

CURRICULUM VITAE

University of Idaho

NAME: Ryu, Jae H. Ph.D., P.E.

DATE: August 15, 2024

RANK OR TITLE: Professor

DEPARTMENT: Soil and Water Systems, College of Agricultural and Life Sciences

OFFICE LOCATION AND CAMPUS ZIP: Idaho Water Center

OFFICE PHONE: 332-4402

FAX : 332-4400

EMAIL : jryu@uidaho.edu

DATE OF FIRST EMPLOYMENT AT UI: January 11, 2010

DATE OF TENURE: Tenured

DATE OF PRESENT RANK OR TITLE: March 14, 2024

EDUCATION BEYOND HIGH SCHOOL:

Degrees:

Ph.D. in Civil and Environmental Engineering from University of Washington, Seattle, Washington, 2006.

M.S. in Civil and Environmental Engineering from University of Washington, Seattle, Washington, 2001.

M.S. in Agricultural Engineering from Konkuk University, Seoul, Korea, 1998.

B.S. in Agricultural Engineering from Konkuk University, Seoul, Korea, 1996.

Certificates and Licenses:

Professional Engineers, The State of Idaho, Registration No. 15009, since 2012.

Professional Engineers, The State of Nebraska, Registration No. E-12894, since 2009.

Professional Engineer, The State of Washington, Registration No. 41416, since 2004.

Engineer-in-Training (EIT), The State of Washington, Registration No. 26221, since 2003.

HONORS AND AWARDS

2017: Vandal Idea Project (VIP) Award, Idaho Drone League (iDrone)

2017: Brain Pool Research Fellow, National Research Foundation

2017: Lawrence Berkeley Lab Research Faculty Fellow/DOE, 2017

2015-2016: US Air Force Summer Faculty Fellow

2015: PAWEES Reviewer Award

2012: UI Young Investigator Award

EXPERIENCE:

Areas of Specialization:

Water resources planning and management, drought, climate change, hydrologic modeling, Autonomous Unmanned Vehicles, Unmanned Aerial Systems

Teaching, Extension and Research Appointments:

Professor, Soil and Water Systems, University of Idaho, March 2024-present

Associate Professor, Soil and Water Systems, University of Idaho, July 2017-2024

Associate Professor, Biological and Agricultural Engineering, University of Idaho, July 2016-July 2017

Research Faculty Fellow, Lawrence Berkeley Laboratory, Department of Energy, Sustainable Research Pathway with Michael Wehner and Christina Patricola, May 2017 – June 2017.

Faculty Fellow, US Air Force Academy, US Air Force Summer Faculty Program. Investigation of Unmanned Aerial System (UAS, aka drones) for drought monitoring with G. York, May 2015-August 2015 and May 2016 – August 2016

Assistant Professor, Biological and Agricultural Engineering, University of Idaho, Jan 2010-July 2016

Adjunct Faculty, School of Natural Resources, University of Nebraska-Lincoln, 2010-14

Postdoctoral Research Associate, School of Natural Resources, University of Nebraska-Lincoln. May 2006 – Dec 2009

Graduate Research Assistant at University of Washington, Seattle, Washington, Aug 2000 – May 2006

TEACHING ACCOMPLISHMENTS:

Courses Taught:

University of Idaho:

Water Resources Seminar, WR501, Fall 2018 - 2023

Hydrological Modeling and Applications, WR 504, Summer, 2019, 2021, 2023

System modeling for water resources management, SOIL 404, Summer 2018, 2020

Interdisciplinary method in water resources (co-teaching), WR 506, Fall 2016, Fall 2017

Hydrological Modeling and Applications, BAE 504, Summer, 2012

Students Advising:

Graduate Students of University of Idaho:

Water Resources Engineering (as major professor)

David Hoekema, Ph.D. Student, since Fall Semester 2011

Zarin Subah, Ph.D. student, since Fall Semester 2021

Laura McSherry, M.S. Student, since Fall Semester 2020

Graduate Committees Served (and Serving) on:

Emily Thomsen, Ph.D. Student, Dept of Geography, University of Idaho, since Fall 2019

Phinehas Lampman, Ph.D Student, Department of Natural Resources and Society, CNR, since Fall 2022

Students Advised:

Water Resources Engineering

Riveraine Walters, Ph.D. Completed in Spring 2022

Milad Vahidi, M.S. Student, since Spring Semester 2021, transferred to Virginia Tech

Roxanne Cariadi-Kimble, M.S. Completed in 2017

Jung Jin Kim, Ph.D. Completed in 2017

Logan Miller, M.S. Completed in 2017

Mohammad Sohrabi, Ph.D. Completed in 2017

Jacob Wolf, M.S. Department of Geography, University of Idaho, Completed in 2012

Mark Cecchini Beaver, College of Law, University of Idaho, Completed in 2011

Post-Doctoral Research Associate:

Anil Acharya, Ph.D., 2011-2012, currently Associate Professor at Alabama A&M University

Jinwon Seo, Ph.D., November 2011- October 2012, now at the Shoshone Reservation

Course Developed:

Hydrological modeling and applications, WR519, 2 credits

System modeling for water resources management, WR518, 2 credits

Professional Development (PD) credit for STEM teachers, EDCI 505-35: IDRONE Hands-on STEM,

https://marketplace.uidaho.edu/C20272_ustores/web/product_detail.jsp?PRODUCTID=4499

Workshops/Camp:

iDrone 4-H for the Washington State Teen Association Convention, Pullman, Washington, June 26, 2024

iDrone 4-H for the Idaho 4-H State Teen Association Convention (STAC), Moscow, Idaho, June 25, 2024

iDrone i-STEM for K-12 teachers, June 11-14, College of Southern Idaho (CSI), 2024

IDRONE Summer Camp, June 20 – 23, 2023. About 100 people across Idaho participated in the event.

IDRONE NASA Watershed Camp, June 12 – 15, 2023. The event was held in Sandpoint, ID to

promote STEM pipelines in rural Idaho.

Interstate Drone League (iDrone) Online for KSEA communities, June 2 – 4, 2022. About 60 students across the states participated in iDrone KSEA 2022.

IDRONE AIS July 18 – 21, 2022. The event took place in Blanding, UT to benefit STEM-ready American Indians. About 100 students participated in IDRONE AIS.

IDRONE ASEE, June 26, 2022. Targeted to K-12 educators attending ASEE annual conference held in Minneapolis, MN, June 26-29, 2022.

Interstate Drone League (iDrone) Online for KSEA communities, June 2 – 4, 2022. About 60 students across the states participated in iDrone KSEA 2022.

Idaho Drone League (iDrone) Online, March 31 – April 2, 2022. About 85 people joined this event and UI President Green gave an opening remark.

Idaho Drone League (iDrone) Online, April 2-3, 2021. Note that more than 80 people joined this event and UI President Green gave an opening remark.

Interstate Drone League (iDrone) sponsored by KSEA to promote STEM workforce, November 14, 2020 (100 students joined Zoom virtual meeting platform). Based on this experience, I will continue to host another iDrone online camp working with Idaho STEM Action Center and/or KSEA to benefit more American Youth in years to come.

Idaho Drone League (iDrone) for STEM education, online camp, October 10, 2020 (President Green attended and gave an opening remark)

Idaho Drone League (iDrone) for STEM education, 2-day workshops, 2017-19
iDrone-Pocatello (March 19-20, 2019), iDrone-Moscow (March 26-27, 2019), iDrone-Boise (March 29-30, 2019), iDrone-4H, Moscow (June 27-28, 2018). iDrone Summer Camp-Boise (June 6-7, 2019)

SCHOLARSHIP ACCOMPLISHMENTS:

Publications:

In Progress: *,# Indicates a graduate student and postdoc co-author, respectively

Refereed Journals:

Ziegler Hannah and Ryu, J. H. 2024. “Drone implementation in Earth Science disciplines”, The Science Teacher (under review)

Ryu, J., Baek, J., Lee, J., Heo, J., Subah, Z. 2024 “Autonomous and scalable hydroponics system for deep space farming, Life Sciences in Space Research (under review)

Hoekema, D. and Ryu, J. 2023 “Impacts of drought and pluvial events on aquifer levels in the Big Lost River Basin in a changing climate”, Journal of the American Water Resources Association, (in preparation)

Refereed Journals Published: *# Indicates a graduate student and postdoc co-author, respectively

1. Jeongwook Heo, Jeonghyun Baek, Zarin Subah, and Jae Hyeon Ryu. 2024. “[Evaluating crop growth between hydroponics and aquaponics with different light inputs](https://doi.org/10.3389/fhort.2024.1413224)”, Frontiers in Horticulture, 3, July 17, 2024 <https://doi.org/10.3389/fhort.2024.1413224>,

2. Subah, J, Bala, S.K., and Ryu, J.H. 2024. "[Impacts of Urban Flooding on Gender in a Slum of Bangladesh](#)", Social Sciences 13, 248. This article was feature in Open Association of Research Society at: <https://associationofresearch.org/social-sciences-vol-13-pages-248-impacts-of-urban-flooding-on-gender-in-a-slum-of-bangladesh/>
3. Yoon, J. and Ryu, J.H. 2024. "[STEM Talk: Cultivating students' STEM affinity and careers](#)", Contemporary Mathematics and Science Education, 2024, 5(1)
4. Subah, Zarin and Ryu, J.H. 2024. "[Impact of DDT on women's health in Bangladesh: escalating breast cancer risk and disturbing menstrual cycle](#)", Frontier in Public Health, 12:1309499, doi: 10.3389/fpubh.2024.1309499
5. Ryu, J.H., Subah, Zarin, and Baek, Jeonghyun. 2023. "[An application of system dynamics to characterize tomato production in an autonomous controlled environment](#)" Horticulturae 2023, 9, 1318. <https://doi.org/10.3390/horticulturae9121318>
6. Subah, Z., Bala, S.K., Ryu, J.H. 2023. "[Assessing urban flooding extent of the Baunia Khal Watershed in Dhaka, Bangladesh](#)", Water 15(6), 1183: <https://doi.org/10.3390/w15061183>
7. Shin, S.S., Park, S.D., Sim, Y.J., and Ryu, J. 2023. "[Hydraulic conditions of incipient rill by raindrop-induced overland flow on steep slopes of sandy soil](#)", Water, 15, 502
8. Ryu, J., 2022. "[Prototyping a low-cost open-source autonomous unmanned surface vehicle for real-time water quality monitoring and visualization](#)", HardwareX, Volume 12, October 2022, e00369
9. Ryu, J., 2022 "[Low-cost Live Insect Scouting Drone: iDrone Bee](#)", Journal of Insect Science, 22(4):5, 1-6, 2022
10. Ryu, J., 2022 "[UAS-based Real-Time Water Quality Monitoring, Sampling, and Visualization Platform \(UASWQP\)](#)", Hardware X, 11, E00277
11. Ryu, J., *Walters, R., Ziegler, H. 2021 "[Interstate Drone League \(iDrone\) to promote hands-on remote STEM learning using cloud-based virtual meeting platforms in the global pandemic \(COVID-19\)](#)", Journal of STEM Education and Innovative Research, 22(4), 33-39
12. Walters, R., Ryu, J., Torres-Salinas, R., and Ryu, J. 2020. "[Beyond the thalweg: Toward a Buddhist framework for hydrosocial research](#)", Geoforum 117: 296-299
13. Kim, J. and Ryu, J.H. 2020 "[Decision-Making of LID-BMPs for Adaptive Water Management at the Boise River Watershed in a Changing Global Environment](#)", Water, 12, 2436; doi:10.3390/w12092436
14. Ryu, J, LaPagalia, K., Walters, R. 2020. "[Idaho Drone League \(iDrone\) to Stimulate STEM Workforce](#)", Journal of STEM Education: Innovations and Research, 21 (2), 58-64.
15. Neufeld, J., Ryu, J. Barbour, J. 2019. "[Development of UAV-based insect scouting method](#)", Journal of the National Association of County Agricultural Agents (NACAA), 12(2), 2019. ISSN 2158-9429.
16. Ryu, J. and Kim, JJ. 2019. "[A study on climate-driven flash flood risks in the Boise River Watershed, Idaho](#)", Water 11, 1039; doi:10.3390/w11051039, 2019. Impact Factor: 2.250 (this paper was selected for inclusion in a special issue- Extreme Floods and Droughts under Future Climate Scenarios, MDPI Books)
17. Jungjin Kim., Ryu, J. H., 2019. "[Quantifying the performances of the semi-distributed hydrologic model in Parallel computing-A Case Study](#)", Water, 11 (823).
18. Kim, J. and Ryu, J., 2019. "[Modeling hydrological and environmental consequences of climate change and urbanization in the Boise River Watershed, Idaho](#)", Journal of the American Water Resources Association, 55(1).

