James H. Stagge, Ph.D., P.E.

Associate Professor
Department of Civil, Environmental and Geodetic Engineering
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Research Experience

2025-	Associate Professor **The Ohio State University**, Dept. of Civil, Env. and Geodetic Engineering
2018-2025	Assistant Professor **The Ohio State University**, Dept. of Civil, Env. and Geodetic Engineering
2016-2018	Postdoctoral Fellow **Utah State University**, Utah Water Research Laboratory
2012-2016	Postdoctoral Researcher **University of Oslo**, Dept. of Geosciences
2009-2012	Graduate Research Assistant **Virginia Tech University**, Dept. of Civil Engineering
2004-2006	Graduate Research Assistant **University of Maryland**, Dept. of Civil Engineering

Education

2012 **Ph.D. in Civil Engineering.** *Virginia Polytechnic Institute & State University (Virginia Tech).*
Optimization of multi-reservoir management rules subject to climate and demand change in the Potomac river basin.

2006 **M.S. in Civil and Environmental Engineering.** *University of Maryland.*
Field evaluation of hydrologic and water quality benefits of grass swales for managing highway runoff.

2004 **B.S. in Civil and Environmental Engineering with Honors.** *University of Maryland.*
Organic contaminant sorption to natural and surfactant-modified soil with varying properties.

Publications

Citations: 5018, H-index: 23
Updated Nov 2026 Google Scholar

*Postdoc, **Graduate Student, ***Undergraduate Student Author

In Review or Preprints

[1] Stagge, J.H., Munyejuru, I.F.**, Morgan, J., Ludlow, F., Medenieks, S., and Manning, J. "**Nile floods reveal Ancient Egypt's pattern of revolts.**" , In Revision, Pre-print.

[2] Stagge, J.H., Yao, Z.***, Sung, K., Munyejuru, I.F.** "**Bimodality in Normalized Drought Indices (SPI and SPEI).**" *International Journal of Climatology*, 10.21203/rs.3.rs-10669784/v1. In Review, Pre-print.

[3] O'Keefe, C.**, Winston, R. and Stagge, J.H. "**Trends in Seasonal Streamflow and Daily Runoff for Near-natural Stream Gauges in the Midwestern United States.**" In Revision, Pre-print.

Peer-Reviewed Publications

[1] Bungard, S.E., Bohrer, G., Tallant, J.M., Gough, C., Sung, K., Stagge, J.H., Lenters, J., Vogel, C.S., Nave, L., Atkins, J.W., Classen, A.T. "**Hydraulic trait strategies drive divergent tree growth responses to multidecadal climate variability.**" *Journal of Geophysical Research - Biogeosciences*, 131(10), e2026JG009928. 10.1029/2026JG009928.

[2] Sela, L., Stagge, J.H., Rheinheimer, D.E., Rosenberg, D.E., Babbar-Sebens, M., Asinas, E., Wang, H. "**Introducing Data Papers in JWRPM.**" *Journal of Water Resources Planning and Management*, 152(12), 01826003, 10.1061/JWRMD5.WRENG-7834.

[3] Munyejuru, I.F.**, Stagge, J.H. (2026) "**Multi-objective Calibration of a Pre-modern Nile Hydrologic Model using Recovered Records.**" *Hydrology*, 13(4), 114. 10.3390/hydrology13040114.

[4] Sung, K.* and Stagge, J.H. (2025) "**Pre-Industrial and future shifts in seasonal precipitation climatology for large river basins across the continental U.S.A.**" *Environmental Research Communications*, 29(3), 10.1088/2515-7620/ade51f.

[5] Torbenson, M.C.A., Stahle, D.W., Cook, E.R., Cook, B.I., Buntgen, U., Chen, F., Tejedor, E., Stagge, J.H., Trnka, M., Burnette, D.J., Yue, W., and Esper, J. (2025) "**Disruption of drought teleconnections between ENSO-influenced regions around 1700 CE**" *Geophysical Research Letters*, 25(14), 10.1029/2025GL115600.

[6] Haidar, M.A.I.** and Stagge, J.H. (2025) "**Comparative Frequency Analysis of NASPA and Seasonal CMIP6 Precipitation in North America.**" *Journal of Hydrometeorology*, 26, 917–931, 10.1175/JHM-D-24-0113.1.

[7] Stagge, J.H., Sung, K.*, Munyejuru, I.F.**, and Haidar, M.A.I.** (2025) "**Expected annual minima from an idealized moving-average drought index.**" *Hydrology and Earth System Sciences*, 29(3), 719–732, 10.5194/hess-29-719-2025.

[8] Torbenson, M.C.A.*, Stagge, J.H., Chen, F., Ziacoa, E., Esper, J. (2025) "**Adjusting the significance of daily climate responses in tree-ring proxies**" *Journal of Forestry Research*, 36:3, 1-16 10.1007/s11676-024-01799-3.

[9] Stagge, J.H., Rosenberg, D.E., Castronova, A.M., Ostfeld, A., and Spackman Jones, A. (2025) "**Editor's Note: Update to Reproducible Results Policy.**" *Journal of Water Resources Planning and Management (ASCE)*, 151(1), 01824002, 1-2. DOI: 10.1061/JWRMD5.WRENG-6726.

[10] Sung, K.**, Bohrer, G. and Stagge, J.H. (2024) "**Centennial-scale intensification of wet and dry extremes in North America.**" *Geophysical Research Letters*, 51(17), 10.1029/2023GL107400.

[11] Sung, K.**, Torbenson, M.C.A.*, and Stagge, J.H. (2024) "**Assessing decadal to centennial scale nonstationary variability in meteorological drought trends.**" *Hydrol. Earth Syst. Sci.*, 28(9), 2047-2063. DOI: 10.5194/hess-28-2047-2024.

