

JAMES H. STAGGE, PH.D., P.E.

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RESEARCH EXPERIENCE

- 2018- 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

Google scholar: citations 4116, h-index: 22 (updated April 2025)

* = Mentee Co-author

Publications in Review (Drafts available upon request)

- [1] Sung, K. and Stagge, J.H. "**Pre-Industrial and future shifts in seasonal precipitation climatology for large river basins across the continental U.S.A.**" *Environmental Research Communications*, In Review.
- [2] 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. "**Disruption of ENSO-driven drought teleconnections around 1700 CE**" *Geophysical Research Letters*, In Review.
- [3] O'Keefe, C.* and Stagge, J.H. "**Trends in Seasonal Streamflow and Daily Runoff for Near-natural Stream Gauges in the Midwestern United States.**" *Water Resources Research*, In Review.

Peer-Reviewed Publications

- [1] Haidar, M.A.I.* and Stagge, J.H. (2025) "**Comparative Frequency Analysis of NASPA and Seasonal CMIP6 Precipitation in North America.**" *Journal of Hydrometeorology*, In Press.
- [2] 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), 10.5194/hess-29-719-2025.
- [3] 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.

- [4] 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.
- [5] 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.
 ○ Research highlighted by: Earth.com, Smart Water Magazine, Ohio State Research News, Byrd Polar and Climate Research Center
- [6] 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.
- [7] 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.
- [8] 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.
 ○ Research highlighted by: Newsweek, Fox Weather, ScienceDaily, Ohio State Research News, Byrd Polar and Climate Research Center
- [9] 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.
 ○ Research highlighted by: Byrd Polar and Climate Research Center
- [10] Jarzyna, M.A. and Stagge, J.H. (2023) "**Decoupled spatiotemporal patterns of avian taxonomic and functional diversity.**" *Current Biology*, 33(6), P1153-1161.E4.
 ○ Research highlighted by: US National Science Foundation (NSF) News from the Field, earth.com, Science Daily
- [11] 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.
- [12] 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.
- [13] 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.
- [14] 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.
- [15] 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.
 ○ Research highlighted by: Ohio State News
- [16] 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.
 ○ Research highlighted by: SPARC (the Scholarly Publishing and Academic Resources Coalition), Replication Network, Science Daily

- [17] 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.
- [18] 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.
- Research highlighted by: 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
- [19] 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.
- Research highlighted by: Top 100 Scientific Reports Earth Science papers 2017, Clean Technica, Cache Valley Daily, Utah Business, Planetsave, PressReleasePoint, Science Newline, Earth.com, Terra Daily, Phys.org, Long Room, Trends der Zukunft, Scinexx, Tiempo.com, Diario Siglo XXI, Eco Diario, Público
 - Audio & visual: KVNU Interview
- [20] 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.
- [21] *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.
- [22] 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.
- [23] Rizzi, J., Nilsen, I.B., Stagge, J.H., Gislén, K., and Tallaksen, L.M. "**Five decades of warming: impacts on snow in Norway.**" *Hydrology Research*, nh2017051, 10.2166/nh.2017.051.
- [24] 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.
- [25] 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.
- [26] *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.
- [27] 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.
- [28] 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.
- Research highlighted by: Top Cited Invited Commentary Published in 2016
- [29] 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.

- [30] 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.
- [31] 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.
- [32] 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.
- [33] 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.
- [34] 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.
- [35] 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).
- [36] 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.
- [37] 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
- [38] 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
- [39] 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 Online Tools

- [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] Stahl, K.S., Blauhut, V., Irene Kohn, I., and 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*.
- [2] 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*.
- [3] 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*.
- [4] 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*.
- [5] 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*.
- [6] 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*.
- [7] 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

- 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 Early Career Scientist's Travel Support Award, European Geosciences Union (EGU) General Assembly
- 2018 Top 100 Scientific Reports Earth Science papers for 2017, "*Observed drought indices show increasing divergence across Europe.*"
- 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