19. Ryu, J.H., *Jungjin Kim., Kyungdo Lee., 2019. "[Development of hydroclimate drought index \(HCIDI\) for effective local drought analysis in Korea.](#)", Journal of Korean Society of Agricultural Engineers, 61(1), 2019. ISSN: 2093-7709.
20. *Hoekema, D., Ryu, J. H., 2016. "[Characterizing Drought in Irrigated Agricultural Systems: The Surface Water Delivery Index \(SWDI\)](#)", Journal of the American Water Resources Association, 52(3), 737-755.
21. *Kim, J.J., Ryu, J.H. 2016. "[A Heuristic Gap Filling Method for Daily Precipitation Series](#)", Water Resources Management, 30(7), 2275-2294.
22. *Sohrabi, M., Ryu, J. H., Abatzoglou, J., Tracy, J., 2016. "[Closure to Discussion: Development of Soil Moisture Drought Index \(SODI\) to Characterize Hydrological Drought](#)" by Mohammad M. Sohrabi, Jae H. Ryu, John Abatzoglou and John Tracy, DOI:10.1061/(ASCE)HE.1943-5584.0001213, 21(4), 07016002-1.
23. *Sohrabi, M., Ryu, J. H., Abatzoglou, J., Tracy, J., 2015. "[Development of Soil Moisture Drought Index \(SODI\) to Characterize Hydrological Drought](#)", Journal of Hydrological Engineering, 20(11), 04015025(1-15).
24. *Kim, J.J., Ryu, J. H. 2015. "[Quantifying a threshold of missing values for gap filling processes in daily precipitation series](#)", Water Resources Management, 29(11), 4173-4184.
25. Ryu, J. H., *Sohrabi, M., #Acharya, A. 2014. "[Toward mapping gridded drought indices to evaluate local drought in a rapidly changing global environment](#)", Water Resources Management, 28(11), 3859-3869.
26. *Kim, J. J., Ryu, J. H., 2014. "[A threshold of basin discretization levels for HSPF simulations with NEXRAD inputs](#)", Journal of Hydrological Engineering, 19(7), 1401-1412.
27. #Acharya A., Ryu, J. H. 2014. "[Simple method for streamflow disaggregation](#)", Journal of Hydrological Engineering, 19(3), 509-519.
28. Ryu, J. H., Kim, J.J.. 2014. "Runoff and nonpoint sources control using LID for the Boise River Watershed, Idaho", Advances in Flowing Waters, 12(1), 1-11.
29. *Sohrabi, M., Ryu, J. H., Alijani, B., 2013. "[Spatial and temporal analysis of climatic extremes over the mountainous region of Iran](#)", The International Journal of Climate Change: Impacts and Responses, 4(4), 19-37.
30. *Hoekema, D., Ryu, J. H., 2013. "[Evaluating Economic Impacts of Water Conservation and Hydrological Forecasts in the Salmon Tract, Southern Idaho](#)", Transaction of the ASABE, 56(4), 1-12.
31. *Sohrabi, M., Ryu, J.H., Abatzoglou, J., Tracy, J. 2013. "[Climate extreme and its linkage to regional drought over Idaho, USA](#)", Natural Hazards, 65:653-681.
32. Ryu, J.H., Contor, B., Johnson, G., Allen, R., Tracy, J. 2012. "[System Dynamics to Sustainable Water Resources Management in the Eastern Snake Plain Aquifer under Water Supply Uncertainty](#)", Journal of the American Water Resources Association, 48(6), 1204-1220.
33. Smith, M.B., Koren, V., Zhang, Z., Zhang, Y., Reed, S.M., Cui, Z., Moreda, F., Cosgrove, B.A., Mizukami, N., Anderson, E.A., DMIP 2 Participants (Ryu, J.H.), 2012. "[Results of the DMIP 2 Oklahoma experiments](#)", Journal of Hydrology, 418-419, 17-48.
34. Ryu, J.H., Jeong, S., Park, S.K., Lee, J., Han, K., 2011. "[The impacts of climate change on the local hydrology and drought \(low flow\) frequency](#)", Hydrological Processes, 25(22), 3437-3447.
35. Ryu, J.H., Svoboda, M.D., Lenters, J.D., Tadesse, T., Knutson, C. 2010. "[Finding Potential Extents for ENSO-Driven Hydrologic Drought Forecasts in the United States](#)", Climatic Change, 101(3),575-597.

Impact Factor: 4.134

36. Ryu, J.H., 2009. "The application of HSPF to Distributed Model Intercomparison Project (DMIP): Case Study", *ASCE Journal of Hydrologic Engineering*, 14(8), 847-857.
37. Ryu, J.H., Palmer, R.N., Jeong, S., Lee, J., Kim, Y.-O., 2009. "Sustainable Water Resources Management in the Conflict Resolution Framework", *Journal of the American Water Resources Association*, 45(2), 485-499.
38. Ryu, J.H., Palmer, R.N., Wiley, M.W., Jeong, S., 2009. "Mid-Range Streamflow Forecasts Based on Climate Modeling-Statistical Correction and Evaluation", *Journal of the American Water Resources Association*, 45(2),355-368.
39. Jeong, S., Lee, J., Ryu, J.H., Palmer, R.N., 2004. "An Application and Development of Drought Management System for Guem River Basin", *Journal of the Korean Society of Civil Engineers*, 24(3B), 201-208, 2004.
40. Jeong, S., Ryu, J.H., Lee, J., Palmer, R.N., 2003. "Development of Shared Vision Model for Optimal Water Supply for Kum River Basin", *Journal of the Korean Society of Civil Engineers*, 23(3B), 191-199, 2003.

Refereed Conference Proceedings and Presentations: *,# Indicates a graduate student and postdoc co-author, respectively. Note that a couple of conference presentations have been cancelled due to the global pandemic (COVID-19) for YR 2020.

- 1 Ryu, J., Sekaquaptewa, K. and Ryu, J. (2023). "IDRONE AIS: Drone Workforce Development for Native American Youth Education and Student Success in Rural Settings", *The National Forum to Advance Rural Education*, Chattanooga Marriott, Chattanooga, TN, November 16 – 17, 2023
- 2 Wargo, E., Kim, J. and Ryu, J. (2023). "Taking STEM Career and College Pathways to New Heights.", *The National Forum to Advance Rural Education*, Chattanooga Marriott, Chattanooga, TN, November 16 – 17, 2023.
- 3 (Invited) Ryu, J.H., 2023. "Applications of autonomous unmanned vehicles (AUVs) to advance real-time monitoring and visualization", 2023 National Transportation in Indian Country Conference (NTICC), Dena'Ina Center, Anchorage, AK, September 24 – 28, 2023.
- 4 Ziegler, H. and Ryu, J. 2023. "Designing drone-based STEM instruction for formal spaces", *UKC 2023: Discovery, Innovation and Dissemination for Transformative Impact*, Hyatt Regency Hotel at DFW, Texas, August 3 – 5, 2023.
- 5 Ryu, J.H. 2023. "Applications of Autonomous Vehicles to Advance Real-Time Water Quality Monitoring and Visualization", 33rd Annual Idaho Water Quality Workshop, February 1&2, 2023, Jordan Ballroom, Boise State University
- 6 Ryu, J.H. 2022. "Toward real-time water quality monitoring and visualization using autonomous unmanned vehicles", A presentation at the American Water Resources Association Annual Conference, Hyatt Regency, Seattle, WA, November 7 – 9, 2022
- 7 Wargo, E. Simmons, J. Kim, J.H., Ryu & Hammer, T. 2022. "What's Changed and What has Stayed the Same? Appreciating Rural". A presentation at the National Rural Education Association Annual Conference, Hyatt Regency, Green Bay, WI, October 20 – 21, 2022.
- 8 Wargo, E., Ryu, J.H., & Kim, J. 2022. "Online and Hands-on Applied STEM Learning: Towards a Place-conscious Approach". A presentation at the National Rural Education Association Annual Conference, Hyatt Regency, Green Bay, WI, October 20 – 21, 2022.
- 9 Ryu, J. 2022. "Toward real-time water quality monitoring using autonomous unmanned surface vehicle", *US-Korea Conference*, Hyatt Regency Crystal City, Arlington, VA, August 17 – 20, 2022

