

# Jae Ryu, Ph.D., P.E.

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242 Idaho Water Center, Dept. of Soil and Water Systems, College of Agricultural and Life Sciences,  
University of Idaho, Boise, Idaho 83702

• 208-332-4402 (o) • 208-724-0531 (c) • Email: [jryu@uidaho.edu](mailto:jryu@uidaho.edu)

September 13, 2018

## **EDUCATION**

### **Doctor of Philosophy in Civil and Environmental Engineering, 2006**

University of Washington, Seattle, WA, USA

Dissertation: The management of water resources using a mid-range climate forecast model

Advisor: Richard N. Palmer (Supervisor), Stephen J. Burges

### **Master of Science in Civil and Environmental Engineering, 2001**

University of Washington, Seattle, WA, USA

### **Bachelor of Science in Agricultural Engineering, 1996**

Konkuk University, Seoul, Republic of Korea

## **HONORS AND AWARDS**

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

2017: Brain Pool Fellow, National Research Foundation

2017: Lawrence Berkeley Faculty Fellow, Department of Energy

2015-2016: US Air Force Faculty Fellow, Department of Defense

2015: PAWEES Reviewer Award

2012: UI Young Investigator Award for climate change adaptation in Idaho, UI

## **PROFESSIONAL LICENSES**

**Professional Engineer**, Water Resources Engineer since 2004

The State of Washington, Registration No. 41416

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

The State of Idaho, Registration No. 15009 since 2012

## **PROFESSIONAL APPOINTMENT**

4/2016 – **College of Agricultural and Life Sciences, University of Idaho, USA**

present *Associate Professor*, Water Resources Program

Current appointment: 80% research and 20% scholarly service

1/2010 – **College of Agricultural and Life Sciences, University of Idaho, USA**

7/2016 *Assistant Professor*, Dept. of Bio & Agricultural Engineering

Current appointment: 80% research and 20% scholarly service

- Hydrological modeling for drought impact assessment
- Climate impact mitigation and adaptation
- Sustainable water resources planning
- Conflict resolution

5/2015 – **Department of Electrical and Computer Engineering, US Air Force Academy, USA**

7/2016 *Air Force Faculty Fellow*, Academy Center for Unmanned Aircraft Systems (UAS)

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- UAS-based drought monitoring system
- Drought index development
- Hyperspectral imaging processes

5/2006 – **School of Natural Resources, University of Nebraska-Lincoln, USA**

12/2009 *Hydrologist (Postdoctoral Research Associate)*, National Drought Mitigation Center

Current appointment: 70% research and 30% scholarly service.

- Develop computer-based decision-support systems for drought management
- Incorporate climate forecast information into hydrologic modeling
- Develop GIS-based web application for decision makers
- Write grant proposals and supervise graduate and undergraduate students.

### **PROFESSIONAL AND SCHOLARLY SERVICE**

1. American Society of Agricultural and Biological Engineers, Member, 2010- present
2. American Society of Civil Engineers, Committee, 2002-present, Environmental Water Resources System, World Environmental & Water Resources Congress
3. American Society of Civil Engineers, Committee, 2010-present, International Water Council, World Environmental & Water Resources Congress
4. American Water Resources Association (2002-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
5. American Geophysics Union (2002-Present)
6. Korea Institute of Construction Technology (KICT), Technical Advisory Board-Water Resources, 2010-present
7. Korean-American Scientists and Engineers Association (KSEA), UKC 2016, Executive Director, KSEA 45 Admin Executive Director, 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), KSEA-Northwest Regional Conference (NWRC), 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
8. Associate Editor, Journal of Civil Engineering, Korean Society of Civil Engineers (2013-present)
9. Agriculture, Environment and Society (POD) Program of Distinction (POD), CALS
10. Department Promotion and Tenure Committee for Marvin Heimgartner, 2011, BAE, University of Idaho
11. Eastern Snake Hydrologic Modeling Committee (ESHMC), Idaho Department of Water Resources (2012-present)
12. Maquis Who's Who in America 2015 (69th Edition)

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### **TEACHING ACCOMPLISHMENTS**

Courses Taught: Hydrological Modeling and Application, BAE504, University of Idaho,  
Summer, 2012

SOIL 001: System modeling for water resources management (2.4 CEUs)

SOIL 404: System modeling for water resources management (2 Credits)

Student Advised (and Serving): Water Resources Engineering (as major professor)

Jung Jin Kim, Ph.D. Student, 2011-2017 (Currently Post-Doc at Texas A&M University)