[12] Stagge, J.H., Rosenberg, D.E., Castronova, A.M., Ostfeld, A., and Spackman Jones, A. (2024) "**JWRP&M's Reproducibility Review Program: Accomplishments, Lessons, and Next Steps.**" *Journal of Water Resources Planning and Management (ASCE)*, 150(8), 01824001, 1-4. DOI: 10.1061/JWRMD5.WRENG-6559.

[13] Stagge, J.H., Sung, K.**, Torbenson, M.C.A.*, Phillips, B.***, and Kingston, D. (2023) "**Orographic amplification of El Niño teleconnections on winter precipitation across the Intermountain West of North America.**" *Nature Water*, 10.1038/s44221-023-00163-9.

[14] Torbenson, M.C.A.*, Brazdil, R., Stagge, J.H., Esper, J., Buntgen, U., Vizina, A., Hanel, M., Rakovec, O., Fischer, M., Urban, O., Treml, V., Reing, F., del Castillo, E.M, Rybnicek, M., Kolar, T., Tnka, M. (2023) "**Increasing volatility of Morava River warm season flow, Czech Republic.**" *Journal of Hydrology - Regional Studies*, 50, 101534.

[15] Jarzyna, M.A. and Stagge, J.H. (2023) "**Decoupled spatiotemporal patterns of avian taxonomic and functional diversity.**" *Current Biology*, 33(6), P1153-1161.E4.

[16] Simpson, I.M., Winston, R.J., Tirpak, R.A., Dorsey, J.D., Stagge, J.H. and Hathaway. J.M. (2023). "**Hydrologic responses in urban and forested watersheds and their relationship to existing and novel runoff models.**" *Journal of Hydrology*, 620(A), 129430.

[17] Torbenson, M.C.A.*, Stahle, D., Howard, I., Blackstock, J., Cleaveland, M., and Stagge, J.H. (2022) "**Pre-instrumental perspectives on Arkansas River cross-watershed flow variability.**" *Journal of the American Water Resources Association (JAWRA)*, doi: 10.1111/1752-1688.13068 59(1), 1-15.

[18] Stagge, J.H. and Sung, K.** (2022) "**A non-stationary Standardized Precipitation Index (NSPI) using Bayesian splines.**" *Journal of Applied Meteorology and Climatology*, 61(7), 761-779.

[19] Sung.K.** and Stagge, J.H. (2022) "**Nonlinear seasonal and long-term trends in a twentieth-century meteorological drought index across the continental United States.**" *Journal of Climate*, 35(18), 6161-6174.

[20] Torbenson, M.C.A*. and Stagge, J.H. (2021) "**Informing seasonal proxy-based flow reconstructions using baseflow separation: An example from the Potomac River, United States.**" *Water Resources Research*, 57(2), e2020WR027706.

[21] Rosenberg, D.E., Jones, A.S., Filion, Y., Teasley, R., Sandoval-Solis, S., Stagge, J.H., Abdallah, A., Castronova, A., Ostfeld, A. and Watkins Jr, D. (2021) "**Reproducible Results Policy.**" *Journal of Water Resources Planning and Management*, 147(2), 01620001.

[22] Stagge, J.H., Rosenberg, D.E., Abdallah, A.M., Akbar, H., Attallah, N.A., James, R. (2019) "**Assessing data availability and research reproducibility in hydrology and water resources.**" *Scientific Data.*, 6, 190030.

[23] Stagge, J.H., Rosenberg, D.E., DeRose, R.J., and Rittenour, T.M. (2018) "**Monthly paleostreamflow reconstruction from annual tree-ring chronologies.**" *Journal of Hydrology*, 557, 791-804.

[24] Stagge, J.H., Kingston, D., Tallaksen, L.M. and Hannah, D. (2017) "**Observed drought indices show increasing divergence across Europe.**" *Scientific Reports*, 7 (1), 14045.

[25] Stagge, J.H. and Moglen, G.E. (2017) "**Water resources adaptation to climate and demand change in the Potomac River.**" *Journal of Hydrologic Engineering.*, 22 (11), 04017050.

[26] *Nilsen, I.B., Stagge, J.H., Tallaksen, L.M. (2017) "**A probabilistic approach for attributing temperature changes to synoptic type frequency**" *International Journal of Climatology*, 37, 2990-3002.

[27] Ionita, M., Tallaksen, L.M., Kingston, D.G., Stagge, J.H., Laaha, G., van Lanen, H.A.J., Scholz, P., Chelcea, S.M. and Haslinger, K., (2017) "**The European 2015 drought from a climatological perspective.**" *Hydrol. Earth Syst. Sci.*, 21 (3), 1397-1419.

[28] Rizzi, J., Nilsen, I.B., Stagge, J.H., Gisnås, K., and Tallaksen, L.M. "**Five decades of warming: impacts on snow in Norway.**" *Hydrology Research*, nh2017051, 10.2166/nh.2017.051.

[29] Laaha, G., Gauster, T., Tallaksen, L. M., Vidal, J.-P., Stahl, K., Prudhomme, C., Heudorfer, B., Vlnas, R., Ionita, M., Van Lanen, H. A. J., Adler, M.-J., Caillouet, L., Delus, C., Fendekova, M., Gailliez, S., Hannaford, J., Kingston, D., Van Loon, A. F., Mediero, L., Osuch, M., Romanowicz, R., Sauquet, E., Stagge, J.H., and Wong, W. K., (2017) "**The European 2015 drought from a hydrological perspective.**" *Hydrol. Earth Syst. Sci.*, 21 (6), 3001-3024.

[30] Stagge, J.H., Tallaksen, L.M., Gudmundsson, L., van Loon, A.F. and Stahl, K. (2016). "**Response to Comment on 'Candidate Distributions for Climatological Drought Indices (SPI and SPEI)'.**" *International Journal of Climatology*, 36, 2132-2138.

[31] *Blauhut, V., Stahl, K., Stagge, J.H., Tallaksen, L.M., de Stefano, L., Vogt, J. (2016). "**Estimating drought risk across Europe from reported drought impacts, drought indices, and vulnerability factors.**" *Hydrol. Earth Syst. Sci.*, 20, 2779-2800.