- 10 Heo, J., J., Baek, J., Lee, Sor, Park, K., Kim, M., and Ryu, J. 2022. "Growth comparison of several plants in aquaponics and conventional hydroponics system", US-Korea Conference, Hyatt Regency Crystal City, Arlington, VA, August 17 – 20, 2022
- 11 Ryu, J., Stuzman, E., and Ryu, J. 2021. "Analyzing Boise River Data Collected by a Unmanned Aircraft System", UKC2021: Pursuing Global Health and Sustainability, US-Korea Conference, Hyatt Regency Orange County, Garden Grove, California, December 15-18, 2021
- 12 Ryu, J., Baek, J., Lee, J., Ziegler, H., and Ryu, J. 2021. "Scalable Food Production in the Space Farming System", UKC2021: Pursuing Global Health and Sustainability, US-Korea Conference, Hyatt Regency Orange County, Garden Grove, California, December 15-18, 2021
- 13 Heo, J., Baek, J., Yang, O., Kim, B., Shin, H., and Ryu, J. 2021. "A comparison of Seedling Growth Between Aquaponics and Hydroponics System", UKC2021: Pursuing Global Health and Sustainability, US-Korea Conference, Hyatt Regency Orange County, Garden Grove, California, December 15-18, 2021
- 14 Ryu, J. and Ziegler, H. 2021. "Toward Hands-on Online STEM Education and Workforce Development", UKC2021: Pursuing Global Health and Sustainability, US-Korea Conference, Hyatt Regency Orange County, Garden Grove, California, December 15-18, 2021
- 15 Ryu, J.H., 2019. "Idaho Drone League (iDrone) and Water Resources Research Applications, AWRA Annual Meeting, American Water Resources Association, Salt Lake City, November 2-5
- 16 Ryu, J.H., 2019. "Development of low-cost autonomous air quality sensing for public health", UKC 2019 Annual Meeting, Chicago, August 14-17
- 17 Ryu, J.H., 2018. "Promoting K-12 education in water resources using unmanned aerial system: Idaho Drone League (iDrone 2018), AWRA Annual Meeting, American Water Resources Association, Baltimore, November 4-8
- 18 Ryu, J.H., 2018. "UAS applications to advance drought monitoring and water management", UKC 2018 Annual Meeting, New York City, August 1-4
- 19 Ryu, J.H., 2018. "National research and development initiative to mitigate drought impacts in a changing global environment", National Assembly, Seoul, Korea, May 11
- 20 Ryu, J. H., Kyungdo Lee., Chanwon Park., Sangil Na., 2017. "Agricultural water management and farmland inundation forecast service using Unmanned Aerial Vehicle (UAV)", KSEA 2017 Fall Meeting, October 15, Jeju Island, South Korea
- 21 (Invited) Ryu, J. H., and Kyungdo Lee., 2017. "Applications of Unmanned Aircraft System (UAS) for Western Water Research and Environmental Studies", UKC 2017 Annual Meeting, August 9-13, 2017, Washington DC., USA
- 22 Ryu, J. H., 2017. "Advancing drought monitoring using a small Unmanned Aircraft System (sUAS) for irrigated agriculture: Challenge and Opportunities", 2017 World Environmental and Water Resources Congress, Many 21-25, 2017, Sacramento, California.
- 23 (Invited) Ryu, J. H., Russ Quall, Phil Watson, Jerry Long, Robert Heinse, and John Koudelka., 2017. "Integrated system-wide climate-food-water nexus (ICFEWS) modeling in a changing environment: challenges, alternatives, and policy making", Tri-State INFEWS workshop, April 10, 2017, Coeur d'Alene, Idaho
- 24 Ryu, J. H., 2017. "Advancing drought monitoring using a small Unmanned Aerial System (UAS) for irrigated agriculture", Climate Impacts to Water Skamania Lodge, Northwest Water Conference 2017, January 27, Stevenson, Washington
- 25 Ryu, J. H., 2017. "Advancing drought monitoring and outlook to promote adaptation and community resilience in a changing climate", AMS 2017 Annual Conference, January 23, Seattle, Washington

- 26 Ryu, J. H., 2016 and *Jungjin Kim. “Advancing drought monitoring using a small unmanned aerial system for conjunctive water management in a changing climate”, AGU 2016 Fall Meeting, December 12-16, San Francisco, California
- 27 Ryu, J. H., 2016. “Advancing drought monitoring and outlook for sustainable water resources management in a changing climate”, AWRA 2016 Annual Conference, November 13-17, 2016, Orlando, Florida
- 28 Ryu, J. H., 2015. “Climate-Driven Drought Outlooks in the Pacific Northwest and Water Resources Management Challenges and Opportunities, Pacific Northwest Clean Water Association (PNCWA), Annual Conference & Exhibition, October 25-28, Boise Centre, Boise, ID
- 29 Ryu, J.H., 2015, “Water Resources Planning and Management to Mitigate Drought in a Changing Climate: Monitoring, Management, and Outlooks”, The 1st Climate Change Symposium: Adaptation and Mitigation, Hilton Garden Inn, May 3-5, 2015, Chicago, Illinois
- 30 Ryu, J.H., 2014, “Hydro and Environmental Impact Mitigation for the Boise River Watershed, Idaho: Modeling and Alternatives Using LID” 2014 AWRA Annual Conference, Sheraton Premiere Hotel, November 3-6, Tysons Corner, Virginia
- 31 Ryu, J.H., 2014, “Water Resources Planning and Management to Mitigate Drought in a Changing Climate: Monitoring, Management, and Outlooks” 2014 ASABE/CSBE/SCGAB Annual International Meeting, July 13-16, Montreal, Quebec, Canada
- 32 Ryu, J.H., *Kim, J.J., 2014, “Hydrologic modeling and pollution control using LID to mitigate impacts of urbanization,” 2014 AWRA Summer Specialty Conference, John Ascuaga’s Nugget, June 30 – July 2, Reno, Nevada
- 33 *Kim, J.J., Ryu, J.H., 2014, “Analysis of runoff characteristic and nonpoint source pollution for land use change at Kyoung-An stream watershed, South Korea,” 2014 AWRA Summer Specialty Conference, John Ascuaga’s Nugget, June 30 – July 2, Reno, Nevada
- 34 *Hoekema, D., Kim, J.J., Ryu, J.H., 2013, “Evaluating Drought in Managed System: Matters of Water Supply and Demand”, 2013 Annual Water Resources Conference, American Water Resources Association, Red Lion Hotel, November 4-7, Portland, Oregon
- 35 Ryu, J.H., 2013, “Toward Visualizing Big Drought Data for Data-Intensive Decision Making”, ASCE World Environmental and Water Resources Congress, May 19-23, Cincinnati, Ohio
- 36 Ryu, J.H., 2013, “Decision Support Tools for Conflict resolution and Sustainable Water Resources Planning and Management: After Pete’s approach”, ASCE World Environmental and Water Resources Congress, May 19-23, Cincinnati, Ohio
- 37 *Kim, Jungjin, M, Ryu, J.H., 2013, “Mapping Drought Vulnerability Driven by Future Climate Change and Variability in South Korea”, ASCE World Environmental and Water Resources Congress, May 19-23, Cincinnati, Ohio
- 38 *Sohrabi, M, Ryu, J.H., 2013, “Development of Multi Scalar-Soil Moisture Drought Index”, ASCE World Environmental and Water Resources Congress, May 19-23, Cincinnati, Ohio
- 39 *Kim, J.J., Hoekema, D., Ryu, J.H., 2013, “Validating Local Droughts to Enhance Climate-Resilient Agricultural Water Management in Idaho”, 2013 NSF EPSCoR Tri-State Meeting, University of Nevada at Las Vegas, March 27-28, Las Vegas, Nevada
- 40 Ryu, J.H., 2012, “Decision Support Tools for Drought Monitoring Management and Forecasting in the State of Idaho”, 2012 Annual Water Resources Conference, American Water Resources Association, Hyatt Regency Jacksonville Riverfront, November 12-15, Jacksonville, Florida

- 41 Ryu, J.H., 2012, "Toward Mapping Gridded Drought Indices to Mitigate Drought Impacts in a Rapid Changing Global Environment", 3rd Annual Pacific Northwest Climate Science Conference, October 1-2, Boise Centre, Boise, Idaho
- 42 Ryu, J.H., 2012, "Development of Sustainable Water Resources System Against Uncertain Future Climate and Drought for the Seomjin River System, Korea", 18th Congress of the Asia and Pacific Division of the International Association for Hydro-Environment engineering and Research , August 19-23, Jeju Island, Korea
- 43 *Hoekema, D., Ryu, J.H., 2012, "Using Satellite Imagery to Estimate Aquifer Recharge from Irrigated Agriculture", ESRI International User Conference, July 23-27, San Diego, California
- 44 Ryu, J.H., 2012, "A Decision Support Systems to Mitigate Water Conflicts amongst Agriculture, Hydro, and Municipal Water Users", Universities Council on Water Resources, July 17-19, Santa Fe, New Mexico
- 45 *Sohrabi, M., Ryu, J., 2012, "Spatial and Temporal Analysis of Climatic Extremes in the Mountainous Regions of Iran", International Conference on Climate Change: Impacts and Responses, University of Washington, July 12-13, Seattle, Washington
- 46 *Hoekema, D., Ryu, J.H., 2012, "Calculator: Optimized Surface Water Allocation in Drought (OSWAD)", 93rd Annual Meeting of the AAAS Pacific Division, Boise Convention Center, June 24-27, Boise, Idaho
- 47 #Acharya, A., Ryu, J.H., 2012, "Impacts of Climate Change on Hydrologic Drought in an Agriculture-dominated Watershed in the United States", ASCE World Environmental and Water Resources Congress, May 20-24, Albuquerque, New Mexico
- 48 *Hoekema, D., Ryu, J.H., 2012, "Investigating Economic Impacts of Agricultural Drought Using System Dynamics", ASCE World Environmental and Water Resources Congress, May 20-24, Albuquerque, New Mexico
- 49 Ryu, J.H., 2012, "Drought Monitoring, Forecasting, and Management in the 21st Century: Issues and Challenges", ASCE World Environmental and Water Resources Congress, May 20-24, Albuquerque, New Mexico
- 50 *Sohrabi, M., Ryu, J., 2011, "Investigating drought using extreme climatic indices over Idaho, USA", AGU Fall meeting, Dec 5-9, San Francisco, California
- 51 Ryu, J.H., Contor, B., Johnson, G., Allen, R., Tracy, J., 2011, "Application of System Dynamics to assess climate impacts on the Eastern Snake Plain Aquifer", Pacific Northwest Climate Science conference, September 12-14, Seattle, Washington
- 52 Ryu, J.H., Contor, B., Johnson, G., Allen, R., Tracy, J., 2011, "Application of System Dynamics to Adaptive Management for the Eastern Snake Plain Aquifer", ASCE World Environmental and Water Resources Congress, May 22-26, Palm Springs, California
- 53 Ryu, J.H., Contor, B., Johnson, G., Allen, R., 2011, "System Dynamics for Climate-Driven Socioeconomic Water Issues", AWRA Summer Specialty Conference-Managing Climate Change Impacts on Water Resources: Adaptation Issues, Options, and Strategies, April 18-20, Sheraton Inner Harbor Hotel, Baltimore, Maryland
- 54 Ryu, J.H., Contor, B., Wiley, A., Johnson, G., Allen, R., 2010, "Climate-Driven Water Budget Analysis in the Eastern Snake Plain Aquifer", AGU Fall meeting, Dec 13-17, San Francisco, California
- 55 Ryu, J.H., Park, S.K., Lee, K., 2010, "A Framework of hydroclimate modeling and decision support tools for sustainable water resources planning in a changing climate", 2010 ASCE World Environmental and Water Resources Congress, May 16-20, Providence, Rhode Island