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

Logan Miller, M.S. Student, since Fall Semester 2012

Riveraine Walter, Ph.D. Student, since Fall Semester 2014

Caitlin Eastman, Ph.D. Student, since Fall Semester 2015

Graduate Committee Served (and Serving) on:

Arpana Nayak, ME student, 2014-2015

Mohammad Sohrabi, Ph.D. Student, since Fall Semester 2010

Jacob Wolf, M.S. Department of Geography, 2012

Mark Cecchini Beaver, College of Law, 2010-2011

Postdoctoral Research Associate Advising and Mentoring:

Jinwon Seo, Ph.D., 2011-2012, currently at a state agency

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

Graduate Student s Oversea:

Christabel Jane Rubio, M.S. in Civil Engineering at Kongju National University, 2010

### **PEER-REVIEWED JOURNAL PAPER**

author, respectively

\*# Indicates a graduate student and postdoc co-

1. \*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
- 2.\*Kim, J.J., Ryu, J.H. 2016. "A Heuristic Gap Filling Method for Daily Precipitation Series", Water Resources Management, 30(7), 2275-2294
- 3.\*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
- 4.\*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), 0415025(1-15)

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5. \*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
6. 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
7. \*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
8. #Acharya A., Ryu, J. H. 2014. "Simple method for streamflow disaggregation", *Journal of Hydrological Engineering*, 19(3), 509-519
9. \*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
10. \*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
11. \*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
12. 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
13. 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
14. 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
15. 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

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16. 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
17. 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
18. 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
19. 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
20. 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

**CONFERENCE PROCEEDINGS AND PRESENTATIONS** (O: Oral presentation, P: Poster presentation, F: Full paper, A: Abstract only): \*,# Indicates a graduate student and postdoc co-author, respectively

1. 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
2. (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
3. 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.
4. (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
- 5.

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6. 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
7. 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
8. 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
9. 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
10. 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
11. Ryu, J.H., 2015, “Water Resources Planning and Management to Mitigate Drought in a Changing Climate: Monitoring, Management, and Outlooks”, The 1<sup>st</sup> Climate Change Symposium: Adaptation and Mitigation, Hilton Garden Inn, May 3-5, 2015, Chicago, Illinois
12. 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
13. 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
14. 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
15. \*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

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16. <sup>O,A\*</sup>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
17. <sup>O,A</sup> 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
18. <sup>O,A</sup> 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
19. <sup>O,A\*</sup> 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
20. <sup>O,A\*</sup> 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
21. <sup>P,A\*</sup>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
22. <sup>O,A</sup> 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
23. <sup>P,A</sup>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
24. <sup>O,A</sup> 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
25. <sup>O,A\*</sup>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

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26. <sup>O,A</sup> 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
27. <sup>P,A\*</sup> 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
28. <sup>O,A\*</sup> 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
29. <sup>O,A#</sup> 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
30. <sup>O,A\*</sup> 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
31. <sup>O,A</sup> 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
32. <sup>P,A\*</sup> Sohrabi, M., Ryu, J., 2011, “Investigating drought using extreme climatic indices over Idaho, USA”, AGU Fall meeting, Dec 5-9, San Francisco, California
33. <sup>O,A</sup> 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
34. <sup>O,A</sup> 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
35. <sup>O,A</sup> 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
36. <sup>P</sup> 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
37. <sup>O,F</sup> 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



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ASCE World Environmental and Water Resources Congress, May 16-20, Providence, Rhode Island

38. <sup>O,A</sup> 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
39. 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
40. <sup>O,A</sup> 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
41. <sup>O,A</sup> 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
42. <sup>O,A</sup> 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
43. <sup>O,F</sup> 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
44. <sup>O,F</sup> 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
45. <sup>A</sup> Ryu, J.H., 2008, "Snowmelt and Rainfall-Runoff Modeling Using NEXRAD Precipitation Input", AGU Fall meeting, Dec 15-19, San Francisco, California
46. <sup>F</sup> 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
47. <sup>A</sup> 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
48. <sup>O,F</sup> 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

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49. <sup>P</sup> 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>)
50. <sup>P</sup> 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>)
51. <sup>O,F</sup> 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
52. <sup>O,F</sup> 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
53. <sup>O,F</sup> 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
54. <sup>O,A</sup> Ryu, J.H., Palmer, R.N., Jeong, S., Lee, J., 2003. "An Optimization Model to Mitigate Conflicts", EWRI Congress 2003, ASCE, Philadelphia, USA
55. <sup>O,A</sup> 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
56. <sup>O,F</sup> 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