- 2023 **Quantifying hydrometeorological non-stationarity across Ohio and the Midwest**
USGS 104(b). Principal Investigator. \$34,787.
- 2023 **Cross-scale climatic drivers of ecological dipole patterns in avian diversity**
TDAI Interdisciplinary Research Pilot Award. Co-Principal Investigator. \$48,023.
- 2020 **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.
- 2020 **Olentangy River as Campus Laboratory (ORACL)**
OSEP Academic Collaborations awards. \$42,000.
- 2020 **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. Collaborator. \$1,301,722.
- 2018 **Synthesizing drought characteristics prediction to inform drought resiliency decisions from days to years**
U.S. Bureau of Reclamation WaterSMART. Subcontractor. \$199,995.
- 2017 **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

TEACHING AND MENTORING

Teaching

- 2018-2025 **Primary Instructor**, Water Resources Engineering (CIVILEN 3160)
The Ohio State University

- 2020-2025 **Primary Instructor**, Open Channel Hydraulics (CIVILEN 5220)
The Ohio State University
- 2022-2023 **Co-Instructor**, Civil Engineering Capstone (CIVILEN 4001/4002)
The Ohio State University
- 2021-2022 **Primary Instructor**, Water Resources Systems Analysis (CIVILEN 6220)
The Ohio State University
- 2016 **Guest Lecturer**, Genetic Algorithms
Utah State University, Water Resources Systems Analysis (CEE 6410)
- 2014 **Lecturer**, Drought Hazard and Management: Challenges in a Changing World
EU-funded FP7 Summer School - Hermoupolis, Syros Island, Greece
- 2014 **Guest Lecturer**, University of Oslo - Fluvial Hydrology (GEO 4340), HEC-RAS Lab

Graduate and Postdoctoral Mentorship

- 2024-present **Ismael Gad** *Master's*
"Cooperative water management for Ohio using Battir, West Bank principles"
- 2023-present **Connor O'Keefe** *Master's*
"Trends in Seasonal Streamflow and Daily Runoff for Near-natural Stream Gauges in the Mid-western United States"
- 2021-present **Irene Munyejuru** *Doctoral*
"Simulation of historical floods driven by climate anomalies in Ptolemaic Egypt"
- 2021-2023 **Md Atif Ibne Haidar** *Master's*
"Comparative Frequency Analysis of Reconstructed and Modeled Precipitation Signal Components of Past Climate in North America"
- 2019-2022 **Kyungmin Sung** *Doctoral and Postdoctoral*
"Temporal trends in drought index parameters"
- 2019-2021 **Max Torbenson** *Postdoctorate researcher*
"Proxy-based reconstruction of seasonal flow in the Potomac River Basin"
- 2016-17 **Ayman Alaffi** *Doctoral dissertation*
"Systems modeling to improve river, riparian, and wetland habitat quality and area"
- 2017 **Christian Ford** *iUtah Undergraduate Project*
"Predicting unmet municipal & industrial water demand due to population and drought in Cache County, Utah"
- 2015-16 **Irene Brox-Nilsen** *Doctoral dissertation*
"Can synoptic types explain warming in Europe?"
- 2014 **Anastasios Moukos** *Master's research project*
"Future projections of meteorological drought in Greece: 2000-2100."

Undergraduate Mentorship

- 2024-present **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-present **Bryant Willis** *Research Experiences for Undergraduates (REU)*
"Persistence in drought indices"
- 2023-present **Zhirou Yao** *Undergraduate research project*
"Bimodality in normalized meteorological 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"
- 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."