- 56 Jeong, S., *Rubio, C.J., Ryu, J.H., Oh, K., Park, M.J., 2010, "Hydrologic Drought in the Upper Nakdong River Basin", 2010 ASCE World Environmental and Water Resources Congress, May 16-20, Providence, Rhode Island
- 57 Ryu, J.H., 2010, "Challenges and Issues in Collaborative Climate Change Research", the 2nd Annual Tri State Consortium Meeting, April 6-8, Hyatt Regency Lake Tahoe, Incline Village, Nevada
- 58 Ryu, J.H., Di Luzio, M., 2009, "Challenges and lessons learned from hydrologic simulations using HSPF and SWAT with NEXRAD rainfall inputs", 2009 AWRA Annual Conference, November 9-12, Seattle, Washington
- 59 Ryu et al, 2009, "Application of SWAT to climate-driven low flow (drought) frequency analysis", 2009 5th International SWAT Conference, August 3-7, Boulder, Colorado
- 60 Ryu, J.H., Park, S.K., 2009, "A framework of sustainable water resources management in a changing climate", The Commission for Water Sustainability International Geographical Union (IGU), July 27-31, Torino, Italy
- 61 Ryu, J.H., Svoboda, M., Okalebo, J. 2009, "Visualizing hydrologic drought information on the web using state-of-the-art geospatial mapping technology", ASCE World Environmental and Water Resources Congress, May 17-21, Kansas City, Missouri
- 62 Tadesse, T., Wardlow, B., and Ryu, J.H., 2009, "Discovering the spatial and temporal relationships between vegetation condition and climate in monitoring drought", NOAA Climate Prediction Applications Science Workshop, March 23-25, Norman, Oklahoma
- 63 Ryu, J.H., 2008, "Snowmelt and Rainfall-Runoff Modeling Using NEXRAD Precipitation Input", AGU Fall meeting, Dec 15-19, San Francisco, California
- 64 Ryu, J.H., Svoboda, M., Tadesse, T., Knutson, C., 2008. "Climate Impacts on Hydrology in the Central United States: Application to Forecast Capability in the Republican River Basin", Proceeding of World Environmental and Water Resources Congress 2008, ASCE May 12-16, Honolulu, Hawaii
- 65 Ryu, J.H., 2008. "Automatic Calibration of HSPF model with NEXRAD rainfall data for Distributed Model Intercomparison Project (DMIP)"-Abstract Only, EOS Trans. AGU, 89(23), Joint Assembly, May 27-30, Fort Lauderdale, Florida
- 66 Tadesse, T., Wardlow, B., Ryu, J.H., 2008. "Identifying time-lag relationships between vegetation condition and climate to produce Vegetation Outlook maps and monitor drought", Proceeding of the 88th American Meteorological Society Annual Meeting, New Orleans, LA
- 67 Ryu, J.H., Svoboda, M.D., 2007. "A GIS Framework for Climate Change Studies in Nebraska", Proceedings of the 7th International IWA Symposium on Systems Analysis and Integrated Assessment in Water Management, IWA, May 7-9, Washington, D.C. (<http://www.watermatex2007.org>)
- 68 Ryu, J.H., Svoboda, M.D., 2007. "El Niño-Southern Oscillation (ENSO) and Hydrologic Drought in the United States", 2007 Nebraska GIS Symposium, April 3-5, Qwest Center, Omaha, Nebraska (<http://www.symposium2007.org>)
- 69 Ryu, J.H., Palmer, R.N., Willey, M.W., 2006. "Mid-Range Streamflow Prediction Using A Dynamic Climate Model", AWRA 2006 Summer Specialty Conference, Missoula, MT, USA
- 70 Willey, M.W., Palmer, R.N., Ryu, J.H., 2006. "Climate Based Streamflow Forecasts for Water Resource Managers", AWRA 2006 Summer Specialty Conference, Missoula, MT, USA
- 71 Ryu, J.H., Palmer, R.N., Jeong, S., Lee, J., 2004. "Drought Definitions and Forecasts for Water Resources Management", EWRI Congress 2004, ASCE, Salt Lake City, USA

- 72 Ryu, J.H., Palmer, R.N., Jeong, S., Lee, J., 2003. "An Optimization Model to Mitigate Conflicts", EWRI Congress 2003, ASCE, Philadelphia, USA
- 73 Lee, J., Ryu, J.H., Palmer, R.N., Jeong, S., 2003. "Development of Shared Vision Model for the Optimal Reservoir Operation", International Conference on Hydrology and Water Resources in Asia Pacific Region (APHW), Kyoto, Japan
- 74 Ryu, J.H., Palmer, R.N., Jeong, S., Kim, Y.-O., 2002 An Application of Water Conflict Resolution in the Kum River Basin, Korea, EWRI, 2002 Conference on Water Resources Planning and Management, Roanoke, VA, 2002

Professional Presentation:

- 1 Ryu, J.H. 2024. "Advancing Real-Time In-Situ Environmental Monitoring Using Autonomous Unmanned Vehicles", 3rd International Conference on Architectural, Civil and Environmental Forensic Engineering, January 23-25, 2024, Korea University, South Korea
- 2 Ryu, J. H. 2023. "Idaho Drone League (iDrone) to Promote STEM Pipelines across Idaho and Beyond", 2023 IETA Conference, Scaling New Peaks at IETA, Boise Center, February 8 – 10, 2023.
- 3 Ryu, J.H. 2023. "How a Changing Climate may Change Weed Management", The 2023 Idaho Noxious Weed Conference, The Riverside Hotel, Boise, Idaho, January 11 – 12, 2023
- 4 Ryu, J.H. 2020. "Introduction to Idaho Drone League (iDrone)" during US Senate Staffer visit, University of Idaho Boise, January 3, 2020
- 5 Ryu, J.H., 2019. "Applications of Unmanned Aerial System for Agriculture and Beyond", National Research Foundation, December 2, 2019
- 6 Ryu, J. H. 2018. "UAS research and education on water resource", UKC2018, New York City, New York, August 2
- 7 Ryu, J. H. 2018. "Ag mapping and iDrone program for the Magic Valley" Twilight Tour, Kimberly, Idaho. July 18
- 8 Ryu, J. H. 2018. "iDrone 4-H STEM program", State 4-H Teen Association Convention, Moscow, Idaho. June 26
- 9 Ryu, J. H. 2018. "UI's drone research and education program", Boise Farmers Market, Boise, Idaho. June 23
- 10 Ryu, J. H. 2018. "UAS applications for rangeland management: Research and education", Rock Creek Ranch, Hailey, June 16
- 11 Ryu, J. H., 2018 "UAS application to advance water quality monitoring in the Lower Boise River Watershed", Natural Resource Conservation Services (NRCS), Caldwell, Idaho, May 8
- 12 Ryu, J. H., 2018 "UI drone education program", Engineering Expo, Moscow, April, 27, 2018
- 13 Ryu, J. H., 2018 "Applications of Unmanned Aerial System for agriculture and environmental studies in a changing climate", UI Drone Summit, Moscow, April, 24, 2018
- 14 Ryu, J. H., 2018 "Urbanization impact on water quality and quantity in the Boise River Watershed", Idaho Department of Water Resources, February 5, 2018
- 15 (Invited) Ryu, J. H., and Kyungdo Lee., 2017. "Applications of Unmanned Aircraft System (UAS) for Western Water Research and Environmental Studies", UKC 2017 Annual Meeting, August 9-13, 2017, Washington DC., USA

- 16 Ryu, J. H., 2017. "Advancing drought monitoring using a small Unmanned Aircraft System (sUAS) for irrigated agriculture: Challenge and Opportunities", 2017 World Environmental and Water Resources Congress, Many 21-25, 2017, Sacramento, California.
- 17 Ryu, J. H., 2017. "Advancing drought monitoring and outlook to promote adaptation and community resilience in a changing climate", AMS 2017 Annual Conference, January 23, Seattle, Washington
- 18 (Invited) Ryu, J. H., Russ Quall, Phil Watson, Jerry Long, Robert Heinse, and John Koudelka., 2017. "Integrated system-wide climate-food-water nexus (ICFEWS) modeling in a changing environment: challenges, alternatives, and policy making", Tri-State INFEWS workshop, April 10, 2017, Coeur d'Alene, Idaho
- 19 Ryu, J. H., 2017. "Advancing drought monitoring using a small Unmanned Aerial System (UAS) for irrigated agriculture", Climate Impacts to Water Skamania Lodge, Northwest Water Conference 2017, January 27, Stevenson, Washington
- 20 Ryu, J. H. 2017. "Applications of Unmanned Aerial System (UAS, a.k.a. Drone) for agriculture and environmental studies in a changing climate", National Institute of Agricultural Sciences, December 26, 2017, Jeonju City, South Korea
- 21 Ryu, J. H., 2017. "System modeling for interdisciplinary collaborative research (Agricultural research and education)", National Institute of Agricultural Sciences, December 11, 2017, Jeonju City, South Korea
- 22 Ryu, J. H. 2017. "Applications of Unmanned Aerial System for agriculture and environmental studies in a changing climate: Challenges and Opportunities", Kongju National University, December 8, 2017, ChonAn City, Korea
- 23 Ryu, J. H. 2017. "Applications of Unmanned Aerial System for agricultural disaster prevention", National Institute of Agricultural Sciences, November 8, 2017, Jeonju City, Korea
- 24 Ryu, J. H. 2017. "Applications of Unmanned Aerial System with environmental sensors", Kunsan National University, November 2, 2017, Kunsan City, Korea
- 25 Ryu, J.H. 2017. "Development of hydroclimate drought index to advance agricultural drought monitoring and outlook in a changing climate", Hydroclimate center, November 1, Kwacheon, Korea
- 26 Ryu, J.H. 2017. "Application of UAS to improve water sampling activities", Rural Research Institute, October 26, 2017, Ansan City, Korea.
- 27 Ryu, J. H., Kyungdo Lee., Chanwon Park., Sangil Na., 2017. "Agricultural water management and farmland inundation forecast service using Unmanned Aerial Vehicle (UAV)", KSEA 2017 Fall Meeting, October 15, Jeju Island, South Korea
- 28 Ryu, J. H., 2017. "Application of UAS to promote international agricultural services", Rural Development Administration, October 13, 2017, Jeonbook Innovative City, Korea
- 29 Ryu, J. H., 2017. "Toward sustainable water resources management in a changing climate: Challenges and Opportunities", Kyungpook National University, September 22, 2017, Daegu, Korea
- 30 Ryu, J. H., 2017. "Advancing drought monitoring and outlook for sustainable water resources management in a changing climate", Seoul National University, September 19, 2017, Seoul, Korea
- 31 Ryu, J. H., 2017. "Water resources planning and management for western agriculture in a changing climate", Korea Rural Economic Institute, September 9, 2017, Naju City, Korea
- 32 Ryu, J. H., 2017. "Applications of Unmanned Aircraft System (UAS) for western water research and environmental studies, National Academy of Agricultural Science, September 5, 2017, Jeonju City, Korea