[32] Stahl, K., Kohn, I., Blauhut, V., Urquijo, J., De Stefano, L., Acacio, V., Dias, S., Stagge, J.H., Tallaksen, L.M., Kampragou, E., Van Loon, A., Barker, L.J, Melsen, L.A., Bifulco, C., Musolino, D., de Carli, A., Massarutto, A., Assimacopoulos, D. and Van Lanen, H.A.J. (2016). "**Impacts of European drought events: insights from an international database of text-based reports.**" *Nat. Hazards Earth Syst. Sci.*, 16, 801-819.

[33] Van Lanen, H.A.J., Laaha, G., Kingston, D.G., Gauster, T., Ionita, M., Vidal, J-P, Vlnas, R., Tallaksen, L.M., Stahl, K., Hannaford, J., Delus, C., Fendekova, M., Mediero, L., Prudhomme, C., Rets, E., Romanowicz, R.J., Sebastien, G., Wong, W.K., Adler, M-J, Blauhut, V., Caillouet, L., Chelcea, S., Frolova, N., Gudmundsson, L., Hanel, M., Haslinger, K., Kireeva, M., Osuch, M., Sauquet, E., Stagge, J.H., van Loon, A.F. (2016). "**Hydrology needed to manage droughts: the 2015 European case.**" *Hydrological Processes*, 30 (17), 3097-3104.

[34] Stagge, J.H., Kohn, I., Tallaksen, L.M. and Stahl, K. (2015). "**Modeling drought impact occurrence based on meteorological drought indices in Europe.**" *Journal of Hydrology*, 530, 37-50.

[35] Stagge, J.H., Tallaksen, L.M., Gudmundsson, L., van Loon, A.F. and Stahl, K. (2015). "**Candidate distributions for climatological drought indices (SPI and SPEI).**" *International Journal of Climatology*, 35 (13), 4027-4040.

[36] Kingston, D.G., Stagge, J.H., Tallaksen, L.M. and Hannah, D.M. (2015). "**European-scale drought: understanding connections between atmospheric circulation and meteorological drought Indices.**" *Journal of Climate*, 28 (2), 505-516.

[37] Stagge, J.H., Song, X., Seagren, E.A. (2015) "**Sorption of naphthalene onto natural and surfactant-modified soils.**" *Journal of Environmental Engineering*, 06015010-1-5.

[38] Casey, M.J., Stagge, J.H., Moglen, G.E., McCuen, R.H. (2015) "**The effects of watershed subdivision on peak discharge in rainfall-runoff modeling.**" *Journal of Hydrologic Engineering*, 20 (10), 1084-0699.

[39] Bartholomeus, R.P., Stagge, J.H., Tallaksen, L.M., and Witte, J.P.M. (2015). "**Sensitivity of potential evaporation estimates to 100 years of climate variability.**" *Hydrology and Earth System Sciences.*, 19, 997-1014.

[40] Stagge, J.H. and Moglen, G.E. (2014). "**Evolutionary algorithm optimization of a multireservoir system with long lag times.**" *Journal of Hydrologic Engineering.*, 19 (9).

[41] Stagge, J.H. and Moglen, G.E. (2012). "**A nonparametric stochastic method for generating daily climate-adjusted streamflows.**" *Water Resources Research.* 49(1), 6179-6193.

[42] Stagge, J.H., Davis, A.P., Jamil, E., and Kim, H. (2012). "**Performance of grass swales for improving water quality from highway runoff.**" *Water Research.*, 46(20), 6731-6742

[43] Davis, A.P., Stagge, J.H., Jamil, E., and Kim, H. (2012). "**Hydraulic performance of grass swales for managing highway runoff.**" *Water Research.*, 46(20), 6775-6786

[44] Stagge, J.H. and Moglen, G.E. (2011). "**Regional effects of land use change on water supply in the Potomac river basin.**" *Watershed Science Bulletin.*, 2(1), 52-53

Software and Code

[1] Stagge, J.H. (2017). "**paleoAPR: Monthly streamflow reconstruction package for R**" R package version 1.0. *doi: 10.5281/zenodo.889892*

[2] Stagge, J.H. (2014). "**European Drought Reference (EDR) database and European Drought Impact Report Inventory (EDII)**" `http://www.geo.uio.no/edc/droughtdb`

[3] Gudmundsson, L. and Stagge, J.H. (2014). "**SCI: Standardized Climate Indices such as SPI, SRI or SPEI**" *R package version 1.0-1.*

Refereed Conference Publications

[1] Bifulco, C., Rego, F., Dias, S., and Stagge, J.H. (2014). "**Assessing the association of drought indicators to impacts. The results for areas burned by wildfires in Portugal.**" *Advances in Forest Fire Research.*, Viegas, D.X. (ed.) 1054-1060.

[2] Tallaksen, L.M., Stagge, J.H., Stahl, K., Gudmundsson, L., Orth, R., Seneviratne, S.I., van Loon, A.F., and van Lanen, H.A.J. (2015). "**Characteristics and drivers of drought in Europe - a summary of the DROUGHT R&SPI project**" *Drought: Research and Science Policy Interfacing.* Andreu et al. (eds). ISBN 978-1-138-02779-4. 15-22.

[3] Gunst, L., Rego, F.C., Dias, S., Bifulco, C., Stagge, J.H., Rocha, M., and van Lanen, H.A.J. (2015). "**Impact of meteorological drought on crop yield on pan-European scale, 1979-2009**" *Drought: Research and Science Policy Interfacing.* Andreu et al. (eds). ISBN 978-1-138-02779-4. 113-118.

[4] Stagge, J.H., Tallaksen, L.M., Xu, C.Y., and van Lanen, H.A.J (2014). "**Standardized precipitation evapotranspiration index (SPEI): Sensitivity to potential evapotranspiration model and parameters.**" *Proceedings of FRIEND-Water 2014, IAHS Red Book No. 363.* Montpellier, France.

