

# Rajagopalan Balaji

Department of Civil, Environmental, and Architectural Engineering

428 UCB, University of Colorado, Boulder, CO 80309-0428

Phone: (303)-492-5968

Fax: (303)-492-7317

Email: [balajir@colorado.edu](mailto:balajir@colorado.edu) Web - Google Scholar:

[https://scholar.google.com/citations?hl=en&user=9NWkJgAAAAJ&view\\_op=list\\_works&sortby=pubdate](https://scholar.google.com/citations?hl=en&user=9NWkJgAAAAJ&view_op=list_works&sortby=pubdate)

## EDUCATION

- PhD (1995) **Utah State University**, Logan, UT: Civil and Environmental Engineering (specialization: Stochastic Hydrology, Hydro climate/Water Resources)  
Dissertation “Nonparametric Stochastic Generation of Daily Precipitation and Other Weather Variables”
- M. Tech.<sup>1</sup> (1991) **Indian Statistical Institute**, Calcutta, India: Quality Reliability and Operations Research  
Thesis “Hypothetical study of Water Resources Management using Systems Analysis”  
Project “Application of Statistical Design of Experiment Techniques to a Quality problem in a Chemical Industry”
- B. Tech.<sup>1</sup> (1989) **National Institute of Technology**, Kurukshetra, India: Civil Engineering  
Sr. Projects “Structural Design of a Five Storied Building”  
“Layout and Design of a highway connecting two points in Kurukshetra”

## EMPLOYMENT HISTORY

- 2022-2023 **Associate Chair for Administration, Department of Civil, Environmental and Architectural Engineering (CEAE)**
- 2014-2022 **Chair, CEAE, University of Colorado at Boulder**
- 2010- **Professor, CEAE, University of Colorado at Boulder**
- 2012-2014 **Faculty Director, CEAE, University of Colorado at Boulder**
- 2010-2012 **Associate Chair, CEAE, University of Colorado at Boulder**
- 2007-2010 **Associate Professor, Department of Civil, Environmental and Architectural Engineering, University of Colorado at Boulder**
- 2000 - 2007 **Assistant Professor, CEAE, University of Colorado at Boulder**
- 2001- **Fellow, Co-operative Institute for Research in Environmental Sciences (CIRES), University of Colorado, Boulder (Re-appointed for a 5-year term in 2003)**
- 1997-2003 **Research Assistant Professor, Utah Water Research Laboratory (UWRL), Utah State University, Logan, UT**
- 2000-2006 **Adjunct Associate Research Scientist, International Research Institute for Climate Prediction (IRI), Lamont-Doherty Earth Observatory (LDEO) of Columbia University, New York**
- 1999-2000 **Associate Research Scientist, IRI / LDEO, Columbia University, New York**
- 1997-1999 **Associate Research Scientist, LDEO, Columbia University, New York**
- 1995-1997 **Post Doctoral Research Scientist, LDEO, Columbia University, New York**
- 1991-1995 **Graduate Research Assistant, UWRL, Utah State University, Logan, UT**
- 1991 **Summer Intern, Alembic Chemicals, Ltd., Baroda, India** Performed statistical design of experiments to improve the efficacy of their leading cold/cough drug
- 1990 **Summer Intern, Hindustan Cables Ltd., Hyderabad, India.** Performed *Statistical Quality Control* analysis on their cable manufacturing process
- 1988 **Summer Intern, Engineers India Ltd., Cochin, India.** Worked on structural design and construction supervision at their petroleum refinery site