- 33 Ryu, J. H., 2017. “Advancing drought management and nonpoint source control: Challenges and opportunities, Jeonbuk Ag Technology Center, August 25, 2017, Jeonju City, Korea
- 34 Ryu, J. H., 2017. “Advancing drought monitoring and outlook for sustainable water resources management in a changing climate, Hydroclimate Center, August 18, 2017, Kwacheon City, Korea
- 35 (Invited) Ryu, J. H., 2016, “Advancing drought monitoring and forecasting using a small Unmanned Aerial System (UAS)”, 2016 US-Korea Conference, Hyatt Regency DFW, Dallas, Texas, August 11 – August 14, 2016
- 36 Ryu, J.H., 2016, “Characterizing mega drought using bigdata to improve data-intensive water management decisions in a changing climate”, Lawrence Berkeley National Laboratory, December 6-7, Berkeley, California
- 37 Ryu, J.H., 2016, “Advancing drought monitoring and outlook for sustainable water resources management in a changing climate”, Department of Geography, University of Idaho, Moscow, Idaho, February 17
- 38 Ryu, J.H., 2016, “Toward data-intensive decision support tools for sustainable water resources planning and management under uncertain future climate”, Special seminar at Kyungbook National University, Daegu, Korea, September 5, 2016
- 39 Ryu, J.H., 2016, “Advancing drought monitoring, forecasting, and outlook in a changing climate: challenges and opportunities”, Special seminar at National Institute of Agricultural Sciences, Jeonju, Korea, September 6, 2016
- 40 Ryu, J.H., 2016, “Financial assistance programs and execution administered by the United States Department of Agriculture”, the 7th International Symposium for nonpoint source control, Jeonju, Korea, September 9, 2016
- 41 Ryu, J.H., 2016, “Visualizing drought atlas in open source web-GIS platform”, Special seminar at Kunsan National University, Kunsan, Korea, September 6, 2016
- 42 **Ryu, J.H., 2016, “Characterizing mega drought using bigdata to improve data-intensive water management decisions in a changing climate”, Lawrence Berkeley National Laboratory, December 6-7, Berkeley, California
- 43 (Invited) Ryu, J. H., 2015, “Climate Change and Water Resources Management for Climate Ready Communities”, UKC2015: Pursuing Excellence with a Servant’s Heart, US-Korea Conference, Hyatt Regency Atlanta, Atlanta, Georgia, July 29 – August 1, 2015
- 44 *Kim, J.J. and Ryu, J. H., 2015, “Parallelizing HSPF to Improve Hydrological Simulation using A Linux Cluster”, UKC2015: Pursuing Excellence with a Servant’s Heart, US-Korea Conference, Hyatt Regency Atlanta, Atlanta, Georgia, July 29 – August 1, 2015
- 45 Ryu, J.H., 2015, “Impact Assessment of Urbanization and Land Use Change Using LID to Characterize Water Quality in the Boise River”, 2015 Water Quality Workshop: Monitoring, Assessment, and Management, Boise State University, Boise, Idaho, February 3-5, 2015
- 46 Ryu, J.H., 2015, “Toward Sustainable water Resources Planning and Management for Western Agriculture in a Changing Climate: Drought Monitoring/Management/Outlooks”, Brownbag Seminar, Rural Development Administration, Jeonju-Si, Korea, August 23, 2015
- 47 Ryu, J.H., 2015, “Toward Climate-Ready Ariul Community: Water Management, Eco-Living, and Vision Planning”, International Brainstorming Workshop for Innovative Application for Ariul Water Management April 16, 2015, Kunsan National University, Kunsan, Korea

- 48 Ryu, J.H., 2015, "Application of LID to Mitigate Impacts Driven by Urbanization and Land Use Change: Characterizing Local Hydrology and Water Quality in the Rural-Urban Interface, 7th World Water Forum 2015, April 12-17, Daegu, Korea
- 49 Ryu, J. H. 2015, "UI Research Demonstration using Drones" at UI Kibbie Dome during Idaho Legislative Tour, November 15, 2015
- 50 Ryu, J.H., 2014, "Runoff and Nonpoint Sources Control using LID for the Boise River Watershed, Idaho", Northwest Regional Conference, KSEA 2014, University Place Hotel & Conference Center, Portland State University, Portland, Oregon, October 4-5, 2014
- 51 (Invited)*Kim, J., Ryu, J.H., 2014, "Spatial and temporal analysis of hydrologic response for land use change at Kyoung-An stream watershed", UKC 2014: Forward Together, US-Korea Conference, Hyatt Regency San Francisco Airport, San Francisco, CA, August 6-9
- 52 **, *Kim, J., Ryu, J.H., 2014, "Spatial and temporal analysis of hydrologic response for land use change at Kyoung-An stream watershed", UKC 2014: Forward Together, US-Korea Conference, Hyatt Regency San Francisco Airport, San Francisco, CA, August 6-9
- 53 Ryu, J.H., 2014, "Exploring water management alternatives to mitigate climate impacts for sustainable agriculture in Idaho." Idaho Climate Talk 2014, Boise Public Library, April 21, 2014, Boise, Idaho
- 54 Ryu, J.H., 2014, "Advancing drought monitoring for climate-resilient water management in human and natural systems." Engineering Colloquium 2014, May 1, 2014, Moscow, Idaho
- 55 Ryu, J.H., 2013, "Toward Advanced Water Resources Planning and Management to Mitigate Drought in a Changing Climate: Monitoring, Management, and Outlooks", Water Resources Seminar, November 12, Dankook University, Yongin, Korea
- 56 Ryu, J.H., 2013, "Toward Advanced Water Resources Planning and Management to Mitigate Drought in a Changing Climate: Monitoring, Management, and Outlooks", Water Resources Seminar, November 7, Seoul National University, Seoul, Korea
- 57 Ryu, J.H., 2013, "Using 'Big Data' to Advance Water Management for Climate-Resilient Human and Natural Systems", International Brainstorming Workshop for Ariul R&D and Beyond, November 2, Pusan National University, Pusan, Korea
- 58 Ryu, J.H., 2013, "Water Resources Planning and Management to Mitigate Drought in a Changing Climate: Monitoring, Management, and Outlooks", Water Resources Seminar Series, September 17, Idaho Water Center, Boise, Idaho
- 59 *Kim, J., Ryu, J.H., 2013, "Visualizing Local Drought to Enhance Climate-Resilient Agricultural Water Management in Idaho", KSEA Northwest Regional Conference 2013, Alder Commons, University of Washington, September 21, 2013, Seattle, Washington
- 60 Ryu, J.H., 2013, "Toward visualizing local droughts to enhance climate-resilient water management", UKC 2013: Toward harmonious World with Science, Technology and entrepreneurship, US-Korea Conference, Sheraton Meadowlands Hotel & Conference Center, August 7-11, East Rutherford, New Jersey
- 61 Kim, J., Ryu, J.H., 2013, "Characterizing Local Drought for Watershed Management in South Korea", UKC 2013: Toward harmonious World with Science, Technology and entrepreneurship, US-Korea Conference, Sheraton Meadowlands Hotel & Conference Center, August 7-11, East Rutherford, New Jersey
- 62 Ryu, J.H., 2013, "Visualizing local droughts to enhance climate-resilient agricultural water management for the Republican River Basin: Nebraska", Drought and Water Management in the Republican River Basin, August 1, Alma, Nebraska

- 63 Ryu, J.H., 2013, "Visualizing local droughts to enhance climate-resilient agricultural water management for the Republican River Basin: Kansas", Drought and Water Management in the Republican River Basin, July 31, Oberlin, Kansas
- 64 Ryu, J.H., Contor, B., Wiley, A., Johnson, G., Allen, R., 2012. "Decision Support Tools to Manage Climate-Induced Drought in the Eastern Snake Plains Aquifer, Idaho", USA Pavilion (NASA booth) at the 6th World Water Forum, Marseille, France, March 12-17
- 65 **Ryu, J.H., 2012. "Toward Mapping Gridded Drought Indicators to Mitigate Drought Impacts in a Rapidly Changing Global Environment", Terrestrial Water Cycle Seminar Series, Goddard Space and Flight Center, Greenbelt, MD 20771, March 7, 2012
- 66 **Ryu, J.H., 2011. "Application of System Dynamics to Climate-Driven Water Budget Analysis in the Eastern Snake Plains Aquifer", Regional Approaches to Climate Change for Pacific Northwest Agriculture (REACCH PNA), Moscow, University of Idaho, May 8-10
- 67 Ryu, J.H., 2011. "Western Water Resources Research: Climate Change, Agriculture, and Environment", Department of Environmental Engineering, Andong National University, Andong, Korea, December 6
- 68 P *Kim, J., Ryu, J.H., 2012, "Comparison of Hydrological Simulation Performances Using HSPF at Different Basin Scales", North-West Regional Conference, Korean-American Scientists and Engineers Association, November 2-3, Sacramento Marriott, Rancho Cordova, California
- 69 Ryu, J.H., 2012, "Water Resources Challenges and Issues in the State of Idaho: Opportunities and Alternatives", North-West Regional Conference, Korean-American Scientists and Engineers Association, November 2-3, Sacramento Marriott, Rancho Cordova, California
- 70 Ryu, J.H., 2012, "Advanced Integrated Water Resources Management, Eco-Living, and Disaster Prevention, International Brainstorming Workshop for Blue Water R&D, October 26, Kunsan National University, Kunsan, Korea
- 71 Ryu, J.H., Lee, K., Kim, J. 2012, "Development of Decision Support Tools for Water Resources Planning and Management to Mitigate Future Climate Impacts", UKC 2012: Creativity, Innovation, and Integration, US-Korea Conference, Hyatt Regency Orange County, August 8-11, Garden Grove, California
- 72 #Seo, J., Ryu, J.H., 2012, "Latest Trends in Environmental and Sustainable Management of Dams", UKC 2012: Creativity, Innovation, and Integration, US-Korea Conference, Hyatt Regency Orange County, August 8-11, Garden Grove, California
- 73 P *Kim, J., Ryu, J.H., 2012, "Comparisons of Hydrological Simulation Performances Using HSPF at Different Basin Scales", UKC 2012: Creativity, Innovation, and Integration, US-Korea Conference, Hyatt Regency Orange County, August 8-11, Garden Grove, California
- 74 Ryu, J.H., 2012, "System Dynamics to Sustainable Water Resources Management in the Eastern Snake Plain Aquifer", Inaugural Meeting of Columbia River Basin Water Systems Modeler, Idaho Water Center, Boise, July 30, 2012
- 75 Ryu, J.H., 2012, "Mapping Gridded Drought Index to Mitigate Drought Impacts on the Mountain West", Annual Workshop: Water Ways & Means, Hilton Garden Inn, Idaho Falls, May 15-16, 2012
- 76 Hoekema D., Ryu, J.H., 2012, "Adaptation to Climatic Variability & Water Scarcity in the Salmon Tract, Idaho", the 4th Annual Western Consortium Tri-State Meeting, Sun Valley Resort, Idaho 83353, April 2-5, 2012
- 77 Kim, J., Ryu, J.H., 2012, "Comparison of Hydrological Simulation Performances using HSPF at Different Basin Scales", the 4th Annual Western Consortium Tri-State Meeting, Sun Valley Resort, Idaho 83353, April 2-5, 2012