[5] Hannah, D.M., Fleig, A.K., Kingston, D.G., Stagge, J.H., and Wilson, D. (2014). "**Connecting streamflow and the atmospheric conditions in Europe: state-of-the-art review and future directions.**" *Proceedings of FRIEND-Water 2014, IAHS Red Book No. 363.* Montpellier, France.

[6] Stagge, J.H. and Davis, A.P. (2006). "**Water quality benefits of grass swales in managing highway runoff.**" *Proceedings of the Water Environment Federation, WEFTEC 2006.*

Books and Book Chapters

[1] Stagge, J.H., Ionita, M., Kingston, D., and Tallaksen, L.M. (2023). "**Chapter 7: Statistical Analysis of Drought Series.**" in *Hydrological Drought: Processes and Estimation Methods for Streamflow and Groundwater, 2nd Edition, edited by Lena M. Tallaksen and Henny A.J. van Lanen.* Link.

[2] Wanders, N., Prudhomme, C., Vidal, J-P. Smith, K., and Stagge, J.H. (2023). "**Chapter 10: Past and Future Hydrological droughts.**" in *Hydrological Drought: Processes and Estimation Methods for Streamflow and Groundwater, 2nd Edition, edited by Lena M. Tallaksen and Henny A.J. van Lanen.* Link.

[3] Stahl, K., Blauhut, V., Barker, L., and Stagge, J.H. (2023). "**Chapter 11: Drought Impacts.**" in *Hydrological Drought: Processes and Estimation Methods for Streamflow and Groundwater, 2nd Edition, edited by Lena M. Tallaksen and Henny A.J. van Lanen.* Link.

[4] Hunt, W.F., Traver, R.G., Davis, A.P., Emerson, C.H., Collins, K.A., and Stagge, J.H. (2010). "**Chapter 12: Low impact development practices: Designing to infiltrate in urban environments.**" in *Effects of urbanization on groundwater: an engineering case-based approach for sustainable development, edited by Ni-Bin Chang.*

Reports and Other Publications

[1] Stagge, J.H. (2026). "**Flood Analysis for East Cleveland, Garfield Heights, Maple Heights, and Warrensville Heights**" in *Engaging Low-Income Residents in Resilience Planning – Cuyahoga River, Euclid Creek, and Lake Erie (OH).* Prepared for the Northeast Ohio Community Resilience Centre and National Fish and Wildlife Foundation. Funded by NFWF National Coastal Resilience Fund.

[2] Stagge, J.H. (2018). "**Securing the European Drought Reference (EDR) and Impact report Inventory (EDII) databases for the benefit of DRM– a feasibility assessment**" *DRMKC Support Service, European Drought Observatory, European Commission.*

[3] Stagge, J.H., Rizzi, J., Tallaksen, L.M., and Stahl, K. (2015). "**DROUGHT-R&SPI Technical Report No. 25 - Future Meteorological Drought Projections of Regional Climate**" *DROUGHT-R&SPI Project*.

[4] Stahl, K., Stagge, J.H., Bachmair, K., Blauhut, V., Rego, F.C., De Stefano, L., Dias, S., Gudmundsson, L., Gunst, L., Kohn, I., Van Lanen, H.A.J., Urquijo Reguera, J., and Tallaksen, L.M. (2015). "**DROUGHT-R&SPI Technical Report No. 28 - Recommendations for indicators for monitoring and early-warning considering different sensitivities: pan-European scale**" *DROUGHT-R&SPI Project*.

[5] De Stefano, L., González Tánago, I., Ballesteros, M., Urquijo, J., Blauhut, V., Stagge, J.H. and Stahl, K. (2015) "**DROUGHT-R&SPI Technical Report No. 26 - Methodological approach considering different factors influencing vulnerability - pan-European scale**" *DROUGHT-R&SPI Project*.

[6] Gudmundsson, L., van Loon, A.F., Tallaksen, L.M., Seneviratne, S.I., Stagge, J.H., Stahl, K., and Van Lanen, H.A.J. (2014). "**DROUGHT-R&SPI Technical Report No. 21 - Guidelines for monitoring and early warning of Drought in Europe**" *DROUGHT-R&SPI Project*.

[7] Stagge, J.H., Tallaksen, L.M., Kohn, I., Stahl, K., and van Loon, A.F. (2013). "**DROUGHT-R&SPI Technical Report No. 12 - A European Drought Reference Database: Design and Online Implementation**" *DROUGHT-R&SPI Project*.

[8] Stahl, K., Blauhut, V., Kohn, I., Acacio, V., Assimacopoulos, D., Bifulco, C., De Stefano, L., Dias, S., Eilertz, D., Frielingsdorf, B., Hegdahl, T., Kampragou, E., Kourentzis, V., Melsen, L., van Lanen, H.A.J., van Loon, A.F., Massarutto, A., Musolino, D., de Paoli, L., Senn, L. Stagge, J.H., Tallaksen, L.M., and Urquijo, J.(2012). "**DROUGHT-R&SPI Technical Report No. 3 - A European Drought Impact Report Inventory (EDII): Design and Test for Selected Recent Droughts in Europe**" *DROUGHT-R&SPI Project*.

