ANNIKA HJELMSTAD

PhD Candidate

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EDUCATION

2020 - 2025 **Ph.D. Civil and Environmental Engineering** — **University of California Irvine**
Hydrology and Water Resources
08/2023: Advanced to candidacy

May 2020 **M.S. Civil, Environmental, and Sustainable Engineering** — **Arizona State University**
Hydrosystems Engineering
Master's thesis: Propagation of Radar Rainfall Uncertainties into Urban Flood Predictions: An Application in Phoenix, AZ

Dec 2018 **B.S.E. Civil Engineering (Environmental Engineering)** — **Arizona State University**
Minor: Mathematics
Honors thesis: Effect of Drought Policies on Los Angeles Water Demand

EXPERIENCE

9/2020 - present **Graduate Student Researcher** — **University of California Irvine**
- Research topic: Impact-based attribution of extreme events.
- Advisor: Dr. Amir AghaKouchak
- Applied for & received funding from multiple fellowships, see "Awards & Fellowships."

8/2019 - 8/2020 **Graduate Service Assistant** — **Arizona State University**
- Project: "Assessing the Accuracy of Multi-Radar/Multi-Sensor (MRMS) Precipitation Estimates in the Phoenix Metropolitan Area to Support Flash Flood Warning Operations."
  PIs: Giuseppe Mascaro (ASU), Larry Hopper Jr. and Paul Iñiguez (National Weather Service).
- Project "FloodAware: Community-Based Automated Information for Urban Flooding."
  PIs: Drs. Mikhail Chester, Giuseppe Mascaro, Margaret Garcia

4/2018 - 8/2020 **Research Aide, NEWT (Nanotechnology-Enabled Water Treatment) Center** — **Arizona State University**
- Laboratory work performing column tests for removal of arsenic and per-fluorinated chemicals.
- Sorption modeling in MATLAB and MINEQL+.
- PI: Dr. Paul Westerhoff.

5/2019 - 8/2019 **Graduate Teaching Assistant** — **Arizona State University**
- CEE 321: Structural Analysis and Design. Assisted students during recitations. Held office hours. Gave lecture on the direct stiffness method for beams.
  Instructor: Dr. Kristen Ward.
- CEE 341: Fluid Mechanics for Civil Engineers. Ran lab section, held office hours.
  Instructor: Naushita Sharma.
- CEE 212: Engineering Mechanics II-Dynamics. Assisted students in recitation.
  Instructor: Dr. Efthalia Chatziefstratiou.

1/2019 - 5/2019 **Grader** — **Arizona State University**
- CEE 441: Water Resources Engineering. Graded student homework and exams.
  Instructor: Dr. Giuseppe Mascaro.

1/2018 - 12/2018 **Undergraduate Research Assistant** — **Arizona State University**
- Worked on mathematical modeling project exploring factors affecting water demand for Los Angeles.
- Learned and used R for data analysis, multiple linear regression modeling, and spatial interpolation of data.
- Advisor: Dr. Margaret Garcia

1/2018 - 5/2018 **Engineering Tutor** — **Arizona State University**
- Assisted students in tutoring center with civil engineering coursework at all undergraduate levels in the Fulton Schools of Engineering Tutoring Centers.

8/2016 - 12/2018 **Undergraduate Teaching Assistant** — **Arizona State University**
- FSE 100 (Introduction to Engineering, 1 semester). Assisted instructor during labs.
- CEE 212 (Engineering Mechanics II-Dynamics, 4 semesters). Provided tutorial assistance to students during problem-solving recitations.
- CEE 213 (Introduction to Deformable Solids, 1 semester). Provided tutorial assistance to students during problem-solving recitations.

4/2018 - 8/2020 **Student Worker, Hayden Library** **Arizona State University**

- Clerical work, customer service duties.
- Assisted library patrons in finding research materials.

9/2015 - 12/2015 **Professional Tutor** **Dorrance Scholarship Programs**

- Courses: CHM 114 (General Chemistry for Engineers at ASU).
- Tutored a student one-on-one to prepare for exams and labs.

PEER-REVIEWED PUBLICATIONS

1. AghaKouchak, A., Huning, L. S., Sadegh, M., Qin, Y., Markonis, Y., Vahedifard, F., ... **Hjelmstad, A.**, ... & Kreibich, H. (2023). Toward impact-based monitoring of drought and its cascading hazards. Nature Reviews Earth & Environment, 4(8), 582-595.
2. **Hjelmstad, A.**, Shrestha, A., Garcia, M., & Mascaro, G. (2021). Propagation of radar rainfall uncertainties into urban pluvial flood modeling during the North American monsoon. Hydrological Sciences Journal, 66(15), 2232–2248.
3. Zeng, C., Atkinson, A., Sharma, N., Ashani, H., **Hjelmstad, A.**, Venkatesh, K., & Westerhoff, P. (2020). Removing per- and polyfluoroalkyl substances from groundwaters using activated carbon and ion exchange resin packed columns. AWWA Water Science, 2(1).