- 78 Sohrabi, M., Ryu, J.H., 2012, "Drought Prediction with Developed SC-PDSI and GCM Datasets", the 4th Annual Western Consortium Tri-State Meeting, Sun Valley Resort, Idaho 83353, April 2-5, 2012
- 79 Acharya, A., Ryu, J.H., 2012, "Streamflow Disaggregation for Regulated and Unregulated Waterways", the 4th Annual Western Consortium Tri-State Meeting, Sun Valley Resort, Idaho 83353, April 2-5, 2012
- 80 Seo, J., Ryu, J.H., 2012, "A Study on Conservation and Restoration of Fish Ecology Influenced by Regulated Flow of Multipurpose Dams in Korean", the 4th Annual Western Consortium Tri-State Meeting, Sun Valley Resort, Idaho 83353, April 2-5, 2012
- 81 Ryu, J.H., 2012, "Future Drought Outlook Induced by Climate Variability and Change over Republican River Basin", The 4th Annual Western Consortium Tri-State Meeting, Sun Valley Resort, Idaho 83353, April 2-5, 2012
- 82 Ryu, J.H., 2012, "Future Research to Sustainable Agriculture: Environmental Monitoring/Decision Support Tools for Food, Water, and Energy Nexus", USDA/NIFA/AFRI Stakeholder Listening Session, February 22, Waterfront Center, Washington DC
- 83 Ryu, J.H., 2011, "Water Resources Management under Uncertain Future Climate", 2011 North-West Regional Conference, Korean-American Scientists and Engineers Association, November 18-20, San Jose, California
- 84 Ryu, J.H., 2011, "Application of System Dynamics to Sustainable Water Resources Management for the Coupled Natural and Human Systems", 2011 NSF CAREER Award Regional Forum, November 8-9, Baton Rouge, Louisiana State University, Louisiana
- 85 Ryu, J.H., Contor, B., Johnson, G., Allen, R., Tracy, J., 2011, "Application of System Dynamics to assess climate impacts on the Eastern Snake Plain Aquifer", The Water in the Columbia Basin conference, November 1-4, Stevenson, Washington
- 86 Sohrabi, M., Ryu, J.H., Tracy, J., 2011, "Trend Analysis of Weather Extremes in Idaho", the 3rd Annual Tri State Consortium Meeting, April 6-8, Hyatt Regency Tamaya Resort & Spa, Santa Ana Pueblo, New Mexico
- 87 Ryu, J.H., 2010. "Sustainable Water Resources Planning and Adaptive Management in a Changing Climate: Issues and Challenges to Domestic Applications", Rural Research Institute, Ducksan Resort, Yesan, Korea, September 15
- 88 Ryu, J.H., 2010. "Observatories for Ecohydraulics Research: Issues and Visions Within Environmental Science Community", The 8th International Symposium on Ecohydraulics 2010, COEX, Seoul, Korea, September 12-16
- 89 Ryu, J.H., 2010. "Sustainable Water Resources Planning and Management: Participatory Collaborative Modeling and Efforts", Korea Environment Institute, Seoul, Korea, September 10
- 90 Ryu, J.H., 2010. "Sustainable Water Resources Planning and Management: Hydroclimate Modeling and Decision Support Tools", National Institute of Environmental Science, Incheon, Korea, September 10
- 91 Ryu, J.H., 2010. "Sustainable Water Resources Planning and Management in a Changing Climate", College of Life and Environmental Sciences, Konkuk University, Seoul, Korea, June 9
- 92 Ryu, J.H., 2010. "Early Drought Warning System in the 21 Century", Department of Civil and Environmental Engineering, Sejong University, Seoul, Korea, June 8
- 93 Ryu, J.H., 2010. "National Disaster Prevention Under Uncertain Future Climate", National Institute for Disaster Prevention, Seoul, Korea, June 8
- 94 Ryu, J.H., 2010. "Sustainable Water Resources Management in a Changing Climate", Department of Civil and Environmental Engineering, Hanyang University, Ansan, Korea, June 3

- 95 Ryu, J.H., 2010. "Sustainable Water Resources Management in a Changing Climate", Department of Environmental Engineering, Andong National University, Andong, Korea, June 3
- 96 Ryu, J.H., 2010. "Sustainable Water Resources Planning and Management Under Uncertain Future Climate and its Variability", School of Earth and Environmental Science, Seoul National University, Seoul, Korea, June 1
- 97 Ryu, J.H., 2010. "System Dynamics Modeling for the Eastern Snake Plain Aquifer", Idaho Department of Water Resources, Idaho Water Center, Boise, ID, November 22
- 98 Ryu, J.H., 2010. "Western Water Resources Research in a Changing Climate", National Weather Service, NOAA, Boise, ID, October 21
- 99 Ryu, J.H., 2010. "Western Watershed Research: The Challenges of Change", USDA-ARS Northwest Watershed Research Center, Boise, May 13
- 100 Ryu, J.H., 2010. "Research Background and Experiences and Vision for Water Research in Idaho", Departmental Advisory Board, Department of Biological and Agricultural Engineering, Moscow, April 29
- 101 Ryu, J.H., 2010. "Challenges and issues in collaborative water research in a changing climate", Department of Geosciences, Boise State University, Boise, April 12
- 102 Ryu, J.H., 2010. "Challenges and issues in collaborative climate change research", Collaborative and Interdisciplinary Climate Change Science, 2nd Annual Tri State Consortium Meeting, Hyatt Regency Lake Tahoe, April 6-8
- 103 Ryu, J.H., 2010. "Water Research Activities: Past, Current, Future, and Beyond", Civil Engineering Research Seminar, Center for Ecohydraulic Research Group, Boise, January 29
- 104 Ryu, J.H., 2009. "Sustainable Water Management for the 21st Century in a Changing Climate", Department of Environmental Science and Engineering, Ewha Womans University, Seoul, Korea, November 10
- 105 Ryu, J.H., 2009. "Sustainable Water Management for the 21st Century in a Changing Climate", School of Earth and Environmental Science, Seoul National University, Seoul, Korea, November 9
- 106 Ryu, J.H., 2009. "Drought Early Warning Systems for the 21st in the United States", National Emergency Management Agency, Seoul, November 11-13
- 107 Ryu, J.H., 2009. "Sustainable Water Resources Planning and Management in a Changing Climate: Emerging Issues and Challenges in the State of Idaho", Idaho Water Center, University of Idaho, Boise, September 3
- 108 Ryu, J.H., 2009. "Sustainable Water Management for the 21st Century in a Changing Climate", Department of Construction and Environmental Engineering, Kongju National University, Chonan, Korea, November 6
- 109 Ryu, J.H., 2009. "My Academic Journey to Current and Emerging Research Challenge", Department of Environmental Science, Konkuk University, Seoul, Korea, November 5
- 110 Ryu, J.H., 2009. "Sustainable Water Resources Management in a Changing Climate", Rural Research Institute, Korea Rural Community Corporation, Ansan, Korea, November
- 111 Ryu, J.H., 2007. "Automatic Calibration of HSPF model with NEXRAD rainfall data for DMIP", National Weather Service, NOAA, Silver Spring, Maryland, September 10-12
- 112 Ryu, J.H., 2006. "The Use of Mid-Range Climate Forecasts for Drought Management", The National Drought Mitigation Center, University of Nebraska-Lincoln, January 27

Other Publications:

- Ryu, J. 2023. iDrone 2023 testimonial by Michael Hsieh, available at: <https://ksealetters.com/2023/09/14/idrone-2023-testimonial/>, accessed on October 10, 2023
- Humes, K., Walters, R., Ryu, J., Mahler, R., and Woodruff, C. 2022. Idaho Climate-Economy Impacts Assessment, Available at: <https://www.uidaho.edu/president/direct-reports/mcclure-center/iceia>, accessed on February 2, 2022 (See the recognition letter from President Green)
- Ryu, J. H., 2021. "STEM Workforce Development: Interstate Drone League for KSEA Communities (iDrone KSEA)" February 2021. KSEA Newsletter
- Book chapter, 2019. "Extreme Floods and Droughts under Future Climate Scenarios" by Momcilo Markus, Ximing Cai and Ryan Sriver, Printed Edition of the Special Issue Published in Water, 2019
- Ryu, J.H., 2017. "Applications of drone and its directions", Agriculture and Environment, Rural Research Institute, Ansan City, Korea
- Ryu, J.H., 2013. "Participant post-workshop essays", KSEA Letters,
- Ryu, J.H., 2013. "KSEA Boise Idaho Chapter Inauguration (Nov.9, 2012)", KSEA Letters, February 2013, 41(2)
- Ryu, J.H., 2006. "The Management of Water Resources Using a Mid-Range Climate Forecast Model", Civil and Environmental Engineering, University of Washington (Ph.D Dissertation)
- Palmer, R.N., Brett, M.T., Ryu, J.H., 2002. "Water Quality Simulation Model for the King Abdullah Canal in Jordan", Prepared for the Center for Environmental Studies and Resource Management (CESAR), Norway (Project final report)

Media Outlets:

- University of Idaho News, 2023. Learning to Fly, available at: <https://www.uidaho.edu/news/feature-stories/learning-to-fly>, accessed on September 6, 2023
- The Lewiston Tribune (2023). University of Idaho receives grant to develop database used by solar-powered vehicles, available at: https://www.lmtribune.com/northwest/university-of-idaho-receives-grant-to-develop-database-used-by-solar-powered-vehicles/article_832cbab3-598d-5ea4-b2f8-1cad6b285aed.html, March 15, 2023
- Idaho Business Review (2022). U of I professor developing weeding robot with ag stakeholders in mind, available at: <https://idahobusinessreview.com/2022/11/09/u-of-i-professor-developing-weeding-robot-with-ag-stakeholders-in-mind/>, November 11, 2022
- Entomology Today (2022). Sweep Net in the Sky: Team Designs Drone for Insect Scouting, available at: <https://entomologytoday.org/2022/07/19/sweep-net-in-the-sky-team-designs-drone-for-insect-scouting/>, July 5, 2022
- Idaho State Journal (2022). U of I researchers aiding in development of solar-powered weeding robot, available at: https://www.idahostatejournal.com/news/local/u-of-i-researchers-aiding-in-development-of-solar-powered-weeding-robot/article_8ebc74a7-d616-5b7d-a15b-ba64d1cd61f7.html, June 29, 2022
- ARGENPAPA (2022). EEUU: University of Idaho researchers aiding in development of solar-powered weeding robot, available at: <https://www.argenpapa.com.ar/noticia/12206-eeuu-university-of-idaho-researchers-aiding-in-development-of-solar-powered-weeding-robot>, June 23, 2022
- Vegetable Growers News (2022). University of Idaho researchers help develop of solar-powered weeding