CONFERENCES AND ACADEMIC PRESENTATIONS

* Invited presentation

- [1] Stagge, J.H. (2024). "**Extreme Exceedances for Moving Average Drought Indices**", *6th International Conference on Advances in Extreme Value Analysis and Application to Natural Hazards, Conference Program*, Venice, Italy, 18 July 2024.
- [2] Stagge, J.H., Munyejuru, I.F.*, Morgan, J., Ludlow, F.M., and Manning, J.G. (2024). "**Simulating Inundated Area for Ptolemaic Nile River Flooding**", *Climate of the past and societal responses to environmental changes, Conference Program*, Bern, Switzerland, 7 June 2024.
- [3] Munyejuru, I.F.* and Stagge, J.H. (2024). "**Simulating Hydrologic Impacts of Historical Explosive Volcanic Eruptions on Nile River Discharges**", *Climate of the past and societal responses to environmental changes, Conference Program*, Bern, Switzerland, 6 June 2024.
- [4] Munyejuru, I.F.* and Stagge, J.H. (2024). "**Multi-Objective Calibration of Nile River Basin Using Recovered Records**", *European Geosciences Union (EGU) General Assembly, Session HS2.1.10*, Vienna, Austria, 18 April 2024.
- [5] Tallaksen, L.M., Van Lanen, H.A.J., Hannaford, J., Hisdal, H., Kingston, D.G., Laaha, G., Prudhomme, C., Stagge, J.H., Stahl, K., Van Loon, A.F., Wanders, N. (2024). "**HYDROLOGICAL DROUGHT – Processes and Estimation Methods for Streamflow and Groundwater**", *European Geosciences Union (EGU) General Assembly, Session HS2.4.3*, Vienna, Austria, 17 April 2024.
- [6] Munyejuru, I.F.* and Stagge, J.H. (2023). "**Multi-Objective Calibration of Nile River Basin using Recovered Records**", *First Annual Interdisciplinary Water Research Symposium*, Link, Columbus, OH, 3 Nov 2023.
- [7] Munyejuru, I.F.* and Stagge, J.H. (2023). "**Multi-Objective Calibration of Nile River Basin Using Recovered Records**", *Byrd Center Symposium on Climate Change Research*, Link, Columbus, OH, 20 Oct 2023.
- [8] Haidar, Md Atif Ibne* and Stagge, J.H. (2023). "**Comparative Frequency Analysis of NASPA and Seasonal CMIP6 Precipitation in North America**", *American Geophysical Union (AGU), Session H11N*, San Francisco, CA, 11 Dec 2023.

- [9] Stagge, J.H. (2023). "**Making Research in Water Resources More Reproducible: ASCE's Reproducibility Review Program**", *UCOWR/NIWR Annual Water Resources Conference*, Fort Collins, CO, 14 June 2023.
- [10] Stagge, J.H. and Sung, K. (2023). "**Ongoing and projected future intensification of North American pluvial and drought extremes relative to the pre-Industrial millennium**", *European Geosciences Union (EGU) General Assembly, Session HS2.4.4*, Vienna, Austria, 28 April 2023.
- [11] Tallaksen, L.M., Van Lanen, H.A.J., Hannaford, J., Hisdal, H., Kingston, D.G., Laaha, G., Prudhomme, C., Stagge, J.H., Stahl, K., Van Loon, A.F., and Wanders, N. (2023). "**Hydrological drought – processes and estimation methods for streamflow and groundwater**", *European Geosciences Union (EGU) General Assembly, Session HS2.4.4*, Vienna, Austria, 28 April 2023.
- [12] *Stagge, J.H. (2023). "**Hydrometeorological trends affecting Ohio's water cycle**", *EPN Breakfast - Changing Rivers: Enhancing the natural and social wellbeing of Ohio alongside more floods and warmer temperatures*, Link, 7 Mar 2023.
- [13] *Stagge, J.H. (2023). "**Measuring shifts in hydrometeorological extremes relative to pre-Industrial climate by merging observations, tree-ring proxies, and global climate model output**", *OSU Department of Food, Agricultural and Biological Engineering Seminar Series*, 13 Feb 2023.
- [14] Sung, K. and Stagge, J.H. (2022). "**Multi-centennial Trends in North American Meteorological Drought and Pluvials by Merging Paleoclimate, Observations, and Future Projections**", *American Geophysical Union (AGU) Fall Meeting, Session H42I-1402*, 15 Dec 2022.
- [15] Stagge, J.H. and Torbenson, M.C.A.* (2022). "**Validation of hydrologic model integration in proxy-based flow reconstructions**", *American Geophysical Union (AGU) Frontiers in Hydrology, Session 303-08*, San Juan, Puerto Rico, 22 June 2022.
- [16] Stagge, J.H. (2022). "**Non-stationary standardized precipitation indices (NSPI) revisited: zero handling and bias correction**", *5th International Conference on Advances in Extreme Value Analysis and Application to Natural Hazards (EVAN 2022), Talk 16*, Orlando, Florida, 17 May 2022.
- [17] Stagge, J.H. and Jarzyna, M. (2022). "**Spatio-temporal variation in avian functional diversity across continental scale**", *American Ornithological Society 2022 Ornithological Conference, Session*, San Juan, Puerto Rico, 29 June 2022.
- [18] Sung, K. and Stagge, J.H. (2021). "**Assessing decadal to centennial scale nonstationary variability of meteorological drought trends**", *American Geophysical Union (AGU) Fall Meeting, Session GC22B-07*, New Orleans, LA, 14 Dec 2021.
- [19] Stagge, J.H. and Sung, K. (2020). "**Incorporating non-stationarity in normalized meteorological drought indices with Bayesian splines**", *American Geophysical Union (AGU) Fall Meeting, Session H132-03*, Online remote, 14 Dec 2020.
- [20] Stagge, J.H. (2020). "**A Bayesian hurdle model to improve normalized meteorological drought indices**", *Computational Methods in Water Resources*, Stanford, CA, Dec 14-15, 2020.
- [21] Sung, K. and Stagge, J.H. (2020). "**Bayesian approach for observing long-term and seasonal drought trend and variability**", *AMS Fifth Conference on Atmospheric Biogeosciences*, Minneapolis, MN, Postponed due to Covid-19.
- [22] Torbenson, M.C.A. and Stagge, J.H. (2020). "**Can baseflow separation improve paleoclimate reconstructions of streamflow and their usefulness in water management?**", *AMS Fifth Conference on Atmospheric Biogeosciences*, Minneapolis, MN, Postponed due to Covid-19.
- [23] *Stagge, J.H. (2020). "**Minor adjustments, major benefits: Assessing reproducibility in hydrology research**", *Workshop - NSF Research Coordination Network (RCN) project: Model Data Archiving and Reproducibility*, Columbus, OH, 5 May 2020.
- [24] *Stagge, J.H. (2020). "**Improved meteorological drought indices in a non-stationary climate using Bayesian penalized splines**", *Ohio State University Dept. of Statistics Seminar Series*, Columbus, OH, 27 May 2020.