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<sup>1</sup> With Honors

## HONORS AND AWARDS

- *Fulbright-Kalam Climate Fellowship*, US Department of State, 2023
- *Fellow, American Society of Civil Engineers*, 2023
- *Fellow, American Geophysical Union*, 2018
- *College Research Award*, College of Engineering and Applied Sciences, University of Colorado, Boulder, CO, 2014
- *Department Service Award*, Civil, Environmental and Architectural Engineering, University of Colorado, Boulder, CO, 2013
- *Department Distinguished Achievement Award*, Civil, Environmental and Architectural Engineering, University of Colorado, Boulder, CO, 2010
- *Department of Interior*, Partners in conservation award - part of the group that played a role in the adoption of innovative, new operational guidelines for managing the Colorado River in drought years. Award presented to the group by the secretary of Interior in Washington D.C. on May 6, 2009
- *World Meteorological Organization Norbert Gerbier - MUMM International Award for 2009*, for the paper entitled “Unraveling the Mystery of Indian Monsoon Failure During El Nino”, published in SCIENCE, Vol. 314, 6 October 2006.
- *Department Research Development Award*, Civil, Environmental and Architectural Engineering, University of Colorado, 2006
- *Department Young Researcher Award*, Civil, Environmental and Architectural Engineering, University of Colorado, 2003
- Invited Participant, 15<sup>th</sup> Annual Beckman Frontiers of Science Symposium, *National Academy of Sciences*, Irvine, CA, Nov 6 - 8, 2003.
- *Nominated for the Lorenz G. Straub award* for the most meritorious thesis in hydraulics and hydrology and (finished in the top three), 1996
- *Honorable mention, Award for the Outstanding Water Resources Dissertation in the field of Engineering and Physical Sciences*, The Universities Council on Water Resources, 1996
- *Distinguished Utah State University Dissertation in Engineering*, for the period, 1993-1995
- *Utah State University's nomination for the Council of Graduate School's Distinguished Dissertation Award*, 1995
- *Best Student Paper award*, at the student paper contests conducted by American Water Resources Association, Utah chapter during 1992 and 1993
- *Govt. of India Scholarship*, Indian Statistical Institute, Calcutta, India, 1989-1991
- *National Merit Scholarship*, National Institute of Technology, Kurukshetra, India, 1985-1989

**RESEARCH****PEER-REVIEWED JOURNAL MANUSCRIPTS (IN REVIEW / UNDER REVISION)**

(\*\*\*Papers that received press coverage; \*\*\*Papers with students and Research Assocs. at CU Boulder; student names are underlined)

1. Yao, F., B. Livneh, B. Rajagopalan, J. Wang, K. Yang, J-F Cretaux, C. Wang, Leveraging ICESat-2 and Landsat for global-scale, multi-decadal reconstruction of lake water levels, in review, *Water Resources Research*, 2023<sup>\*\*\*</sup>
2. Woodson, D., B. Rajagopalan, U. Lall and E. Zagona, How unprecedented is the Colorado River "Millennium Drought"?, (in review), *NATURE CLIMATE AND ATMOSPHERIC SCIENCE*, 2023<sup>\*\*\*</sup>
3. Hoerling, M., J. Eischeid, H. Diaz, B. Rajagopalan and E. Kuhn, Critical Effects of Precipitation on Future Colorado River Flow, (in review), *Journal of Hydrology*, 2023
4. Mahanthege, S., W. Kleiber, K. Rittger, B. Rajagopalan M. Brodzik and E. Bair, A Spatially Distributed Machine Learning Approach for Fractional Snow-Covered Area Estimation, (in review), *Water Resources Research*, 2023<sup>\*\*\*</sup>
5. Cantareo, S., E. Flores, H. Allbrook, P. Aguayo, C. Vargas, J. Tamanaha Jr., B. C. Scholz, L. Bach, C. Loscher, U. Riebesell, B. Rajagopalan, N. Dildar and J. Sepulveda, Lipid remodeling in phytoplankton exposed to multi-environmental drivers in a mesocosm experiment, (in review), *EGU Biogeosciences* 2023.
6. Puente, P., L. Condon and B. Rajagopalan, Understanding the Temporal Variability and Predictability of Streamflow Signatures in the Colorado River Basin, (in review), *Journal of Hydrology*, 2023<sup>\*\*\*</sup>
7. Thota, S. and B. Rajagopalan, Spatial Variability and Moisture Tracks of Indian Monsoon Rainfall and Extremes, *Climate Dynamics*, (in review), 2023<sup>\*\*\*</sup>