- robot, from <https://vegetablegrowersnews.com/news/university-of-idaho-researchers-help-develop-of-solar-powered-weeding-robot/>, June 16, 2022
- Catching Up with CALS (2022) – June 15, 2022, available at: <https://www.uidaho.edu/cals/news-and-events/newsletters/2022/catching-up-with-cals-6-15>
- Spacefarming Idaho is selected a team for Phase 2 competition in Deep Space Food Challenges by NASA & CSA (2022), available at: <https://www.deepspacefoodchallenge.org/teams#phase2>
- Magic Valley News (2021). Collars for cows: How technology is changing Magic Valley farming, from https://magicvalley.com/business/agriculture/collars-for-cows-how-technology-is-changing-magic-valley-farming/article_54045053-73d1-5eeb-984c-84b7180030fd.html
- KIVITV. (2019). University of Idaho hosts summer drone camp for kids in Boise, from <https://www.kivitv.com/news/university-of-idaho-hosts-summer-drone-camp-for-kids-in-boise>
- Capital Press. (2019). Western Innovator: Drones become flying crop sensors, from https://www.capitalpress.com/ag_sectors/research/western-innovator-drones-become-flying-crop-sensors/article_de36e4c4-d02b-11e9-b5f6-3b9d1ec96e59.html
- Idaho News. (2018). <https://idahonews.com/features/stem-in-idaho/photos-drone-workshops-highlight-possible-stem-careers-for-students>
- KBOI. (2018). Watch: U of I professor teaches drone workshop, from <https://idahonews.com/features/stem-in-idaho/watchuofiprofessorteachesdrone101workshop>

Grants and Contracts Awarded:

University of Idaho

1. Ryu, J. and Chang, K. “Collaborative Research: Research Initiation: Elevating First-Year Engineering Engagement: A Comparative Analysis of Drone Courses Between HyFlex and In-Person Formats”, NSF RIEF, 6/1/2024 – 5/31/2026, \$168,887 (**Role: PI**)
2. Ryu, J. and Schott, Linda. “A hands-on UAS training for ag professionals to sustain western agriculture in a changing climate” USDA, WSARE, 4/1/2024 – 12/31/2026, \$100,000 (**Role: PI**)
3. Ryu, J.H., Lindstrom, J., and Wargo, E. “Stimulating 4-H youth for future workforce development through hands-on non-formal STEM learning in rural settings”, USDA NIFA/FANE Program, 10/1/2023 – 9/30/2026, \$748,964 (**Role: PI**)
4. Knutz, M et al. “Agriscience Technology Pathways (ATP)”, USDA NIFA/FANE Program, 10/1/2023 – 9/30/2026, \$750,000 (Role: Co-Investigator).
5. Ryu, J. H. “IDRONE Summer CAMP Online to Promote STEM Pipelines across Idaho”, Idaho STEM Action Center, 4/3/2023 – 8/31/2023, \$45,000 (**Role: PI**)
6. Ryu, J. H. and Kenny Lee “Prototyping solar-powered autonomous vehicle to build plant phenotype database for sustainable agriculture in Idaho”, The Idaho Global Entrepreneurial Mission (IGEM)/The Idaho Department of Commerce, 5/1/2023 – 8/31/2024, \$348,632 (**Role: PI**)
7. Karl, J. Ryu, J.H. and et al., “Acquisition of UAVs equipped with lidar sensors”, USDA, \$104,139.98, FY23
8. Johnson-Maynard, Eigenbrode et al. “Climate-Smart Commodities for Idaho – A Public-Private-Tribal Partnership, USDA-NRCS, 10/1/2022 – 09/30/2027, \$54,994,145 (Role: Co-Investigator)
9. Ryu, J. and Wargo, E. “Promoting NASA’s future workforce development through hands-on, informal

- STEM learning in rural settings, NASA Idaho Space Grant Consortium, 6/1/2022 – 5/31/2023, \$50,000
(**Role: PI**)
10. Kolok, A.S., L. Chen, V. Durgesh, L. Lynch, A. Mirkouei, I. Popova., J. Ryu, D. Tonina, A. Tranmer, E. Winford and S. Wu. 2021. Idaho Water Resources Research Institute, USGS 104b Program. 9/1/2021 – 8/31/2022, \$118,457 (Role: Co-PI)
 11. Rashed, A. Ryu, J., et al. “Soil health and profitability implications of including brown mustard and its products in an integrated wireworm management system”, Western Sustainable Agriculture Research and Education (WSARE), 7/1/2021 – 6/30/2024, \$349,919 (Role: Co-PI)
 12. Schroeder, Kurtis Ryu, J., et al. “Exploring the feasibility of using high lime rates on crop performance in northern Idaho and identifying aluminum-tolerant wheat”, Idaho Wheat Commission, 7/1/2020 – 6/30/2023, \$74,094 (Role: Co-PI)
 13. Rashed, A. Ryu, J., et al. “An objective assessment of economic loss due to wireworm damage in Idaho wheat”, Idaho Wheat Commission, 7/1/2020 – 6/30/2021, \$9,991 (Role: Co-PI)
 14. Rashed, A. Ryu, J., et al. “Development of resistant wheat cultivars for management of Hessian fly in Idaho”, Idaho Wheat Commission, 7/1/2020 – 6/30/2021, \$19,995 (Role: Co-PI)
 15. Neufeld, J, Ryu, J., Thornton, M., Clement, J. “Anthropod pest management: scouting of filed and vegetable crops using UAV (drone) technology”, 3/1/21 – 9/30/21, \$10,000 (Role: Co-PI)
 16. Woodhall, J., Ryu, J., Neufeld, J. “Drone-assisted disease scouting and spore trapping to combat a re-emerging pathogen of onions”, 3/1/21 – 11/30/21, \$10,000 (Role: Co-PI)
 17. Ryu, J. “Digital Twin platform for a pilot-scale aquaponic system”, Rural Research Administration, 9/1/2020 – 8/31/2023, \$240,000 (**Role: PI**)
 18. Humes, K, Coats, E, McDonald, A., Ryu, J. “Idaho Water-Energy-Food Nexus” by Idaho State Board of Education, \$2.1M, 7/1/2018-6/30/2021(Role: Co-PI)
 19. Neufeld, J, Ryu, J, Barbour, J. 2019. “UAS-based insect scouting”, UI CALS, 7/1/2019-6/30/2020, \$7,500 (Role: Co-PI)
 20. Ryu, J. 2019. “CALS course development”, UI CALS, 7/1/2018-6/30/2019, \$9,000 (**Role: PI**)
 21. Ryu, J. 2019. “Development of system-wide water management model to mitigate social hydrological issues in a changing climate: case study for the Namgang Dam Watershed”, Ministry of Korea Land and Transportation, 1/1/2019-12/31/2019, \$86,000 (**Role: PI**),
 22. Ryu, J. 2019. “Food-Energy-Water Sustainability in Irrigated Agriculture by Integrated Technology-System Dynamics Modeling in the Eastern Snake Plain Aquifer”, USDA Hatch Grant, 7/1/2019-6/30/2024 (**Role: PI**)
 23. Ryu, J. 2018. “Research Equipment Grant” by University of Idaho, 7/1/2018-6/30/2019, \$28,640 (**Role: PI**)
 24. Ryu, J. 2018. “Improving water quality monitoring using UAS” by Geostory, 7/1/2019 – 6/30/2020, \$20,000 (**Role: PI**)
 25. Ryu, J. 2017. “Vandal Idea Project: Idaho Drone League (iDrone)”, University of Idaho, 7/1/2017-6/30/2018, \$72,248 (**Role: PI**)
 26. Ryu, J. 2017, “Drought mapping using a small unmanned aerial system (sUAS) for precision agriculture in Idaho”, Idaho State Board of Education, 7/1/2016-6/30/2017, BFK595, \$70,000 (**Role: PI**).

27. Ryu, J. 2017., “Enhancing drought outlooks for western water management in a changing climate”, Sustainable Research Pathways, Department of Energy, Lawrence Berkeley National Lab Summer Faculty Fellowship Program, 5/1/2017-6/25/2017, \$25,000 (**Role: PI**).
28. Ryu, J. 2017., “IGERT: Adaptation to change in water resources: Science to inform decision-making across disciplines, cultures, and scales, Collaborators: Jan Boll and many UI faculty, \$3M total, FY2013-FY2017, (Role: Faculty Participant)
29. Ryu, J. 2016., “Toward advancing drought monitoring and water management for western agriculture using Unmanned Aerial System (UAS)” funded by American Society for Engineering Education (ASEE) and Air Force Summer Faculty Fellowship Program (SFFP), \$20,000 (**Role: PI**).
30. Ryu, J. 2015., “Toward advancing drought monitoring and water management for western agriculture using Unmanned Aerial System (UAS)” funded by American Society for Engineering Education (ASEE) and Air Force Summer Faculty Fellowship Program (SFFP), \$20,000 (**Role: PI**).
31. Ryu, J. “Enhancing water supply monitoring and forecasting using NASA satellite data products” by NASA Idaho NASA EPSCoR, 6/25/2013-6/24/2014, \$50,000 (**Role: PI**)
32. “Development of a RiverWare Water Management Model to Mitigate Climate Impacts in the Payette River Basin, Idaho” by USGS 104b grant, 3/1/2013-2/28/2014, Collaborators: John Tracy, \$30,000 (Role: Co-PI)
33. “Development of LITeFe Linux Cluster for Big Data Analysis” by NSF Idaho EPSCoR, FY2014, \$13,000 (**Role: PI**)
34. “Validating local droughts to enhance climate-resilient agricultural water management in Idaho” by Office of Research and Economic Development, FY2014 Seed Grant Application Page, 7/1/2013-6/30/2014, \$11,999 (**Role: PI**)
35. “Development of integrated management technique and system for non-point source control and reduction” by Korea Rural Research Institute, Seoul, Korea, 5/1/2013-8/31/2014. \$8,912 (**Role: PI**)
36. “Development of integrated management technique and system for non-point source control and reduction” by Korea Rural Research Institute, Seoul, Korea, 8/31/2013-12/31/2013, \$9,225 (**Role: PI**)
37. “Application of an ecological health assessment for Reclamation managed reservoirs”– Submitted to BOR/S&T Program, Collaborators: Dmitri Videgar (BOR), Jinwon Seo, 1/1/2013-3/31/2014, \$30,000 (**Role: PI**)
38. “Development of integrated management technique and system for non-point source control and reduction” by Korea Rural Research Institute, Seoul, Korea, 3/31/2012-8/31/2013, \$8,707 (**Role: PI**)
39. “Developing a Conjunctive Water Resources Planning and Management Model for the Eastern Snake River Plain” by USGS 104b grant, 3/1/2012-2/28/2013, Collaborators: John Tracy, \$30,000 (Role: Co-PI)
40. “Developing an integrated modeling environment for Idaho’s climate change research” by NSF Idaho EPSCoR, FY2012, \$42,733 (**Role: PI**)
41. “Developing Seasonal Predictive Capability for Drought Mitigation Decision Support System” by NASA via University of Illinois, 10/1/2010-10/09/2012, \$240,014 (**Role: PI**)
42. “Development of a pilot drought information system for national drought disaster reduction” by the Korea National Emergency Reduction, 10/1/2009-9/30/2011, \$13,524 (**Role: PI**)
43. “Modeling Hydrologic and Socio-Economic Impacts of Alternative Water Management Responses to Climate Change” by USGS WaterSMART, \$169,699 (**Role: PI**)

University of Nebraska

Knutson, C., Svoboda, M., Ryu, J.H. (Role: Co-PI), “Development of a drought decision support portal for the Republican River Basin of Nebraska, Colorado, and Kansas” by NOAA/SARP, 8/1/2007-7/31/2009, \$223,525 (Role: Co-PI)

Grants and Contracts Pending:

Ryu, J. “MCA: Enriching immersive STEM learning for K-12 teachers through place-based watershed science in a changing climate”, 10/1/2025-9/30/2027, \$326,101 (**Role: PI**)

Ryu, J., Kukal, Meepal, and Zhao, Meng. “SRS-RN Collaborative Research: Comprehensive Aquifer and Surface water Coordination to Aid Decision-making for Equity and Efficiency (CASCADE2)”, 1/1/2025-12/31/2019, \$3,193,591 (**Role: PI**)

SERVICE:

NASA Postdoc Program (NPP) Review 2023, July cycle 2023

Evaluated competitive proposals for the California Climate Action Program chaired by Dr. Rouzbeh Nazari from the University of Alabama, Birmingham, April - July 2023

Hosted two STEM Educators via Idaho STEM Action Center’s externship program (Recipient: Alaysha Whitworth at American Heritage Charter Schools, Idaho Falls and Hannah Ziegler at Canyon Ridge High School, Twin Falls, FY22)

Evaluated 5th annual Korean language speaking contest held in Boise State University, available at: <https://www.boisestate.edu/coas/2022/05/03/students-participate-in-fifth-annual-korean-language-speaking-contest/>

Reviewed several abstracts for 2022 UCOWR/NIWR Annual Water resources Conferences, Greenville, South Carolina, University Council On Water Resources, June 14-16, 2022

iDrone program is now used for class material (e.g., syllabi) for R678 Emerging Learning Technologies course, Indiana University, available at: http://curtbonk.com/R678_alt_online_syllabus_spring_2022.htm, accessed on February 2, 2022

Contributed to water chapter in Idaho Climate-Economy Impacts Assessment Report, 2021 (Karen Humes, Jae Ryu, Robert Mahler, Riveraine Walters)

Hosted two STEM Educators via Idaho STEM Action Center’s externship program (Recipient: Diane Terhune and Hannah Ziegler at Canyon Ridge High School, Twin Falls, FY21)

Hosted a high school intern (Recipient: Luke Bousfield from Timberline High School, Boise, FY21)

Aerial imagery collections using UAS over the Idaho Center for Agriculture, Food and the Environment (CAFE) for planning purpose (CAD drawings for Keller Associates)-Jim Miller and John Wright, FY20, FY21

Presented and demonstrated iDrone STEM education program at the farmers market in the Boise Metropolitan areas (Boise and Garden City), FY19, FY20

Hosted K-12 Educator via Idaho STEM Action Center’s externship program (Recipient: Maddie Dew, 8th Math Teacher at Lone Star Junior High, Nampa, FY21)

Advised Timberline Highschool STEM team to get the state championship and advanced to the International Science and Engineering Fair (ISEF 2020) held in Anaheim, California 2020

Professional and Scholarly Organizations:

Korean-American Scientists and Engineers Association (KSEA), President-elect, 2024-present; Vice President of KSEA, 2022 – 2023; President of KSEA Boise Idaho Chapter (2011-present, 41-42nd admin); NMSC 2013-2014 local chair; KSEA, Chair of local chapters, 41-42nd admin; KSEA Nomination Committee, 41-42nd admin; KSEA Contest Committee, 42nd admin, Technical Group J Councilor (2014-2016)

Guest Editor, Remote Sensing (IF:5.349), Special Issue “Advancing Drought Monitoring and Forecasting Using Unmanned Aircraft Systems (UAS) in a Changing Climate”, 2022- 2023

American Society of Agricultural and Biological Engineers, Member, 2010- present

American Society of Civil Engineers, Committee, 2002-present,
Environmental Water Resources System, World Environmental & Water Resources Congress

American Society of Civil Engineers, Committee, 2010-present,
International Water Council, World Environmental & Water Resources Congress

American Water Resources Association (2002-Present)
AWRA Technical Committee, Chair of Flowing Water (2016-present)
AWRA 2014 Summer Specialty Conference on IWRM Planning Committee
Chaired, Risk perception and community vulnerability, AWRA 2011 Spring Specialty Conference, Baltimore, April 18-19, MD

American Geophysics Union (2002-Present)
Korea Institute of Construction Technology (KICT), Technical Advisory Board-Water Resources, 2010-present

KSEA-Northwest Regional Conference (NWRC): Boise, Idaho, January 27 – 28, 2024, Program Chair; Seattle, Washington, September 21-22, 2013, Technical Program Committee, Session Chair of Energy, Green, and Transportation

US-Korea Conference (2013-2014), Co-chair of Symposium J, Civil, Environmental, and Architectural (CEA) Technical Symposium: Sustainable and Resilient Civil Infrastructure

Associate Editor, Journal of Civil Engineering, Korean Society of Civil Engineers (2013-present)

Agriculture, Environment and Society (POD) Program of Distinction (POD), CALS

Department Promotion and Tenure Committee for Marvin Heimgartner, 2011, BAE, University of Idaho

UAS Ad-Hoc Committee, University of Idaho, 2015-present

AERS Faculty Search Committee, College of Natural Resources, University of Idaho

2022 CALS Controlled Environment Agriculture (CEA) Position Search Committee

2023 CALS CEA Position Search Committee

2023 SWS Water Engineer Search Committee

Idaho UAS Working Group, State of Idaho

Eastern Snake Hydrologic Modeling Committee (ESHMC), Idaho Department of Water Resources (2012-present)

Maquis Who’s Who in America 2015 (69th Edition)

Chair, KSEA 10th NWRC, Boise, Idaho, October 10-11, 2015

Peer-Reviewing:

Advances in Water Resources
Asia-Pacific Journal of Atmospheric Sciences
Bioprocess and Biosystems Engineering
Environmental Modeling & Software
Geophysical Research Letters, American Geophysics Union (AGU)
Hydrologic Science Journal
International Journal of Climatology
Journal of the American Water Resources Association

Journal of Applied Meteorology and Climatology, American Meteorological Society (AMS)
 Journal of Environmental Management
 Journal of Hydrology
 Journal of Hydrologic Engineering, American Society of Civil Engineers (ASCE)
 Journal of Hydrometeorology, American Meteorological Society (AMS)
 Journal of Water Resources Planning and Management, ASCE
 Korean Society of Civil Engineers
 Natural Hazards
 Water Resources Research, American Geophysics Union (AGU)

Project-Reviewing:

USDA NIFA Program, FY24, FY25
 University of California, Climate Action 2023 Review
 NSF CAREER, FY21, FY22
 Clean Tech, FY17
 Seoul City Forum, FY16
 NOAA/Sea Grant, Mississippi-Alabama, FY16-FY18
 Partner University Fund, France, FY16
 National Environment Research Council, United Kingdom, FY14
 Korea Institute of Construction and Technology (KICT), R&D Program, FY14
 Small Business Innovation Research (SBIR), Phase II solicitation, FY10, NOAA
 Sector Application Research Program (SARP), FY10, NOAA
 Engineer Research and Development Center (ERDC), FY09, The US Army Corps of Engineers
 Member, National Integrated Drought Information System (NIDIS), GIS Team, 2006-2010

PROFESSIONAL DEVELOPMENT:

Academic Research Enhancement

People-centric leadership by Acentra-University of Idaho, Barry White, July 25, 2024
 Diversity, Equity, and inclusion (DEI) training, January 7, 2024
 Safety and Security Awareness, December 8 2016
 IT Security, December 8, 2016
 Diversity and Inclusion, December 8, 2016
 2016 PCard and Travel Training, November 20, 2016
 Navigating the Employment Legal Landscape, Part Two, March 31, 2016
 Navigating the Employment Legal Landscape, Part One, March 31, 2016
 University of Idaho Stewardship of Resources, March 30, 2016
 Performance Evaluations, University of Idaho, March 30, 2016
 University of Idaho Mission and Goals, University of Idaho, March 30, 2016
 Performance Management Training, University of Idaho, December 18, 2015

Scientists and Engineers Early Career Development (SEECD) Workshop Program, Hilton San Francisco airport Bayfront, San Francisco, CA, April 27-April 28, 2013

Inaugural Meeting of Columbia River Basin Water Systems Modelers: Jae Ryu(UI), David Hoekema (UI), Robert Jeffers (INL), Jacob Jacobson (ISU), Jennifer Adams (WSU), Kirti Rajagopalan (WSU), Alejandro Flores (BSU), Sridhar Venkataramana (BSU), Idaho Water Center, July 30, 2012, Boise, Idaho

The role of downscaling methods on climate impact modeling in complex terrain, Western Tri-State Consortium IWG proposal activity, Collaborators: John Abatzoglou, John Mejia (DRI), Sridhar Venkat (BSU), Von Walden, Xin Jin (BSU), Darko Koracin (DRI), Kristien King (UNO), Brandon Moor, Benjamin Hatchet (UNO), Phillip Duffy (Stanford), Kelly Redmond (DRI), Timothy Brown (DRI), Sun Valley, April 2-5, 2012

US-Korean Scientist Submit: Creativity, Innovation, and Integration, Hyatt Regency Orange County, August 8-11, Garden Grove, California, 2012

2011 NSF CAREER Award Regional Forum, The Cook Hotel at Louisiana State University, November 8-9, Baton Rouge, Louisiana, 2011

22nd National NSF EPSCoR Conference, The Coeur d'Alene, October 24-27, Coeur d'Alene, Idaho, 2011

2011 Western States Remote Sensing of ET Workshop, Owyhee Plaza Hotel, October 12-13, Boise, Idaho, 2011

US-Korean Scientist Submit: Technology and Engineering for the 21st Century, The Canyons Resort, August 10-14, Park City, Utah, 2011

Multicore Programming at the University of Illinois, Urbana-Champaign, July 25-29, Urbana, Illinois, 2011

Introduction to Parallel Programming & Cluster Computing workshop, June 26- July 1, Pocatello, ISU, 2011

The 3rd Annual Tri-State Western Consortium Meeting: Collaborations Connecting Climate Change Science, Education and Policy, Tamaya Resort, April 6-8, Santa Ana Pueblo, New Mexico, 2011

New Faculty Leadership Program-Creating the Next Generation of Academic Leaders, Valles Caldera National Preserve Science and Education Center, January 4-6, Jemez Spring, New Mexico, 2011

University Service and Leadership

UI Unmanned Aerial System (UAS) Committee, 2015 - present.

Eastern Snake Hydrologic Modeling Committee (ESHMC), Idaho Department of Water Resources (2012-present)

Idaho Climate-Economy Advisory Board, 2019 - 2023

CALS Controlled Environment Agriculture (CEA) faculty search committee, UI, 2022-2023

AERS Faculty Search Committee, College of Natural Resources, UI, 2018 - 2019

P&T Committee (Garth Taylor), CALS, 2019 - 2020

P&T 3rd Year Review Committee (Olga Walsh), CALS, 2018 – 2019

USDA Hatch Review (Dev Shrestha), CALS, 2021-2022

USDA Hatch Review (Robert Heinse, Sanaz Shafian), CALS, 2019 – 2020

USDA Hatch Review (Daniele Tonina, Russ Qualls), CALS, 2019 - 2020

Idaho's Unmanned Aerial System (UAS) Working Group, 2015 - 2017