- [25] *[Stagge, J.H.](#) (2019). "**Water resources vulnerability: Lessons from the past, challenges for the future**", *Ohio Water Resources Center and WMAO Luncheon Seminar*, Columbus, OH, 16 Oct 2019.
- [26] *[Stagge, J.H.](#) (2019). "**Drought vulnerability: Lessons from the past, opportunities for the future**", *Byrd Polar and Climate Research Center Seminar Series*, Columbus, OH, 6 Mar 2019.
- [27] *[Stagge, J.H.](#) (2019). UNESCO Workshop: Climatic and hydrological extremes: linking the instrumental period of the last decades with the more distant past, *PAGES Extreme Events and Risk Assessment Integrative Activity, International Centre for Water Resources and Global Change (UNESCO)*, Koblenz, Germany DC, 18-21 Feb 2019.
- [28] [Stagge, J.H.](#), Rosenberg, D.E., Abdallah, A., Akbar, H., James, R., and Atallah, N. (2018). "**Measuring Replicability to Promote Reproducibility in Hydrology**", *American Geophysical Union (AGU) Fall Meeting, Session C13J*, Washington DC, 10 Dec 2018.
- [29] [Stagge, J.H.](#), Rosenberg, D.E., Abdallah, A., Akbar, H., James, R., and Atallah, N. (2018). "**Measuring Replicability to Promote Reproducibility in Hydrology**", *American Geophysical Union (AGU) Fall Meeting, Session C13J*, Washington DC, 10 Dec 2018.
- [30] [Stagge, J.H.](#) and Rosenberg, D.E. (2018). "**Classifying long and severe droughts from centuries of monthly reconstructed flows**", *European Geosciences Union (EGU) General Assembly, Session HS2.1.1*, Vienna, Austria, 13 April 2018.
- [31] *[Stagge, J.H.](#) (2018). "**Drought vulnerability: Lessons from the past, opportunities for the future.**" *University of Florida Environmental Engineering Spring Seminar*, Gainesville, FL, 12 March 2018.
- [32] *[Stagge, J.H.](#) (2017). "**Centuries of reconstructed flows for quantifying drought vulnerability.**" *Water, Environmental, and Irrigation Seminar*, Logan, UT, 11 Oct 2017.
- [33] *[Stagge, J.H.](#) (2017). "**Climate change in the context of paleo-climate reconstruction.**" *Climate Adaptation Interdisciplinary Research Forum*, Logan, UT, 4 Oct 2017.
- [34] [Stagge, J.H.](#), Rosenberg, D.E. (2017). "**Classification scheme for reconstructed streamflow droughts in northern Utah (1430-present).**" *iUTAH Annual Symposium & Summer All-Hands Meeting*, Logan, UT, 13 July 2017.
- [35] *[Stagge, J.H.](#), Rosenberg, D.E. (2017). "**Reconstructing monthly flows for drought vulnerability.**" *Utah Climate Action Network: Utah Water and Climate Forum*, Salt Lake City, UT, 25 April 2017.
- [36] [Stagge, J.H.](#), Rosenberg, D.E., DeRose, R.J., and Rittenour, T.M. (2017). "**Monthly paleostreamflow reconstruction from annual tree-ring chronologies.**" *2017 Utah Spring Runoff Conference, Poster*, Logan, UT, 29 Mar 2017.
- [37] [Stagge, J.H.](#), Rosenberg, D.E., DeRose, R.J., and Rittenour, T.M. (2016). "**Monthly paleostreamflow reconstruction from annual dendrochronologies for water systems analysis.**" *American Geophysical Union (AGU) Fall Meeting, Poster GC13E-1231*, San Francisco, CA, 12 Dec 2016.
- [38] *Hannah, D.M., Kingston, D.G., Lavers, D., [Stagge, J.H.](#), Tallaksen, L.M. (2016). "**Unravelling connections between river flow and large-scale climate: experiences from Europe.**" *American Geophysical Union (AGU) Fall Meeting, Session H41I*, San Francisco, CA, 15 Dec 2016.
- [39] Ionita, M., Tallaksen, L.M., Kingston, D. and [Stagge, J.H.](#) (2016). "**The European 2015 drought from a climatological perspective.**" *European Geosciences Union (EGU) General Assembly, Session HS4.4*, Vienna, Austria, 19 April 2016.
- [40] [Stagge, J.H.](#), Kingston, D., Tallaksen, L.M. and Hannah, D. (2016). "**Diverging trends between meteorological drought indices (SPI and SPEI) in Europe.**" *European Geosciences Union (EGU) General Assembly, Session HS2.1.5*, Vienna, Austria, 19 April 2016.
- [41] Rizzi, J., Brox-Nilsen, I., [Stagge, J.H.](#), Gisnås, K. and Tallaksen, L.M. (2016). "**Interaction between temperature, precipitation and snow cover trends in Norway.**" *European Geosciences Union (EGU) General Assembly, Session HS2.2.1*, Vienna, Austria, 20 April 2016.

