

Yeonju Kim

 0009-0000-6678-036X  Email  yeonjukim  iamkimyeonju

EDUCATION

Doctoral degree program

Sep 2024 – Present

Department of Earth Sciences, University of Connecticut, Storrs, USA

Advisor: Prof. Wang, Lijing

Dissertation: Beaver-Induced Groundwater-Surface Water Interactions in Southern New England Wetlands: A Model-data Integration Approach

Master's degree program

Sep 2021 – Aug 2023

Department of Civil and Environmental Engineering, Seoul National University, Seoul, South Korea

Advisor: Prof. Kim, Young-Oh

Thesis: Analysis of Ensemble Streamflow Prediction Effect on Deriving Releases for Water Supply

Bachelor's degree program

Mar 2016 – Aug 2021

Department of Civil Engineering, Yeungnam University, Gyeongsan, South Korea

Advisor: Prof. Seo, Yongwon

TECHNICAL SKILLS

 **Programming Languages** R, Python

 **Version control** Git, GitHub

 **Publication Tool** LaTeX

 **Hydrologic Modeling** Amanzi-ATS, MODFLOW

 **Academic Tools** ENVI, ParaView

 **GIS** ArcGIS Pro, QGIS

 **Field Observation** SonTek FlowTracker2, HOBO data logger, Vertical temperature probe, SPY-POINT trail camera, Emlid RTK GNSS, YSI, Teledyne FLIR thermal camera

 **UAS Operation** FAA Part 107 Certified Remote Pilot (Small UAS)

 **Image processing** Pix4D, Agisoft Metashape

EXPERIENCE

USGS FLOW (Future Leaders in Observation of Water) Academy | *Internship*

Jun – Jul 2026

- Conducted drone-based thermal mapping of a 1,600-meter reach of the Black Warrior River, collecting aerial thermal imagery to analyze spatial water temperature distributions along the reach
- Processed and orthorectified UAV imagery using Pix4D and Agisoft Metashape to generate high-resolution RGB and thermal orthomosaics
- Collaborated with USGS scientists to translate water sensing research into operational tools, presenting findings at weekly report-outs, the FLOW Tech Showcase, and Water Observing Technology

Forum (WOTF)

- GitHub: iamkimyeonju/black-warrior-river-thermal-mapping

University of Seoul | *Researcher*

Sep 2023 – Aug 2024

- Addressed water allocation problems in South Korean river basins using optimization and agent-based modeling
- GitHub: iamkimyeonju/agent-based-model

Korea Hydro & Nuclear Power | *Internship*

Apr 2021 – Jun 2021

- Oversaw safety inspection and management of a pumped-storage dam as a member of the Power Plant Inspection Division

AWARDS AND HONORS

University of Connecticut

BeaverCon 2026 Scholarship, \$600

Sep 2026

PhD Fellowship, \$400

May 2026

Seoul National University

BrainKorea21 × 2

Sep 2022, Mar 2022

Merit-based Scholarship × 2

Sep 2022, Sep 2021

Construction Association of Korea

Merit-based Scholarship

Mar 2020

Yeungnam University

Scholarship for Academic Excellence × 5

Sep 2020, Mar 2020, Mar 2019, Mar 2017, Sep 2016

CONFERENCES

- [11] Sullivan, T., Lkhagvadorj, M., **Kim, Y.**, Mandal, T., West, D., Lu, Y., Evaluating Handheld Thermal Infrared Imaging as a Rapid Screening Tool for Groundwater Seepage Detection, *AGU 2026, San Francisco* [Poster]
- [10] Lkhagvadorj, M., **Kim, Y.**, Mandal, T., Sullivan, T., West, D., Redinger, B.J., Holmquist-Johnson, C., Lu, Y., High-Resolution UAS Infrared Mapping of Surface Water Temperature for River Monitoring: A Case Study of the Black Warrior River, Alabama, *AGU 2026, San Francisco* [Poster]
- [9] **Kim, Y.**, Wang, L., Briggs, M., Beaver-Induced Groundwater-Surface Water Interactions in the Southern New England Wetlands, *AGU 2026, San Francisco* [Poster]
- [8] **Kim, Y.**, Wang, L., Briggs, M., Argiro, A., Beaver-Induced Groundwater-Surface Water Interactions in Southern New England Wetlands, *BeaverCon 2026, Minnesota* [Poster]
- [7] Mandal, T., **Kim, Y.**, Sullivan, T., Lkhagvadorj, J., Lu, Y., West, D., Drone-Based Thermal Remote Sensing for Spatial Temperature Mapping of the Black Warrior River, *Water Observing Technology Forum (WOTF) 2026, Tuscaloosa* [Lightning Talk & Poster]
- [6] **Kim, Y.**, Wang, L., Briggs, M., Argiro, A., Beaver-Induced Groundwater-Surface Water Interactions

in Southern New England Wetlands: A Model-data Integration Approach, *American Geophysical Union, Fall Meeting 2025, New Orleans* [Poster]

[5] Seo, S.B., Jee, H.W., **Kim, Y.**, Kim, J., Enhancing Water Distribution Decisions with an Emphasis on Fairness Under Drought Condition, *Asia Oceania Geosciences Society (AOGS) 2024* [Oral]