**PEER-REVIEWED JOURNAL PUBLICATIONS (PUBLISHED/ACCEPTED/IN PRESS)**

(\*\*\*Papers that received press coverage; \*\*\*Papers with students and Research Assocs. at CU Boulder; student names are underlined)

221. Woodson, D., B. Rajagopalan and E. Zagona, Long Lead Forecasting of Spring Flows in the Colorado River Using Random Forest, *ASCE J. of Water Resources Planning and Management*, (in press), 2024<sup>\*\*\*</sup>
220. Magotra, B., V. Prakash, M. Saharia, A. Getirana, S. Kumar, R. Pradhan, C.T. Dhanya, B. Rajagopalan, R. P. Singh, A. Pandey, M. Mohapatra, Towards an Indian land data assimilation system (ILDAS): A coupled hydrologic-hydraulic system for water balance assessments, *Journal of Hydrology*, Volume 629, February 2024, 130604, 2024<sup>\*\*\*</sup>
219. Bonham, N., J. Kasprzyk, E. Zagona and B. Rajagopalan, Subsampling and Space-filling Metrics to Test Ensemble Size for Robustness Analysis with a Demonstration in the Colorado River Basin, *Environmental Modeling and Software*, Volume 172, January 2024, 105933, 2024<sup>\*\*\*</sup>
218. Yao, F., J.T. Minear, B. Rajagopalan, C. Wang, K. Yang and B. Livneh, Estimating reservoir sedimentation rates and storage capacity losses using high-resolution Sentinel-2 satellite and water level data, *Geophysical Research Letters*, 50(16), e2023GL103524, 2023<sup>\*\*\*</sup>
217. Yao, F., B. Livneh, B. Rajagopalan, J. Wang, K. Yang, J-F Cretaux, C. Wang, Satellites reveal widespread decline in global lake water storage, *SCIENCE*, 380(6646), 743-749, 2023<sup>\*\*\*</sup>
216. Ossandon, A., B. Rajagopalan and W. Kleiber, Forecasting magnitude and frequency of seasonal streamflow extremes using a Bayesian hierarchical framework, *Water Resources Research*, 59, e2022WR033194, 2023<sup>\*\*\*</sup>
215. Wycech JB, Rajagopalan B, Molnar PH, Gill E, Marchitto TM. "Multiproxy Reconstruction of Pliocene North Atlantic Sea Surface Temperatures and Implications for Rainfall in North Africa.", *Paleoceanography and Paleoclimatology*, 37, e2022PA004424, 2022
214. Ossandon, A., Rajagopalan B, Tiwari AD, Thomas T, Mishra V. "A Bayesian Hierarchical Model Combination Framework for Real-Time Daily Ensemble Streamflow Forecasting Across a Rainfed River Basin." *Earth's Future*. 10 (12), *Earths Future*, 2022<sup>\*\*\*</sup>
213. Abel, B. D., Rajagopalan, B., & Ray, A. J. (2022). Understanding the dominant moisture sources and pathways of summer precipitation in the southeast Prairie Pothole Region. *Earth and Space Science*, 9, e2021EA001855, 2022<sup>\*\*\*</sup>
212. Dixit, A., S. Sahany, B. Rajagopalan and S. Choubey, Role of Changing Land-use-land-cover