- [42] Brox-Nilsen, I., Stagge, J.H. and Tallaksen, L.M. (2016). "**A probabilistic approach to attribute warming to changes in atmospheric circulation.**" *European Geosciences Union (EGU) General Assembly, Session HS2.10*, Vienna, Austria, 22 April 2016.
- [43] Kingston, D., Stagge, J.H., Tallaksen, L.M. and Hannah, D (2015). "**Trends and Drivers of European-Scale Drought: Poster 1690**" *American Geophysical Union (AGU) Fall Meeting*, San Francisco, CA, 14 Dec 2015.
- [44] *Stagge, J.H. (2015). "**Projections of future droughts in Europe.**" *Open seminar on Drivers of Hydrometeorological Extremes in Europe*, University of Oslo, Norway, 16 Sep 2015.
- [45] Stagge, J.H., Tallaksen, L.M. and Rizzi, J (2015). "**Future meteorological drought: projections of regional climate models for Europe.**" *European Geosciences Union (EGU) General Assembly, Session HS2.4.3*, Vienna, Austria, 15 April 2015.
- [46] Rizzi, J., Brox Nilsen, I., Stagge, J.H., and Tallaksen, L.M. (2015). "**Concurrent trends in snow cover and air temperature in Norway: Poster 11598**" *European Geosciences Union (EGU) General Assembly, Session CR3.2*, Vienna, Austria, 14 April 2015.
- [47] Brox Nilsen, I., Stagge, J.H., and Tallaksen, L.M. (2015). "**A probabilistic method of calculating circulation-induced trends: Poster 9829**" *European Geosciences Union (EGU) General Assembly, Session HS2.4.2*, Vienna, Austria, 15 April 2015.
- [48] Bartholomeus, R., Stagge, J.H., Tallaksen, L.M., and Witte, J-P. (2015). "**Sensitivity of potential evaporation estimates to 100 years of climate variability: Poster 5597**" *European Geosciences Union (EGU) General Assembly, Session HS2.3.12*, Vienna, Austria, 16 April 2015.
- [49] Stagge, J.H., Kingston, D.G., Tallaksen, L.M., and Hannah, D.M. (2014). "**Climate drivers of regional drought in Europe.**" *6th Leonardo Conference 2014: HYPER Droughts*, Prague, Czech Republic, 13 Nov 2014.
- [50] Stagge, J.H., Tallaksen, L.M., Xu, C-Y., van Lanen, H.A.J. (2014). "**Standardized precipitation-evapotranspiration index (SPEI): Sensitivity to potential evapotranspiration model and parameters.**" *FRIEND-Water2014: 7th Global FRIEND-Water Conference*, Montpellier, France, 10 Oct 2014.
- [51] Hannah, D., Fleig, A.K., Kingston, D.G., Stagge, J.H., and Wilson, D. (2014). "**Connecting streamflow and atmospheric conditions in Europe: state-of-the-art review and future direction.**" *FRIEND-Water2014: 7th Global FRIEND-Water Conference*, Montpellier, France, 10 Oct 2014.
- [52] Stagge, J.H., Kohn, I., Tallaksen, L.M. and Stahl, K (2014). "**Modeling drought impact occurrence based on climatological drought indices for Europe: Poster 3277**" *American Geophysical Union (AGU) Fall Meeting*, San Francisco, CA, 15 Dec 2014.
- [53] Kohn, I., Stagge, J.H., Blauhut, V., Bachmair, S., Stahl, K., and Tallaksen, L.M. (2014). "**Impacts of European drought events: insights from an international impact report inventory: Poster 14336**" *European Geosciences Union (EGU) General Assembly, Session HS4.4*, Vienna, Austria, 30 April 2014.
- [54] Stagge, J.H., Dias, S., Rego, F., and Tallaksen, L.M. (2014). "**Modeling the effect of climatological drought on European wildfire extent: Poster 15745**" *European Geosciences Union (EGU) General Assembly, Session NH7.1*, Vienna, Austria, 28 April 2014.
- [55] Stagge, J.H., Kohn, I., Tallaksen, L.M. and Stahl, K (2014). "**Modeling drought impact occurrence based on climatological drought indices for four European countries.**" *European Geosciences Union (EGU) General Assembly, Session HS4.4*, Vienna, Austria, 30 April 2014.
- [56] Stagge, J.H. (2014). "**European-scale drought: Understanding spatial and temporal characteristics of drought and links with atmospheric circulation.**" *Stats + Climate Workshop*, Oslo, Norway, 11 November 2013.
- [57] Stagge, J.H., Tallaksen, L., Stahl, K., Gudmundsson, L. and A. van Loon (2013). "**Pan-European comparison of climatological drought indices, SPI and SPEI.**" *European Geosciences Union (EGU) General Assembly, Session HS4.4*, Vienna, Austria, 11 April 2013.