Awards and Honors

2026 Fulbright U.S. Scholar Program, Alternate

2024 Ohio State University College of Engineering Lumley Research Award

2022 Journal Award "Outstanding effort to reproduce results" Journal of Water Resources Planning and Management (ASCE)

2018 Top 100 Scientific Reports Earth Science papers for 2017, *"Observed drought indices show increasing divergence across Europe."*

2018 European Geosciences Union (EGU) Early Career Scientist's Travel Support Award

2017 Top Cited Invited Commentary published by Hydrological Processes in 2016, *"Hydrology needed to manage droughts: the 2015 European case."*

2011 2nd Prize - Oral Presentation, 27th Annual GSA Research Symposium, Virginia Tech

2004 Robert Morris Award for Environmental Leadership

2004 Undergraduate Honors Research Project, Honorable Mention

2000 Maryland Distinguished Scholar

Funded Research

2026-2027 **The Water Grant University: How the Civil War, western water rights, and Tribal water security are foundational to the US public education system**
Sustainability Research Seed Grant. Co-Principal Investigator. *$24,658.*

2025-2026 **Identifying water priority issues in Cleveland: A hydro-analysis (Engaging communities in resilience planning along Cuyahoga River, Euclid Creek, and Lake Erie)**
National Oceanic & Atmospheric Administration (NOAA) and the Northeast Ohio Black Health Coalition. Co-Principal Investigator. *$98,375.*

2023-2025 **Quantifying hydrometeorological non-stationarity across Ohio and the Midwest**
USGS 104(b). Principal Investigator. *$34,787.*

2020-2025 **CNH-L: Volcanism, Hydrology and Social Conflict: Lessons from Hellenistic and Roman-Era Egypt and Mesopotamia**
NSF 1824770 Dynamics of Coupled Natural and Human Systems. Co-Principal Investigator. *$1,301,722.*

2020-2025 **Leveraging Bayesian approaches to link reconstructed, observed, and projected meteorological drought while accounting for inherent data biases**
NSF 17-582 Paleo Perspectives on Climate Change. Principal Investigator. *$499,158.*

2023-2024 **Cross-scale climatic drivers of ecological dipole patterns in avian diversity**
TDAI Interdisciplinary Research Pilot Award. Co-Principal Investigator. *$48,023.*

2020-2022 **Olentangy River as Campus Laboratory (ORACL)**
OSEP Academic Collaborations awards. *$42,000.*

2018-2019 **Synthesizing drought characteristics prediction to inform drought resiliency decisions from days to years**
U.S. Bureau of Reclamation WaterSMART. Subcontractor. *$199,995.*

2017-2018 **Drought Contingency Planning for Weber Basin**
Weber Basin Water Conservancy. Co-PI. *$50,700*

2012 **National Capital Region Alumni Scholarship**
National Capital Region Chapter of the Virginia Tech Alumni Association. *$2,000*

2009 **Charles E. Via Doctoral Scholar Award**
Charles E. Via, Jr. Department of Civil and Environmental Engineering. *$155,000*

Proposals in Review

2027-2030 **AI-Ready Millennium-length Hydrologic Datasets for the Nile and Euphrates Rivers**
NSF AIDatasets: Unlocking Dataset Value for AI-Enabled Scientific Discovery. Co-Principal Investigator. *$1,947,694.*

2027-2032 **Hydrologic History: Modeling Climate Shocks through Human History using Earth System Modeling.** Schmidt Science Polymath Award. Foundation funding. 1 of 2 Ohio State University award nominees. *$2,500,000.*

Teaching

Instructor of Record

Water Resources Engineering (CIVILEN 3160, 3 credits) 2018-2026
70-110 undergraduate students, each semester The Ohio State University

Open Channel Hydraulics (CIVILEN 5220, 3 credits) 2020-2026
20-40 graduate & undergraduate students, annually The Ohio State University

Civil Engineering Capstone I (CIVILEN 4001, 3 credits) 2022-2026
100-120 undergraduate students, bi-annually The Ohio State University

Civil Engineering Capstone II (CIVILEN 4002, 3 credits) 2022-2026
100-120 undergraduate students, bi-annually The Ohio State University

Water Resources Systems Analysis (CIVILEN 6220, 3 credits) 2021-2024
5-10 graduate students, bi-annually The Ohio State University

Guest Lecturer

Non-Parametric Trends and Change Point Analysis 2018
Data Analysis in Environmental Engineering (ENVENG 6220) The Ohio State University

Managing Environmental Effects of Reservoirs 2017
Integrated River Basins/ Watershed Planning and Management (CEE 6490) Utah State University

Genetic Algorithms 2016
Water Resources Systems Analysis (CEE 6410) Utah State University

Introduction to R and Regression 2016
Summer Water Software/Code Workshop Series Utah State University

Drought Hazard and Management: Challenges in a Changing World 2014
EU-funded FP7 Summer School Hermoupolis, Greece

Hec-Ras for River Modeling 2013
Fluvial Hydrology (GEO 4340) University of Oslo

Mentorship

Postdoctoral Researchers

2019-2022 **Kyungmin Sung** Postdoctorate Researcher
Current Position: Assistant Professor, Kyonggi University, Dept of Civil and Energy Engineering.

2019-2021 **Max Torbenson** Postdoctorate Researcher
Current Position: Assistant Professor, Texas A&M University, Dept of Geography.

Graduate Students

2021-2026 **Irenee Felix Munyejuru** Ph.D.
"A Basin-Scale Hydrological Framework for Reconstructing Volcanically Forced Nile Flood Variability"
Awards
CEGE Department Graduate Travel award (OSU, 2024)
Ohio State University College Allocated Fellowship (OSU, 2021)

2024-2025 **Ismael Gad** M.S.
"Cooperative water management for Ohio using Battir, West Bank principles"
Current Position: Civil Analyst, Kimley-Horn and Associates.
Awards
Travel Award/Grant for New Zealand Stormwater Conference (OSU, 2025)

2023-2025 **Connor O'Keefe** M.S.
"Trends in Seasonal Streamflow and Daily Runoff for Near-natural Stream Gauges in the Midwestern United States" *Current Position:* Engineer, Wade Trim.

2021-2023 **Md Atif Ibne Haidar** M.S.
"Comparative Frequency Analysis of Reconstructed and Modeled Precipitation Signal Components of Past Climate in North America"
Current Position: Water Resources Engineer, infraTECH Engineers & Innovators, LLC.