PRESENTATIONS AND CONFERENCE PAPERS

1. **Hjelmstad, A.**, & AghaKouchak, A. (2023, June). Attribution of Sea-Level Rise-Induced Roadway Flooding to Anthropogenic Emissions [Oral presentation and poster]. CUAHSI Biennial Colloquium, Tahoe City, California. (Presented)
2. **Hjelmstad, A.**, & AghaKouchak, A. (2022, December). Impact-Based Attribution of Heatwaves [Oral presentation]. American Geophysical Union Fall Meeting 2022, Session GC56A: Detection and Attribution of Anthropogenic Climate Change and Extreme Weather and Climate Events, Chicago, Illinois. (Presented)
3. **Hjelmstad, A.**, & AghaKouchak, A. (2021, December). Impact-Based Attribution of Extreme Events [Poster]. American Geophysical Union Fall Meeting 2021, Session GC022: Climate Litigation Relevant Research: Hazards, Impacts, and Attribution Science, Virtual. (Presented)
4. **Hjelmstad, A.**, Shrestha, A., Garcia, M., Hopper Jr., L., Iniguez, P., Mascaro, G. (2021, January). Propagation of Radar Rainfall Uncertainty into Urban Flood Predictions during the North American Monsoon. Poster presented at the meeting of the 101st American Meteorological Society Annual Meeting, 35th Conference on Hydrology, Virtual. (Presented)
5. Zeng, C., Sharma, N., **Hjelmstad, A.**, Venkatesh, K., & Westerhoff, P. (2019, August). Removal of perfluoroalkyl substances (PFASs) in groundwater using activated carbon and ion exchange resin: Column test [Oral Presentation]. American Chemical Society Fall 2019 National Meeting & Expo, San Diego, California.
6. **Hjelmstad, A.**, Garcia, M., Larson, K. (2019, May). Effect of Drought Policies on Los Angeles Water Demand [Poster]. ASCE EWRI World Environmental Resources Conference, Pittsburgh, PA. (Presented)
7. **Hjelmstad, A.**, Garcia, M., & Larson, K. (2019). Effect of Drought Policies on Los Angeles Water Demand. World Environmental and Water Resources Congress 2019 239. In World Environmental and Water Resources Congress 2019 (pp. 239–250). Posters & Presentations

SERVICE

8/2022 - present **Officer, CEE Graduate Association (CEEGA)** **University of California Irvine**

5/2022 - present **Student representative** **University of California Irvine**
CEE Graduate Affairs Committee

10/2021 - present **Student Advisory Board member** **University of California Irvine**
Center for Environmental Health Disparities Research

9/2021 - present **Co-created and co-lead UCI seminar Social Justice in CEE** **University of California Irvine**
Fall 2021, Spring 2023 quarters

1/2021 - present **Officer and founding member** **University of California Irvine**
Reframing CEE at UCI (CEER)

5/2021 - 12/2022 **Graduate student representative** **University of California Irvine**
Diversity, Equity, and Inclusion Committee

AWARDS & FELLOWSHIPS

5/2023	**EPA Environmental Justice Video Challenge for Students Phase II, 1st place** Submission title: Civic Bioremediation: Building a Network of Soil Practitioners	**US EPA**
7/2022	**EPA Environmental Justice Video Challenge for Students Phase I, 1st place** Submission title: Unearthing Lead: The Power of Historical Maps	**US EPA**
6/2022	**Awarded UCI-Engineering LANL Fellowship**	**University of California Irvine**
6/2021, 6/2023	**Awarded Ridge to Reef and UCI Graduate Division fellowship**	**University of California Irvine**
Spring 2020	**Awarded Provost PhD Fellowship**	**University of California Irvine**
5/2019	**3rd place, Poster Competition**	**ASCE-EWRI Conference**
12/2018	**Leadership and Service Award** Civil, Environmental, and Sustainable Engineering	**Arizona State University**
2015 - 2018	**Dean's list, Fulton Schools of Engineering** Awarded FA15, FA16, FA17, SP18, FA18 semesters.	**Arizona State University**

CERTIFICATIONS

3/2019 **Passed Fundamentals of Engineering (FE Civil) exam.**

TECHNICAL SKILLS

- Programming in MATLAB, R, and Python
- GIS technologies (ArcGIS, QGIS, GDAL)
- Git and GitHub
- Command line tools (incluiding zsh, bash, git, make)
- Basic lab work skills
- Microsoft Office (proficient in Excel, PowerPoint, Word)