- [58] Kingston, D.G., Stagge, J.H., Tallaksen, L.M. and D.M. Hannah (2013). **"European-scale drought: Understanding links between atmospheric circulation and climatological drought indices."** *European Geosciences Union (EGU) General Assembly, Session HS2.5*, Vienna, Austria, 10 April 2013.
- [59] Stagge, J.H. and G.E. Moglen (2013). **"A nonparametric stochastic method for generating daily climate-adjusted streamflows."** *FRIEND Splinter Group, European Geosciences Union (EGU) General Assembly*, Vienna, Austria, 9 April 2013.
- [60] Stagge, J.H., Tallaksen, L., Gudmundsson, L., Stahl, K., and A. van Loon (2013). **"Pan-European comparison of climatological drought indices, SPI and SPEI."** *DROUGHT-R&SPI second General Assembly*, Milan, Italy, 22 February 2013.
- [61] Stagge, J.H. and L. Tallaksen (2012). **"A spatial and temporal comparison of drought indices (SPI/SPEI) in Europe."** *FRIEND Water Low Flow and Drought Group Mid-Term Meeting*, Payerbach-Reichenau, Austria, 3-5 October 2012.
- [62] Stagge, J.H. (2012). **"Markov chain model for generation of daily climate-adjusted streamflows."** *World Environmental & Water Resources Congress, ASCE/EWRI*, Albuquerque, NM
- [63] Stagge, J.H. (2011). **"Optimization of multi-reservoir operating rules using genetic algorithms."** *27th Annual Graduate Student Association Research Symposium*, Blacksburg, VA, Virginia Tech
- [64] Stagge, J.H. (2009). **"Concepts in stormwater management and Low Impact Development."** *Stormwater Pollution and Low Impact Development Conference*, Hartford, CT, University of Connecticut Environmental Law Society
- [65] Stagge, J.H. and Davis, A.P. (2006). **"Water quality benefits of grass swales in managing highway runoff."** *Water Environment Federation, WEFTEC*, Dallas, TX

