

Seshadri Rajagopal

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Education

- Ph.D.** Hydrometeorology, 2012. University of Arizona, Tucson. Advisor: Dr. Hoshin Gupta; Dissertation: Assessing water management impacts of climate change for a semi-arid watershed in the southwestern US.
- M.S.** Hydrology, 2006. University of Nevada, Reno. Advisor: Dr. Douglas Boyle; Thesis: Development and evaluation of a streamflow forecasting tool to improve reclamation operational water supply forecasts in the Carson River
- B.Eng.** Civil Engineering. 2004. National Institute of Technology, Karnataka, India

Professional Appointments

- Assistant Research Professor, Division of Hydrologic Sciences, Desert Research Institute (DRI), Nevada System of Higher Education 2014-present
- Post-Doctoral Fellow, Division of Hydrologic Sciences, DRI 2012-2014
- Graduate Research Assistant, Hydrology and Water Resources, UA 2006-2011
- Graduate Research Assistant, Division of Hydrologic Sciences, DRI 2004-2006

Publications

Journal articles

- Adams, K. D., R. M. Negrini, E. R. Cook, and S. Rajagopal (2015), Annually resolved late Holocene paleohydrology of the southern Sierra Nevada and Tulare Lake, California, *Water Resour. Res.*, 51, doi:10.1002/2015WR017850
- Rajagopal S., Gupta H. V., Troch P. A., Dominguez F., Castro C. L., (2014). Physical mechanisms related to climate-induced drying of two semi-arid watersheds in the southwest US, *Journal of Hydrometeorology*, Volume: 15 Issue: 4 Pages: 1404-1418
- Serrat-Capdevila A., Valdes J.B., Dominguez F, Rajagopal S, (2013) Characterizing the water extremes of the new century in the US South-west: a comprehensive assessment from state-of-the-art climate model projections, *International Journal of Water Resources Development* 29 (2), 152-171
- Harpold A., Brooks P. D., Rajagopal S., Heidbuechel, I, Stielstra C, Jardine A, (2012). Changes in Snowpack Accumulation and Ablation in the Intermountain West, *Water Resources Research*, Volume: 48 Article Number: W11501
- Mahmoud I. M., Gupta H. V., Rajagopal S., (2011), Scenario Development for Water Resources Planning and Management: Methodolgy and Semi-Arid Region Case Study, *Journal of Environmental Modeling and Software*, Volume: 26 Issue: 7 Pages: 873-885

- Troch P. A., Gustavo C., Heidebüchel I., Rajagopal S., Switanek M. B., Volkmann T. H. M., Yaeger M., (2008). Dealing with Landscape Heterogeneity in Watershed Hydrology: A review of Recent Progress toward New Hydrological Theory, *Geography Compass* 2: 10.1111/j.1749-8198.2008.00186

Technical Reports (peer reviewed)

- Rajagopal S., (2015) Improving Predictability in the Colorado River Basin – Value of combining winter synoptic patterns with Sea Surface Temperature (SST) states. 22p. Central Arizona Project, Phoenix, Arizona.
- Rajagopal S., Huntington J. L., Niswonger R. G., Pohll G. M., Gardner M, Morton C. G., Zhang Y., Reeves D. M., (2015) Integrated Surface and Groundwater Modeling of Martis Valley, California, for Assessment of Potential Climate Change Impacts on Basin-Scale Water Resources, 53 p. Bureau of Reclamation, Carson City, Nevada.
- Abatzoglou, J. T., Hegewisch, K., Carroll, R. W., Lutz, A., Leising, J. F., Rajagopal, S., Brooks, K., Thomas, J. M. (2014). Impacts of a Changing Climate on Water Resources in the Eastern Great Basin, DRI, Southern Nevada Water Authority.
- Rajagopal, S., Reeves, D.M., Huntington, J., Morton, C.G., Pohll, G., (2014) Desert Research Institute Technical Note to MWH: Truckee Basin Water Supply, 39 p. Bureau of Reclamation, Sacramento, California.
- Huntington, J. L., Mihvec, T., Allen, R., Spears, M., Rajagopal, S., Gangopadhyay, S., Eckhart, D. (2013). Development of a Reservoir Meteorological Network for Estimating Evaporation to Aid in Operations, Policies, and Procedures
- Huntington, J.L., R.G. Niswonger, S. Rajagopal, Y. Zhang, M. Gardner, C.G. Morton, D. M. Reeves, D. McGraw, G.M. Pohll. (2013). Integrated Hydrologic Modeling of Lake Tahoe and Martis Valley Mountain Block and Alluvial Systems, Nevada and California. Proceedings Paper, MODFLOW and More 2013, June 2-5, 2013, Golden, Colorado, 5p.
- Rajagopal, S., D.M. Reeves, J. Huntington, and G. Pohll (2012), Desert Research Institute Technical Note to PCWA: Estimates of Ground Water Recharge in the Martis Valley Ground Water Basin: 11p. Placer County Water Authority, California.