- on the 2018 Mega-floods over Kerala, India, *Climate Research*, 89 (October 13, 2022): 1-14, 2022
211. Nanditha, J.S. V. Mishra and B. Rajagopalan, Combined signatures of atmospheric drivers, soil moisture, and moisture source on Floods in Narmada River Basin, India *Climate Dynamics*, 59(9 10) 1-21, 2022
  210. Towler, E., D. Woodson, S. Baker, M. Ge, J. Prairie, B. Rajagopalan, S Shanahan and R. Smith, Incorporating Mid-Term Temperature Predictions into Streamflow Forecasts and Operational Reservoir Projections in the Colorado River Basin, *Journal of Water Resources Planning and Management*, 148(4), 04022007, 2022<sup>+++</sup>
  209. Baker, S., A. Wood, B. Rajagopalan, J. Prairie, C. Jerla, E. Zagona, R. Butler and R. Smith, The Colorado River Basin Operational Prediction Testbed: A framework for Evaluating Streamflow Forecasts and Reservoir Operations, *Journal of American Water Resources Association*, 58 (5) 690-708, 2022<sup>+++</sup>
  208. Ossandon, A., Ossandon A, Nanditha JS, Mendoza PA, Rajagopalan B, Mishra V, A Bayesian hierarchical framework for post-processing daily streamflow simulations across a river network, *Journal of Hydrometeorology*, 23(6), 947-963, 2022<sup>+++</sup>
  207. Culler, E., B. Livneh, B. Rajagopalan and K. Tiempo, A data-driven evaluation of post-fire Landslide Susceptibility, *Natural Hazards and Earth System Sciences*, (published online), 2022<sup>+++</sup>
  206. Ossandon, A., M. Brunner, B. Rajagopalan and W. Kleiber, A space-time Bayesian hierarchical modeling framework for projection of seasonal streamflow extremes, *Journal of Hydrology and Earth System Sciences*, 26(1), 149-166, 2022<sup>+++</sup>
  205. Abel, B. D., Rajagopalan, B., Ray, A. J., Space-time variability of summer hydroclimate in the United States Prairie Pothole Region, *Earth Interactions*, 26(1), 39-51, 2022<sup>+++</sup>
  204. Abel, B. D., Rajagopalan, B., Ray, A. J., Understanding the dominant moisture sources and pathways of summer precipitation in the southeast Prairie Pothole Region, *Earth and Space Science*, 9, e2021EA001855, 2022<sup>++</sup>
  203. Woodson, D., Rajagopalan, B., S. Baker, R. Smith, J. Prairie, E. Towler, M. Ge and E. Zagona, Stochastic Decadal Projections of Colorado River Streamflow and Reservoir Pool Elevations Conditioned on Temperature Projections, *Water Resources Research*, 57, e2021WR030936, 2021<sup>+++</sup>
  202. Baker, S., A. Wood and B. Rajagopalan, Enhancing Ensemble Seasonal Streamflow Forecasts in The Upper Colorado River Basin Using Multi-Model Climate Forecasts, *Journal of American Water Resources Association*, 57(6), 906-922, 2021<sup>+++</sup>
  201. Horvath, S., J. Stroeve and B. Rajagopalan A linear mixed effects model for seasonal forecasts of Arctic sea ice retreat, *Polar Geography*, 44 (4), 297-314, 2021<sup>+++</sup>
  200. Ossandon, A., B. Rajagopalan, U. Lall, J. Nanditha and V. Mishra, A Bayesian Hierarchical Network Model for Daily Streamflow Ensemble Forecasting, *Water Resources Research*, 57, e2021WR029920, 2021<sup>+++</sup>
  199. Schneider, A., E. Gill, B. Rajagopalan and G. Algaze, A Trade-Friendly Environment?: Newly Reconstructed Indian Summer Monsoon Wind-Stress Curl Data for the 3rd Millennium BCE and their Potential Implications Concerning the Development of Early Bronze Age Trans-Arabian Sea Maritime Trade, *Journal of Maritime Archeology*, 16 (4) 395-411, 2021<sup>+++</sup>
  198. Rittger, K., M. Krock, W. Kleiber, E. Bair, MJ. Brodzik, T. Stephenson, B. Rajagopalan and T. Painter, Multi-sensor fusion using random forests for daily fractional snow cover at 30 m, *Remote Sensing Environment*, (published online), 2021<sup>+++</sup>
  197. Ossandon, A., B. Rajagopalan and W. Kleiber, Spatial-Temporal Multivariate Semi-Bayesian Hierarchical Framework for Extreme Precipitation Frequency Analysis, *Journal of Hydrology*, 600, 126499, 2021<sup>+++</sup>
  196. Horvath, S., J. Stroeve, B. Rajagopalan and A. Jahn, Arctic sea ice melt onset favored by an atmospheric pressure pattern reminiscent of the North American-Eurasian Arctic Dipole Pattern, *Climate Dynamics*, 57(7-8), 1771-1787, 2021<sup>+++</sup>
  195. Heldmyer, A., B. Livneh, B. Rajagopalan and N. Molotch, Investigating the Relationship Between Peak Snow-Water Equivalent and Snow Timing Indices in the Western U.S. and Alaska, *Water Resources Research*, 57(5), e2020WR029395, 2021<sup>+++</sup>
  194. Perez-Angel, L. C., J. Sepulveda, P. Molnar, C. Montes, B. Rajagopalan, K. Snell, C. Gonzalez-Arango and N. Dildar, Soil and Air Temperature Calibrations Using Branched GDGTs for the