2019-2022 **Kyungmin Sung** Ph.D.
"Temporal trends in drought index parameters"
Current Position: Assistant Professor, Kyonggi University, Dept of Civil and Energy Engineering.
Awards
Best Ph.D. Dissertation in Natural Science (Universities Council on
and Engineering Honorable Mention (2nd prize) Water Resources, 2023)
Outstanding Oral Presentation Award for Student Presenter (AMS Fifth Conference on

	Atmospheric Biogeosciences, 2020)	
	ENGIE-Axium Curricular Practical Training Scholarship award	(ENGIE-Axium, 2020)
	CEGE Department Graduate Travel award	(OSU, 2020)
2016-2017	**Ayman Alafifi** (Informal) "Systems modeling to improve river, riparian, and wetland habitat quality and area" *Current Position:* Supervising Water Resources Engineer and Innovation Leader, EKI Environment and Water.	Ph.D.
2015-2016	**Irene Brox-Nilsen** (Informal) "Can synoptic types explain warming in Europe?" *Current Position:* Research Scientist, Norwegian Water Resources and Energy Directorate (NVE).	Ph.D.
2014	**Anastasios Moukos** (Informal) "Future projections of meteorological drought in Greece: 2000-2100."	M.S.

Undergraduate Mentorship

2023-2026	**Zhirou Yao** *Undergraduate research project* "Bimodality in normalized meteorological drought indices"
2024-2025	**Sophea Hussain** *Summer Undergraduate research fellowship* "Evaluating the Impact of Climate Change on One-Day Precipitation Intensity-Duration-Frequency (IDF) Curves in the Midwest"
2024-2025	**Bryant Willis** *Research Experiences for Undergraduates (REU)* "Persistence in drought indices"
2022-2023	**Benjamin Phillips** *Undergraduate research project* "Using Teleconnections to predict El Nino-Southern Oscillation (ENSO) effects on precipitation in the Midwest"
2021	**Trace Eberhardt** *Undergraduate research project* "Prediction of Agricultural Losses and Drought Impacts by Meteorological Drought"
2020	**Lipi Agrawal** *Undergraduate research project* "Predicting the Likelihood of a Drought Based on Historical Impact and Precipitation Data"
2020	**Kangxuan Ye** *Undergraduate research project* "Developing an augmented reality (AR) tool for visualizing Hec-Ras output"
2019	**Elizabeth A Neudeck** *Undergraduate research project* "Erosion and hydraulic trends in Cleveland Metroparks reference streams"
2019	**Julie Ahrnsen** *Undergraduate research project* "Reconstruction of inflow to Bear Lake, Idaho from tree ring proxies"
2017	**Christian Ford** *iUtah Undergraduate Project* "Predicting unmet municipal & industrial water demand due to population and drought in Cache County, Utah."
2014	**Daniel Guenther** *Undergraduate research project* "Low flow evaluation of nine large-scale hydrological models for Europe and the representative nature of the European Water Archive (EWA) near-natural catchments."
2013	**Anne Kristina Tvedalen** *Undergraduate research project* "Drought in Scandinavia: An investigation of the links between the climatological index SPI and drought impacts."

Dissertation and Thesis Committees

All degrees from The Ohio State University unless noted.

Parisa Pourabedini	2025-2026	Ph.D. Civil Engineering
Narmada Ponnamperuma	2025-2026	Ph.D. Civil Engineering
Nepal Suranjan	2024-2026	Ph.D. Civil Engineering
Vilas Sarsani	2023-2026	Ph.D. Civil Engineering
Nepal Suranjan	2023-2024	M.S. Civil Engineering
Jack L. Dechow	2022-2024	Ph.D. Earth Sciences

Kathleen Fast	2023-2024	Ph.D. Food, Agricultural, and Biological Engineering
Madeline E. Scyphers	2023-2024	M.S. Environmental Science
Theresia G. Yazbeck	2022-2024	Ph.D. Civil Engineering (# Environmental)
Yvette A. Onyango	2022-2024	M.S. Civil Engineering
Andrew Roseboro	2021-2024	M.S. Civil Engineering
Matthew S. Armstrong	2023	Ph.D. School of Environmental and Life Sciences, University of Newcastle, Australia
Younghun Kang	2020-2023	Ph.D. Civil Engineering
Mackenzie K. Hudson	2021-2023	M.S. Civil Engineering
Ian M. Simpson	2020-2022	Ph.D. Food, Agricultural, and Biological Engineering
Paola V. Espinoza-Youn	2020-2022	M.S. (non-thesis) Civil Engineering
T.J. Erb	2019-2020	M.S. Mechanical and Aerospace Engineering
Stephen B. Maldonado	2018-2019	M.S. (non-thesis) Civil Engineering
Simon Bartos	2018-2019	Master of Global Engineering Leadership

