  - c. Chair of Remote Sensing Task Committee of ASCE-EWRI. 2013-present.
  - d. Chair of the ASCE-EWRI Evapotranspiration in Irrigation and Hydrology Standing Committee. 2015-2017
  - e. Nebraska section of the ASCE, 2004-present
2. Member of the WERA-202, **Western Regional Committee** on Use of Climate Information in Irrigation Scheduling. May 2007-present.
3. American Society of Agricultural and Biological Engineers (ASABE), 1998-present.
  - a. Member of IET-254 (ASABE Emerging Information Systems). ASABE. 2001-present
  - b. Nebraska section of the ASABE, 2004-present
4. United States Committee on Irrigation and Drainage (USCID), 2004-present.
5. American Geophysical Union (AGU), 2010 - present

**vi. National and International Service Awards**

2021. Letter of Commendation from NASA Applied Science Program on Superior Service to the National OpenET project. May 16, 2021

**vii. Regional and Local Service Awards during past five years**

2019. Recipient of the Excellence in Teaching Award, College of Engineering.

**viii. Research Review panels and dates of service**

1. National panel proposal reviewer for USDA – AFRI - 2018
2. National panel proposal reviewer for National Science Foundation – 2016
3. National panel proposal reviewer for US-AID - 2016

**b. University Unit Service**

**i. Leadership Positions on Unit Committees**

12. Member of the SNR Graduate Committee (2020 – present)
13. Team Leader of the Environmental Sciences Mission Area of the School of Natural Resources (including Water Science), 2015 – 2016. Tasks include managing meetings, assembling the five-year review document, organize and manage the presentation to the APR review.
14. Chair of the SNR Advising and Recruitment Assessment Committee, 2015 – 2018. Tasks include recruiting committee members including faculty, staff and students, creation of agendas, polling, interviews and reporting related to committee focus.
15. Administrator of the Civil Engineering program's Water Resources Graduate Qualifying Exam for UNL and UNO.

**ii. Membership Positions on Unit Committees**

1. Member of the SNR Faculty Advisory Committee, 2015 – 2016.
2. SNR-Environmental Sciences Mission Area: I help with the curriculum development of Environmental Sciences and Water Science. 2015 - present
3. Supporter of the SNR/BSE water quality position search. Arranged logistics for the SNR portions including actively participating in interviews. 2016
4. SNR Safety and Facilities Committee, 2014 -- 2021

**c. Other Service Accomplishments during past five years**

**i. National Professional Support**

1. Co-PI. 2016-pres. NASA OpenET Spatial Evapotranspiration Platform. Manager of the eeMETRIC components. OpenETdata.org

2. Co-organizer. 2016. Metropolitan Water District of Southern California -- METRIC Training Course (four days), May 9 – May 13, 2016, Los Angeles, CA (Instructor)
3. Co-organizer. 2016. Univ. California-Davis, Davis, CA -- METRIC Training Course (four days), August 22 - 25, 2016, (Instructor)

## ii. International Professional Support

1. Advisory roles and collaboration with researchers at the following institutions:
  - a. United Nations Food and Agriculture Organization (FAO) Programme on Water efficiency, productivity and sustainability in the NENA regions (WEPS-NENA). 2020 to present
  - b. Chinese Academy of Science, Shijiazhuang, China, Center for Agricultural Resources Research, Institute of Genetics and Developmental Biology, 2017 to present on Satellite-based Remote Sensing of Evapotranspiration
  - c. India National Institute of Agricultural Research, New Delhi, India, on Satellite-based Remote Sensing of Evapotranspiration: METRIC and EEFlux. 2017 – present (through the DWFI).
  - d. University de Talca. Centro de Investigación y Transferencia en Riego y Agroclimatología (CITRA), Talca, Chile – 2012 to present
  - e. Institute for Agricultural Research and Extension (IFAPA) of Regional Government of Spain.
  - f. Tarımsal Araştırmalar ve Politikalar Genel Müdürlüğü (TAGEM) and Department of State Hydraulics (DSI), Turkey.
  - g. Brazilian National Water Agency, Brasilia, 2015 to present.
2. International training on during past five years
  - a. Three day Training Workshop on Satellite-based Remote Sensing of Evapotranspiration: METRIC and EEFlux. India National Institute of Agricultural Research, New Delhi, India, June 2018.
  - b. One day Training Workshop on EEFlux-based Spatial Evapotranspiration determination. University of Fortaleza, Fortaleza, Brazil.
  - c. “Remote Sensing of ET and operation of EEFlux” for a researcher at the National Institute for Agricultural Research (INIA) from Uruguay. Three months during 2016

## 7. Other Accomplishments

### i. Professional Development

1. Registered professional engineer of Turkish Soc. of Agricultural Engineers (TSAE), 1992-present.

### ii. Professional Awards – National and International during past five years

1. **Letter of Commendation from the NASA Applied Sciences Program, May 16, 2021**, “In recognition of outstanding contributions to the field of remote sensing of hydrology. In particular, your contributions to the field of remote sensing of evapotranspiration and work on automation of the Mapping EvapoTranspiration at high Resolution with Internalized Calibration (METRIC)

model have provided a foundation for transformational changes in the water resources management in the United States (US) and internationally.

2. **Third place award at the 2015 ASABE Annual International Conference Boyd-Scott Graduate Research Competition** for the research paper titled “Impact of scale/resolution on surface energy balance-derived evapotranspiration from LANDSAT and MODIS images” by V. Sharma, S. Irmak and A. Kilic. The award recognizes excellence in the conduct and presentation of research to build the knowledge base needed by engineers who design equipment, facilities and processes for the sustainable operation of a biological system. July 29, 2015. New Orleans, LA.

**iii. Awards – Local and Regional during past five years**

**2019. Recipient of the Holling Family Distinguished Senior Faculty Excellence in Teaching Award**, College of Engineering, UNL.