- Tropical Andes of Colombia: Toward a Pan-Tropical Calibration, *Geochemistry, Geophysics, Geosystems*, 21(8), e2020GC008941, 2020<sup>+++</sup>
193. Molnar, P. and B. Rajagopalan, Mid-Holocene Sahara-Sahel Precipitation From the Vantage of Present-Day Climate, *Geophysical Research Letters*, 47(16), e2020GL088171, 2020
  192. Samantha, D., B. Rajagopalan, K. B. Karnauskas, L. Zhang and N. F. Goodkin, La Niña's Diminishing Fingerprint on the Central Indian Summer Monsoon, *Geophysical Research Letters*, 47(2), e2019GL086237, 2020
  191. Horvath, S., J. Stroeve, B. Rajagopalan and W. Kleiber, A Bayesian logistic regression for probabilistic forecasts of the minimum September Arctic sea ice cover, *Earth and Space Science*, 7(10), e2020EA001176, 2020<sup>+++</sup>
  190. Salas, R., M. Hallowell, B. Rajagopalan and S. Bhandari, Safety Risk Tolerance in the Construction Industry: Cross-Cultural Analysis, *Journal of Construction Engineering and Management*, 146(4), 04020022, 2020<sup>+++</sup>
  189. Baker, S., A. Wood and B. Rajagopalan, Application of Postprocessing to Watershed-Scale Subseasonal Climate Forecasts over the Contiguous United States, *Journal of Hydrometeorology*, 21(5), 971-987, 2020<sup>+++</sup>
  188. Abel, B., B. Rajagopalan and A. Ray, A predictive model for seasonal pond counts in the United States Prairie Pothole Region using large-scale climate connections, *Environmental Research Letters*, 15(4), 044019, 2020<sup>+++</sup>
  187. Raseman, W., B. Rajagopalan, J. Kasprzyk and W. Kleiber, Nearest neighbor time series bootstrap for generating influent water quality scenarios, *Stochastic Environmental Research and Risk Assessment*, 34(1), 23-31, 2020<sup>+++</sup>
  186. Wycech, J., E. Gill, B. Rajagopalan, T. Marchitto, P. Molnar, Multiproxy Reduced-Dimension Reconstruction of Pliocene Equatorial Pacific Sea Surface Temperatures, *Paleoceanography and Paleoclimatology*, 35(1), e2019PA003685, 2020<sup>+++</sup>
  185. Kohler, L., J. Silverstein and B. Rajagopalan, On-site Wastewater Treatment Systems After an Extreme Storm Event, *ASCE Journal of Sustainable Water in the Built Environment*, 6(2), 04020008, 2020<sup>+++</sup>
  184. Van Dusen, P., B. Rajagopalan, D. Lawrence, L. Condon, G. Smillie, S. Gangopadhyay and T. Pruitt, 21<sup>st</sup> Century flood risk projections for the U.S. National Park Service, *Climate Risk*, 28, 100211, 2020<sup>+++</sup>
  183. Cruickshank, R. F., G. Henze, B. Rajagopalan, B-M. S. Hodge and A. Florita, Quantifying the opportunity limits of automatic residential electric load shaping, *Energies*, 12(17), 3204, 2019<sup>+++</sup>
  182. DeRousseau, M.A., E. Laftchiev, J. R. Kasprzyk, B. Rajagopalan and W.V. Srubar, A comparison of machine learning methods for predicting the compressive strength of field-placed concrete, *Construction and Building Materials*, 228(20), 116661, 2019<sup>+++</sup>
  181. Broman, D., B. Rajagopalan and T. Hopson, Spatial and Temporal Variability of East African Kiremt Season Precipitation and Large-Scale Teleconnection, *International Journal of Climatology*, 40 (2), 1241-1254, 2020<sup>+++</sup>
  180. Smith, R., J. Kasprzyk and B. Rajagopalan, Combining multivariate regression trees and multiobjective tradeoff sets to reveal fundamental insights about water resources systems, *Environmental Modelling and Software*, 120, 104498, 2019<sup>+++</sup>
  179. Baker, S., A. Wood and B. Rajagopalan, Developing Sub-Seasonal to Seasonal Climate Forecast Products for Hydrology and Water Management, *Journal of American Water Resources Association*, 55(4), 1024-1037, 2019<sup>+++</sup>
  178. Verdin, A., B. Rajagopalan, W. Kleiber, G. Podesta and F. Bert, BayGEN: A Bayesian space-time stochastic weather generator, *Water Resources Research*, 55(4), 2900-2915, 2019<sup>+++</sup>
  177. Suchetena, B., B. Rajagopalan and J. Silverstein, Modeling risk attributes of wastewater treatment plant violations of Ammonia Discharge Limits in the United States, *Stochastic Environmental Research and Risk*, 33(3), 879-889, 2019<sup>+++</sup>
  176. Rajagopalan, B., S. Erkyihun, E. Zagona, U. Lall and K. Nowak, A nonlinear dynamical systems based modeling approach for stochastic simulation of streamflow and understanding predictability, *Water Resources Research*, 55(7), 6268-6284, 2019<sup>+++</sup>
  175. M. Tye, R. Katz and B. Rajagopalan, Climate change or climate regions? Examining multi-annual