Conferences and Academic Presentations

Invited Presentations

2025	OSU CONNEXT Seminar	Virtual 5 Feb 2025
2025	Columbus Science Pub	Columbus, OH 9 Jan 2025
2024	American Geophysical Union (AGU), Session H11W	Washington, DC 9 Dec 2024
2023	Environmental Professionals (EPN) Breakfast	Columbus, OH 7 Mar 2023
2023	Food, Agricultural and Biological Engineering Seminar Series,	Columbus, OH 3 Feb 2023
2020	NSF EarthCube Research Coordination Network (RCN) Workshop: Model Data Archiving and Reproducibility	Virtual 5 May 2020
2020	OSU Dept. of Statistics Seminar Series,	Columbus, OH 27 May 2020
2019	Ohio Water Resources Center and WMAO Luncheon Seminar,	Columbus, OH 16 Oct 2019
2019	Byrd Polar and Climate Research Center Seminar Series,	Columbus, OH 16 Mar 2019
2019	UNESCO Intl. Centre for Water Resources and Global Change	Koblenz, Germany 20 Feb 2019
2018	European Commission Joint Research Centre (JRC)	Ispra, Italy April 16, 2018
2018	University of Florida Environmental Engineering Spring Seminar	Gainesville, FL 12 March 2018
2018	The Ohio State University	Columbus, OH 22 Feb 2018
2018	University of Michigan	Ann Arbor, MI 12 Feb 2018
2018	University of Victoria	Victoria Canada 4 Feb 2018
2017	Oklahoma State University	Stillwater, OK 4 Dec 2017
2017	University of Manitoba	Winnipeg, Canada 7 Nov 2017
2017	Utah State University Water, Environmental, and Irrigation Seminar	Logan, UT 11 Oct 2017
2017	Utah Climate Adaptation Interdisciplinary Research Forum	Logan, UT 4 Oct 2017
2017	South Dakota School of Mines & Technology	Rapid City, SD 4 Apr 2017
2016	Imperial College London	London, UK 30 Nov 2016
2016	Northern Arizona University	Flagstaff, Arizona 22 Mar 2016
2015	University of Bristol	Bristol, UK 14 Mar 2015
2015	Kansas State University	Manhattan, Kansas 1 Dec 2015
2015	University of Oslo Open Seminar	Oslo, Norway 16 Sep 2015
2015	University of Galway, formerly NUI Galway	Galway, Ireland 17 May 2015

Selected Conference Presentations

2026	Mid-Ohio Regional Planning Commission (MORPC) Data Day	Columbus, OH, 10 Feb 2026
2025	Resilient Rivers Workshop	New Haven, CT, 24 Oct 2025

2024	6th International Conference on Advances in Extreme Value Analysis and Application to Natural Hazards (EVAN 2024)	Venice, Italy, 18 July 2024
2024	Climate of the Past and Societal Responses to Environmental Changes	Bern, Switzerland, 7 June 2024
2023	UCOWR/NIWR Annual Water Resources Conference	Fort Collins, CO, 14 June 2023
2023	European Geosciences Union (EGU) General Assembly	Vienna, Austria, 28 Apr 2023
2022	American Geophysical Union (AGU) Frontiers in Hydrology	San Juan, Puerto Rico, 22 June 2022
2022	5th International Conference on Advances in Extreme Value Analysis and Application to Natural Hazards (EVAN 2022)	Orlando, Florida, 17 May 2022
2020	American Geophysical Union (AGU) Fall Meeting	Virtual, Covid-19, 14 Dec 2020
2020	Computational Methods in Water Resources	Virtual, Covid-19, 16 Dec 2020
2018	American Geophysical Union (AGU) Fall Meeting	Washington, DC, 10 Dec 2018
2018	European Geosciences Union (EGU) General Assembly	Vienna, Austria, 13 Apr 2018
2017	iUTAH Annual Symposium & Summer All-Hands Meeting	Logan, UT, 13 July 2017
2017	Utah Spring Runoff Conference	Logan, UT, 29 Mar 2017
2016	American Geophysical Union (AGU) Fall Meeting	San Francisco, CA, 12 Dec 2016
2016	European Geosciences Union (EGU) General Assembly	Vienna, Austria, 19 Apr 2016
2015	European Geosciences Union (EGU) General Assembly	Vienna, Austria, 15 Apr 2015
2014	6th Leonardo Conference 2014: HYPER Droughts	Prague, Czech Republic, 13 Nov 2014
2014	FRIEND-Water2014: 7th Global FRIEND-Water Conference	Montpellier, France, 10 Oct 2014
2014	American Geophysical Union (AGU) Fall Meeting	San Francisco, CA, 15 Dec 2014
2014	European Geosciences Union (EGU) General Assembly	Vienna, Austria, 28 Apr 2014
2013	Stats + Climate Workshop	Oslo, Norway, 11 November 2013
2013	European Geosciences Union (EGU) General Assembly	Vienna, Austria, 11 Apr 2013
2013	DROUGHT-R&SPI second General Assembly	Milan, Italy, 22 Feb 2013
2012	FRIEND Water Low Flow and Drought Group Meeting	Payerbach-Reichenau, Austria, 4 Oct 2012
2012	World Environmental & Water Resources Congress, ASCE/EWRI	Albuquerque, NM, 23 May 2012
2011	27th Annual Graduate Student Association Research Symposium	Blacksburg, VA, 23, Mar 2011
2006	Water Environment Federation, WEFTEC	Dallas, TX, 24 Oct 2006

Research Group Presentations

2025	3rd Annual Interdisciplinary Water Research Symposium. *Gad, I.*	Columbus, OH, 29 Oct 2025
2024	Climate of the past & societal responses to environmental changes *Munyejuru, I.F.*	Bern, Switzerland, 29 Oct 2025
2024	EGU General Assembly. *Munyejuru, I.F.*	Vienna, Austria, 18 April 2024
2023	1st Annual Interdisciplinary Water Research Symposium. *Munyejuru, I.F.*	Columbus, OH, 3 Nov 2023
2023	Byrd Center Symposium on Climate Change Research. *Munyejuru, I.F.*	Columbus, OH, 20 Oct 2023
2023	American Geophysical Union (AGU) Fall Meeting. *Haidar, M.A.I.*	San Francisco, CA, 11 Dec 2023
2022	American Geophysical Union (AGU) Fall Meeting. *Sung, K.*	Chicago, IL, 15 Dec 2022
2021	American Geophysical Union (AGU) Fall Meeting. *Sung, K.*	New Orleans, LA, 14 Dec 2021
2020	AMS Fifth Conference on Atmospheric Biogeosciences. *Sung, K.*	Virtual, Covid-19, 22, June 2021 Outstanding Oral Presentation Award for Student Presenter