Publications in Progress

- Rajagopal S., Harpold A., Testing and Improving Temperature Thresholds for Snow and Rain Prediction in the Western United States, *Journal of American Water Resources Association*, <Accepted>.
- Harpold A., Rajagopal S., McNamara J., Schumer R., Klos Z., Link T. and Steele C. Rain or Snow: Processes, Observations, Prediction, and Research Needs For The Hydrological Sciences, <In Preparation>.
- Rajagopal S., Huntington J. L., Niswonger R. G., Pohll G. M., Gardner M, Morton C. G., Zhang Y., Reeves D. M. The interplay of snow, surface water, and groundwater reservoirs for integrated water resources management, <In Preparation>.

Grants and Fellowships

- Water Sustainability in Snow-Fed Arid Land River Systems, USDA-NSF, Role: Post-doc, \$98,489 2014–present
- Predictability of seasonal precipitation based on atmospheric circulation patterns and sea surface state for the Central Arizona Project, Phoenix. Role: Principal Investigator, \$42,000 2012–2014
- University of Arizona, Water Sustainability Fellowship, \$20,000 2010
- National Center for Atmospheric Research, Research Applications Laboratory, Summer Internship, \$2,000. 2008
- Salt River Project Student Fellowship, \$60,000. 2007–2009

Awards

- Central Arizona Project Award for Water Research. Annual prize given to outstanding water researchers in Arizona. 2011

Teaching and Student Mentorship

- Developed and taught a graduate level Advanced Surface Hydrology class at the University of Nevada, Reno Spring 2012, 2013, 2015
- Graduate Advising and serving on Masters Committee. Students: Christine Hedge, Ryan Liebert, John Volk. Graduated in: 2015
- Graduate Advising and serving on PhD. Committee. Students: Kelley Sterle, Steve Bacon. 2014–present
- Mentored NSF - Research Experience for Undergraduates (REU). Student: Suzan L. Homsombath. Summer 2015

Conference Proceedings

Oral Presentations

- Rajagopal S., and Harpold A., Variability in snow-rain transitions challenge the fidelity of temperature threshold models for ecohydrologic prediction. Western Snow Conference, 2015, Grass Valley, California.
- Rajagopal S., Using Observations, Models and Remote Sensing to Understand Winter Precipitation Dynamics in the Tahoe Basin, Tahoe Science Conference, 2015, Reno, Nevada.
- Rajagopal S., Huntington J., Niswonger R., Reeves D. M., Gardner M., Morton C., Pohll G., The value of integrated hydrologic modeling for water resource management: Tahoe Basin case study, AWRA Special meeting on IWRM, 2014, Reno, Nevada.

- Rajagopal S., Niswonger R., Huntington J., Dettinger M., Reeves D. M., Gardner M., Morton C., Pohll G., Integrated hydrologic model GSFLOW for mountainous catchment – setup and calibration, iEMS, 2014, San Diego, California.
- Rajagopal S., Huntington J., Reeves D. M., Morton C., Pohll G., Development and calibration of basin-scale watershed models of the upper Truckee for assessment of climate change impacts on water resources, NWRA Fall Symposium, 2013, Reno, Nevada.
- Rajagopal S., Huntington J., Niswonger R., Zeng Y., Reeves D. M., Pohll G., Gardner M., Integrated model development for the Truckee river basin to quantify changing hydrologic fluxes under various climate scenarios, UCOWR/NIWR Annual Meeting, 2013, Lake Tahoe, California.
- Niswonger, R., Huntington, J. L., Dettinger, M., Morton, C. G., Rajagopal, S., Pohll, G. M., Gardner, M. A., Reeves, D. Multi-scale simulations of past and future projections of hydrology in Lake Tahoe Basin, California-Nevada, 2013 AGU Fall Meeting. <Invited>
- Reeves, D., Huntington, J. L., Rajagopal, S., Niswonger, R. G., Gardner, M., Zhang, Y., Pohll, G. M. Development of integrated surface water - ground water models of Martis Valley and Lake Tahoe basins for assessment of climate change impacts on water resources, Nevada Water Resources Association Annual Meeting, 2013, Reno, Nevada.
- Rajagopal S., Huntington J., Niswonger R., Reeves D. M., Pohll G., Quantifying integrated hydrologic model input and parameter uncertainty using markov chain monte carlo simulations, Session H44A, Advances in Uncertainty Assessment and Sensitivity Analysis Methods for Hydrological Modeling I, AGU, 2012, San Francisco, California.
- Rajagopal S., Dominguez F., Gupta H. V., Troch P. A., and Durcik M., Assessing impacts of climate change in a semi arid watershed using downscaled IPCC climate output, El dia del agua, University of Arizona, 2010, Tucson, Arizona.
- Rajagopal S., Dominguez F., Gupta H. V., Troch P. A., Assessing impacts of climate change in a semi-arid watershed using downscaled IPCC climate output, IAHS, 2009, Hyderabad, India.