### **GRANT AND PROPOSALS**

University of Idaho:

1. Ryu, J and LaPagalia, K. "Idaho Drone League (iDrone) to promote STEM education in Idaho", Vandal Idea Project (VIP), University of Idaho, Role: PI, \$72,500
2. Ryu, J. "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, Role: PI, \$75,000
3. Ryu, J. "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).
4. Ryu, J. "Advancing drought monitoring to promote climate-resilient water management in the west" by

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USDA Hatch, 7/1/2014-6/30/2019, Role: PI, \$68,000

5. Ryu, J. “Enhancing water supply monitoring and forecasting using NASA satellite data products” by NASA Idaho NASA EPSCoR, 6/25/2013-6/24/2014, Role: Co-PI, \$25,000
6. “IGERT: Adaptation to change in water resources: Science to inform decision-making across disciplines, cultures, and scales, Collaborators: Jan Boll and many UI faculty, My Role: Faculty Participant, \$3M total, FY2012-FY2017
7. “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, My Role: Co-PI, University of Idaho, \$15,000 (my budget, but this was not in place due to federal sequestration)
8. “Development of LITeFe Linux Cluster for Big Data Analysis” by NSF Idaho EPSCoR, \$13,000, FY2013, My Role: PI,
9. “Validating local droughts to enhance climate-resilient agricultural water management in Idaho” by Office of Research and Economic Development, FY2014 Seed Grant Application Page, 7/1/2013-6/30/2013. Role: PI, University of Idaho, \$11,999
10. “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. Role: PI, \$8,912
11. “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. Role: PI, \$9,225
12. “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. Role: PI, \$8,707
13. “Application of an ecological health assessment for Reclamation managed reservoirs”– Submitted to BOR/S&T Program, Collaborators: Dmitri Vidergar (BOR), Jinwon Seo, 1/1/2013-3/31/2014, My Role: PI, \$15,000,
14. “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, My Role: Co-PI, University of Idaho, \$15,000 (my budget)
15. “Developing an integrated modeling environment for Idaho’s climate change research” by EPSCoR, FY2012, My Role: PI, University of Idaho, \$42,733
16. “Developing Seasonal Predictive Capability for Drought Mitigation Decision Support System” by NASA via University of Illinois, 10/1/2010-10/09/2012, Role: PI, University of Idaho, \$240,014

## **Jae Ryu, Ph.D., P.E.**

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17. “Development of a pilot drought information system for national drought disaster reduction” by the Korea National Emergency Reduction, 10/1/2009-9/30/2011, Role: PI, University of Idaho, \$13,524
18. “Modeling Hydrologic and Socio-Economic Impacts of Alternative Water Management Responses to Climate Change” by USGS WaterSMART, \$169,699, My Role: Co-PI (0.5mo for FY2011, 1mo for FY2012 through in-kind service)

University of Nebraska:

1. 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, Role: Co-PI, University of Nebraska, \$223,525

### **PEER-REVIEWING**

1. Advances in Water Resources
2. Asia-Pacific Journal of Atmospheric Sciences
3. Bioprocess and Biosystems Engineering
4. Environmental Modeling & Software
5. Geophysical Research Letters, American Geophysics Union (AGU)
6. Hydrologic Science Journal
7. International Journal of Climatology
8. Journal of the American Water Resources Association
9. Journal of Applied Meteorology and Climatology, American Meteorological Society (AMS)
10. Journal of Environmental Management
11. Journal of Hydrology
12. Journal of Hydrologic Engineering, American Society of Civil Engineers (ASCE)
13. Journal of Hydrometeorology, American Meteorological Society (AMS)
14. Journal of Water Resources Planning and Management, ASCE
15. Korean Society of Civil Engineers
16. Natural Hazards
17. Water Resources Research, American Geophysics Union (AGU)

### **PROJECT-REVIEWING (PROFESSIONAL ACTIVITIES)**

1. NOAA Sea Grant, Alabama-Mississippi FY16
2. Partner University Fund, France, FY16
3. National Environment Research Council, United Kingdom, FY14
4. Korea Institute of Construction and Technology (KICT), R&D Program, FY14
5. Small Business Innovation Research (SBIR), Phase II solicitation, FY10, NOAA
6. Sector Application Research Program (SARP), FY10, NOAA
7. Engineer Research and Development Center (ERDC), FY09, The US Army Corps of Engineers
8. Member, National Integrated Drought Information System (NIDIS), GIS Team, 2006-present