- variations in precipitation extremes over the Argentine Pampas, *Climate Dynamics*, 53(1-2), 245-260, 2019<sup>+++</sup>
174. Suchetana, B., Rajagopalan, B., & Silverstein, J. (2019). Investigating regime shifts and the factors controlling Total Inorganic Nitrogen concentrations in treated wastewater using non homogeneous Hidden Markov and multinomial logistic regression models, *Science of the Total Environment*, 646, 625-633, 2019<sup>++</sup>
  173. Garcia GA, Garcia PE, Rovere SL, Bert FE, Schmidt F, Menendez AN, Nosetto MD, Verdin A, Rajagopalan B, Arora P Podesta, G. P, A linked modelling framework to explore interactions among climate, soil water, and land use decisions in the Argentine Pampas, *Environmental Modelling and Software*, 111, 459-471, 2019<sup>++</sup>
  172. Sahany S, Mishra SK, Pathak R, Rajagopalan B, Spatiotemporal Variability of Seasonality of Rainfall Over India, *Geophysical Research Letters*, 45 (14), 7140-7147, 2018
  171. Bracken, C., K. Holman, B. Rajagopalan and H. Moradkhani, A Bayesian hierarchical approach to multivariate nonstationary hydrologic frequency analysis, *Water Resources Research*, 54 (1), 243-255, 2018<sup>+++</sup>
  170. Crawford AD, Horvath S, Stroeve J, Balaji R, Serreze MC, Modulation of Sea Ice Melt Onset and Retreat in the Laptev Sea by the Timing of Snow Retreat in the West Siberian Plain, *Journal of Geophysical Research-Atmospheres*, 123 (16), 8691-8707, 2018<sup>+++</sup>
  169. Kenigson JS, Han W, Rajagopalan B, Yanto, Jasinski M, Decadal Shift of NAO-Linked Interannual Sea Level Variability along the US Northeast Coast, *Journal of Climate*, 31 (13), 4981-4989, 2018<sup>++</sup>
  168. Ezequiel Garcia P, Diego Badano N, Menendez AN, Bert F, Garcia G, Podesta G, Rovere S, Verdin A, Rajagopalan B, Arora P, Influence of land use and rainfall changes on the water dynamics of a plain, an extensive flat river basin. Case study: The Salado River Basin, Buenos Aires, Argentina, *RIBAGUA-REVISTA IBEROAMERICANA DEL AGUA*. 5 (2), 92-106, 2018
  167. Hariri-Ardebili MA, Seyed-Kolbadi SM, Saouma VE, Salamon J, Rajagopalan B, Random finite element method for the seismic analysis of gravity dams, *Engineering Structures*. 171, 405-420, 2018<sup>++</sup>
  166. Jana S, Rajagopalan B, Alexander MA, Ray AJ, Understanding the Dominant Sources and Tracks of Moisture for Summer Rainfall in the Southwest United States, *Journal of Geophysical Research-Atmospheres*. 123 (10), 4850-4870, 2018<sup>+++</sup>