PROFESSIONAL SERVICE

- Section Editor for Reproducibility, *Journal of Water Resources Planning and Management*, 2022 - present
- Associate Editor, *Journal of Water Resources Planning and Management*, 2020 - present
- Associate Editor, *Scientific Data*, 2020 - present
- Ad-hoc Reviewer, NSF Graduate Research Fellowships Program (GRFP), 2019
- Graduate Committee Member Yvette Onyango (MS, 2023), Madeline Scyphers (MS, 2023), Vilas Sarsani (PhD, 2023), Andrew Roseboro (MS, 2023), Collin Lester (MS, 2023), Jack DeChow (PhD, 2023), Theresia Yazbeck (PhD, 2022), Mackenzie Hudson (PhD, 2022), Ian Simpson (PhD, 2022), T.J. Erb (MS, 2020), Younghun Kang (PhD, 2020), Phillip Maldonado (MS, 2019), Simon Bartos (MGEL, 2019)
- Member, CEGE Inclusive Excellence committee
- Member, CEGE Grad Studies committee
- Member, Byrd Executive committee
- Member, College of Engineering Graduate Student Recruitment and Retention Committee
- Co-Convener, Tackling past hydrological cycles - from local and regional to global scales [CL1.06/GM8.12], 2018 European Geosciences Union (EGU) General Assembly, 4/8/2018
- Judge, Outstanding Student Poster and PICO (OSPP) Award, European Geosciences Union (EGU), General Assembly, 2018
- Judge, Student Poster Competition, 2016 Utah Spring Runoff Conference, 4/5/2016
- Chairperson, Session 6B: Drought Impacts, 6th EGU Leonardo Conference 2014: HYPER Droughts, 11/14/2014
- Euro-FRIEND: Low Flow and Large Scale Hydrology groups, Member

- European Geosciences Union (EGU), Member
- American Geophysical Union (AGU), Member
- Reviewer: Nature Climate Change • Water Resources Research (WRR) • Hydrology and Earth System Sciences (HESS) • Hydrology Research • Science of the Total Environment • Journal of American Water Resources Association (JAWRA) • Journal of Geophysical Research: Atmospheres • Stochastic Environmental Research and Risk Assessment (SERR) • Theoretical and Applied Climatology • International Journal of Climatology • Water SA • Bragantia • Hydrogeology Journal • Meteorology and Atmospheric Physics

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.*