Poster Presentations

- Rajagopal S., Harpold A., Predicting Snow-To-Rain Transitions Across The Western U.S.: When Is Daily Air Temperature Sufficient?, AGU: San Francisco, CA, Dec, 2015
- Rajagopal S., Huntington J. L., Niswonger R. G., Reeves D. M., Morton C. G., Zhang Y., Gardner M., Pohll G. M., The value of integrated hydrologic modeling for water resource management: Tahoe Basin study, AGU, 2014
- Rajagopal, S., Huntington, J. L., Niswonger, R., Gardner, M. A., Morton, C. G., Reeves, D., Pohll, G. M. High Resolution Integrated Hydrologic Modeling for Water Resource Management: Tahoe Basin case study, AGU: San Francisco, CA, December 15, 2014-December 19, 2014
- Volk, J., Prudick, D., Rajagopal, S., Huntington, J. L., Niswonger, R. Climate Change Impacts on the Lehman-Baker Creek Drainage in the Great Basin National Park, AGU, December 10, 2013
- Rajagopal S., Mihevc T., Design and verification of an inexpensive sonic water depth sensor using Arduino, AGU, 2012.

- Huntington, J. L., Niswonger, R. G., Rajagopal, S., Pohll, G. M., Reeves, D. Quantifying Integrated Hydrologic Model Input and Parameter Uncertainty using Markov Chain Monte Carlo Simulations, American Geophysical Union 2012 Fall Conference: San Francisco, CA.
- Huntington J., Rajagopal S., Allen R., Mihevc T., Schumer R., Caldwell T., DeBruin H., Energy balance comparison and closure at a moist desert playa: the importance of ground heat storage and flux estimation, AGU, 2012.
- Rajagopal S., Dominguez F., Gupta H. V., Troch P. A., Durcik M., Assessing impacts of climate change on semi arid watersheds using downscaled climate data-A new approach, AGU, 2009.
- Rajagopal S, Gochis D. J., Scott R. L., Gupta H. V., Troch P. A., Improving riparian land surface flux estimation through root zone groundwater interaction in semi arid environments, AGU, 2008.
- Rajagopal S, Boyle D. P., Optimizing the Carson River to Minimize Water Quantity and Quality Impacts on the Truckee River, JFIC 2006.
- Rajagopal S, Boyle D. P., Lamorey G., Bassett S., Toward Improving Water Supply Forecasts on the Carson River with a Physically Based Hydrologic Model, AGU, 2005.

Professional Development

- Organized and participated in Session titled: Changes from Snow to Rain: Observation, Prediction, and Consequences Posters, Session number: GC23B. Sponsor: American Geophysical Union. 2015
- Organized and participated in workshop: Improving Predictions of Snow-To-Rain Transitions by Synthesizing Observations and Models at Sites Across the Western U.S. Sponsor: NSF-EPSCoR. 2015
- Organized and participated in workshop: Ecohydrologic Resilience in Transitional Landscapes of the Great Basin: Importance of Vegetation Heterogeneity for Interpreting NASA Remote Sensing Products. Sponsor: NASA-EPSCoR. 2015
- Moderated Session: Modeling for Water Supply Management Sponsor: University Council on Water Resources. 2013
- Participated: Weather Research and Forecast Annual Meeting, Boulder, Colorado. Sponsor: NCAR 2012

Professional Service

- Reviewer for Proceedings of the National Academy of Sciences, Water Resources Research, Journal of Hydrometeorology, Hydrologic Process, Environmental Earth Sciences, Water Resources Research Institute.
- Departmental Service, Served on hiring committee for the Applied Innovation Center, DRI. 2014.
- Community Outreach, Judged student posters at the NWRA annual meeting, 2012

- Community Outreach, Volunteer judge at science fair to promote math and science education with high school students in Tucson, Arizona. (<http://azmesa.arizona.edu/>)
- Community Outreach, Volunteered at the local STEM academy in Reno, NV to introduce hydrology to middle school students.