2020	AMS Fifth Conference on Atmospheric Biogeosciences. *Torbenson, M.C.A.*	Virtual, Covid-19, 21, June 2021

Professional Service

International and National Service

2024-present	Section Editor for Reproducibility, Journal of Water Resources Planning and Management
2020-present	Associate Editor, Scientific Data
2026	Faculty Search External Advisory Committee, University of Oslo, Department of Geosciences
2025	Ad-hoc Reviewer, NSF OAC Software Institutes Program
2024	Ad-hoc Reviewer, NSF OCE P4Climate Program
2024	Reviewer, German Research Foundation (DFG) Grant Program
2024	Reviewer, US Department of Energy (DOE) Biological and Environmental Research (BER) Grant Program
2022	Ad-hoc Reviewer, NSF AGS Paleoclimate Program
2022	Reviewer, NWO (Dutch Research Council) Talent Programme, Vidi Scheme
2021	Ad-hoc Reviewer, NSF GEO/ATM Paleoclimate Program
2021	Reviewer, USGS 104(g) Grant Program
2020-2024	Associate Editor, Journal of Water Resources Planning and Management
2019	Reviewer, USGS 104(g) Grant Program
2019	Ad-hoc Reviewer, NSF Graduate Research Fellowships Program (GRFP)
2018	Co-Convener, Tackling past hydrological cycles - from local and regional to global scales [CL1.06/GM8.12], 2018 European Geosciences Union (EGU) General Assembly, 8 Aug 2018
2018	Judge, Outstanding Student Poster and PICO (OSPP) Award, European Geosciences Union (EGU), General Assembly
2016	Judge, Student Poster Competition, 2016 Utah Spring Runoff Conference, 5 Apr 2016
2014	Chairperson, Session 6B: Drought Impacts, 6th EGU Leonardo Conference 2014: HYPER Droughts, 14 Nov 2014

University and Departmental Service

2025-present	Chair, CEGE Student Success committee
2026	Panelist, Columbus Global Scholars program at Byrd Polar and Climate Research Center
2026	Peer Reviewer of Teaching, OSU CEGE
2025	Proposal Reviewer, CFAES-R&GE Internal Grants Program
2024	Proposal Reviewer, Department of Food, Agricultural and Biological Engineering (FABE) New Researcher Grant Program
2020-2025	Member, CEGE Inclusive Excellence committee
2021-2024	Member, CEGE Grad Studies committee
2024-2025	Member, CEGE Workload renewal committee
2023-2024	Member, Byrd Polar and Climate Research Center Executive committee
2024-2025	Member, College of Engineering Justice Equity Diversity and Inclusion (JEDI) Council
2021-2022	Member, College of Engineering Graduate Student Recruitment and Retention Committee
2019	Proposal Reviewer, SEEDS, the CFAES Research Competitive Grants Program

Membership

2026-	Environmental History Initiative, The Ohio State University, member
2019-	Sustainability Institute, The Ohio State University, member
2018-	Byrd Polar and Climate Research Center, The Ohio State University, member

Reviewing

Manuscript Reviewer: Bragantia • Bulletin of the American Meteorological Society (BAMS) • Earth's Future • Environmental Modelling and Software • Environments • Hydrogeology Journal • Hydrology and Earth System Sciences (HESS) • Hydrology Research • International Journal of Climatology • Iranian Journal of Science and Technology, Transactions of Civil Engineering • Journal of American Water Resources Association (JAWRA) • Journal of Geophysical Research: Atmospheres • Journal of Geophysical Research: Biogeosciences • Journal of Hydrology • Meteorology and Atmospheric Physics • • Nature Climate Change • Science of the Total Environment • Scientific Data • Scientific Reports • Stochastic Environmental Research and Risk Assessment (SERR) • Theoretical and Applied Climatology • Water Resources Research (WRR) • Water SA •

Work Experience and Licensure

2010- **Licensed Professional Engineer (PE)**, Civil Engineering: Maryland (#30460)

2008-2009 **Roux Associates, Inc.** *Staff Engineer, Engineered Natural Systems.*

2006-2008 **Bioengineering Group, Inc.** *Hydraulic Engineer.*

2003-2004 **USDA Agricultural Research Center** *Environmental Lab Assistant.*

2001 **Johnson, Mirmiran and Thompson Engineering, Inc.** *Surveyor.*

Media Coverage

2024 **Sung, et al. (2024)** Centennial-scale intensification of wet and dry extremes ...

Text: Earth.com, Smart Water Magazine, Ohio State Research News, Byrd Polar and Climate Research Center

Audio & visual: Associated Press package, aired in 151 markets

Midwest drought coverage: WKYC Cleveland Sep 25, 2024

2023 **Stagge et al. (2023)** Orographic amplification of El Niño ...

Text: Newsweek, Fox Weather, Yahoo News, Ohio State Research News, Science Daily

Audio & visual: Fox Weather

Jarzyna, M.A. and Stagge, J.H. (2023) Decoupled spatiotemporal patterns of ...

Text: US National Science Foundation (NSF) News from the Field, earth.com, Science Daily

Torbenson et al.. (2023) Increasing volatility of Morava River ...

Text: Byrd Polar and Climate Research Center

2021 **Torbenson et al. (2021)** Informing seasonal proxy-based flow reconstructions ...

Text: Ohio State News

Rosenberg et al. (2021) Reproducible results policy ...

Text: SPARC (the Scholarly Publishing and Academic Resources Coalition), Replication Network, Science Daily

2018 **Stagge et al. (2018)** Monthly paleostreamflow reconstruction from ...

Written: ScienceDaily, Archaeology News Network, Phys.org, Down to Earth, Uintah Basin Standard, Long Room, The Water Network, e-Duque, Cache Valley Daily

Audio & visual: KSL News Radio, KPCW This Green Earth, Youtube

2017 **Stagge et al. (2017)** Observed drought indices show increasing ...

Text: Clean Technica, Cache Valley Daily, Utah Business, Planetsave, PressReleasePoint, Science Newsline, Earth.com, Terra Daily, Phys.org, Long Room, Trends der Zukunft, Scinexx, Tiempo.com, Diario Siglo XXI, Eco Diario, Público

Audio & visual: KVNU Interview