[4] **Kim, Y.**, Kim, G.J., Kim, Y.O., Ensemble Streamflow Prediction in Korea: Need From Hydrologic Forecasting to Reservoir Operations, *World Environmental and Water Resources Congress (EWRI) 2023, Henderson* [Oral]

[3] **Kim, Y.**, Kim, Y.O., Lee, J., Optimal Reservoir Operations for Water Supply Under Forecast Uncertainty in Korea, *Asia Oceania Geosciences Society (AOGS) 2023, Singapore* [Poster]

[2] **Kim, Y.**, Kim, H., Lee, J., A Study on Improving the Water Circulation Management Index of the Water Environment Conservation Act, *Korea Water Resources Association (KWRA) 2022, Busan* [Poster]

[1] Kim, H., **Kim, Y.**, Kim, G.J., Kim, Y.O., Urban Water Cycle Analysis Using SWMM: A Case Study of Seoul National University Gwanak Campus, *Asia Oceania Geosciences Society (AOGS) 2022* [Oral]

RESEARCH PROJECT

Korea Environmental Industry & Technology Institute | *Researcher* Sep 2023 – Aug 2024

- Development of Scenario Neutral-based Drought Vulnerability Evaluation Technology for Multilateral Decision Making

Ministry of Environment, Republic of Korea | *Researcher* Apr 2023 – Aug 2023

- Developing a Severity-Based Emergency Response Protocol for Water Shortage using Linked Operations of Water Supply Facilities

Seoul National University | *Researcher* Dec 2022 – Mar 2023

- Study on Flood Countermeasures for a Case Study of Seoul National University Gwanak Campus

Ministry of Environment, Republic of Korea | *Researcher* Jun 2021 – Jun 2022

- Study on the Establishment of a Comprehensive Plan for Creating a Safe Space for Water

TEACHING

Earth's Dynamic Environment | *Teaching Assistant* Fall 2025, Spring 2025

- Origin and history of planet Earth, emphasizing how rock, air, water, and life interact at different scales to produce the Earth's crust, landforms, life systems, natural resources, catastrophes, and climatic regimes. Provides a scientific context for human-induced global change

Introduction to Groundwater Hydrology | *Teaching Assistant* Fall 2025

- Basic hydrologic principles with emphasis on groundwater flow and quality, geologic relationships, quantitative analysis and field methods. Occasional field trips.

Hydrology Textbook (in Korean) | *Contributor* *Hydrology*, ISBN: 9788941182108

- Contributed to the development of the third revised edition of the Hydrology textbook, including the addition and enhancement of new content.

WORKSHOP

USGS FLOW Academy | *Hydrologic Instrumentation Facility (HIF)*

Jun - Jul 2026

- Camera Calibration
- AI-based water sensing using PyTorch
- Edge Computing using Raspberry Pi and YOLOv5
- Microcontroller using Arduino, LoRa and Sensors

ATS Short Course | *Oak Ridge National Laboratory*

Sep 8-10th 2025

- Completed hands-on training in the Advanced Terrestrial Simulator (ATS), including model setup, execution, and solution of example hydrologic problems

Early Career Critical Zone Workshop | *HJ Andrews Experimental Forest*

March 11-14th, 2025

- Participated in interdisciplinary training on Critical Zone science and delivered a presentation on beaver dam hydrology

PUBLICATIONS

Journal Articles

- [3] **Kim, Y.**, Kim, J., Jee, H. W., Kim, J., Kim, T.-W., & Seo, S. B. (2026). Agent-Based Simulation of Equity-Oriented Water Reallocation under Drought: A Case Study of the Geum River Basin. *Journal of Hydrology: Regional Studies*, 68, 104035. <https://doi.org/10.1016/j.ejrh.2026.104035>
- [2] Kim, J., **Kim, Y.**, Park, D.H., Kim, T.-W., & Seo, S.B. (2024). Scenario Neutral Based Multilateral Decision-Making Framework for Drought Management. *Water Resources Management*, 1–17. <https://doi.org/10.1007/s11269-024-04024-2>
- [1] **Kim, Y.J.**, Kim, G.J., & Kim, Y.-O. (2023). Analysis of ensemble streamflow prediction effect on deriving dam releases for water supply. (in Korean) *Journal of Korea Water Resources Association*, 56(12), 969–980. <https://doi.org/10.3741/JKWRA.2023.56.12.969>

Data Publications

- [2] Mandal, T., Redinger, B., **Kim, Y.**, Lkhagvadorj, J., Sullivan, T., & Lu, Y. (2026). Skydio X10 VT300-L Processed Orthomosaic Imagery (RGB and Thermal) – Black Warrior River, Moundville Archaeological Park, Alabama – 2026-07-17. Zenodo. <https://doi.org/10.5281/zenodo.21171523>
- [1] Tucker, A.E., **Kim, Y.**, Wang, L., White, E.A., Rey, D.M., Jean, F.J., Pierce, S., & Briggs, M.A. (2026). Passive and Active Seismic Data Collected Near Beaver Pond Locations in Storrs, CT; Willington, CT; and Gunnison County, CO in 2025. U.S. Geological Survey data release. <https://doi.org/10.5066/P1LGT6KX>

ACADEMIC SERVICE

[1] Student Facilitator & Notetaker, Breakout Session 4: Scaling Non-contact, Camera-Based Monitoring into National Operations, *Water Observing Technology Forum (WOTF) 2026, Tuscaloosa*