  165. Verdin, A., B. Rajagopalan, W. Kleiber, G. Podesta and F. Bert, A conditional stochastic weather generator for seasonal to multi-decadal simulations, *Journal of Hydrology*, 556, 835-846, 2018<sup>++</sup>
  164. Stewart, J. R., B. Livneh, J. Kasprzyk, B. Rajagopalan, T. Minear and W. Raseman, Multialgorithm approach to land surface modeling of suspended sediment in the Colorado Front Range, *Journal of Advances in Modeling Earth Systems*, 9, 2526-2544, 2017<sup>+++</sup>
  163. Han., W., G. A. Meehl, A. Hu, J. Zheng, J. Kenigson, J. Vialard, B. Rajagopalan and M. Yanto, Decadal variability of the Indian and Pacific Walker cells since the 1960s: Do they co-vary on decadal time scales?, *Journal of Climate*, 30(21), 8447-8468, 2017<sup>+++</sup>
  162. Erkyihun, S., B. Rajagopalan and E. Zagona, Wavelet and Hidden Markov Based Stochastic Simulation Methods Comparison on Colorado River Streamflow, *ASCE Journal of Hydrologic Engineering*, 22(9), 2017<sup>+++</sup>
  161. Yanto, B. Livneh and B. Rajagopalan Development of A Gridded Meteorological Data Set over the Java Island, Indonesia 1985 - 2014, *Nature Scientific Data*, 4, 2017<sup>+++</sup>
  160. Suchetana, B., B. Rajagopalan and J. Silverstein, A Regression Tree based Assessment of Wastewater Treatment Facility Compliance with Current and More Stringent Ammonia Discharge Limits, *Science of the Total Environment*, 598, 29-257, 2017<sup>+++</sup>
  159. Sapin, J., B. Rajagopalan, L. Saito, Dai, A., B. Rajagopalan, R.B. Hanna and D. Kauneckis, Demonstration of Integrated Reservoir Operations and Extreme Hydroclimate Modeling of Water Temperatures for Fish Sustainability below Shasta Lake, *Journal of Water Resources Planning and Management*, 143(10), 2017<sup>+++</sup>
  158. Sapin, J., B. Rajagopalan, L. Saito and J. Caldwell, A K-Nearest Neighbor Based Stochastic Multisite Flow and Stream Temperature Generation Techniques for Lake Shasta, *Environmental Modelling and Software*, 91, 87-94. 2017<sup>+++</sup>

157. Gill, E., B. Rajagopalan, P. Molnar and T. Marchitto, Multi-proxy reconstruction of Indian summer monsoon winds and rainfall over the past 10,000 years using Mg/Ca and alkenone records, *Paleoceanography*, 32(2), 195-216, 2017<sup>+++</sup>
156. Tixier, A. J.-P., M. Hallowell and B. Rajagopalan, Construction Safety Risk Modeling and Simulation, *Risk Analysis*, 10, 1917-1935, 2017<sup>+++</sup>
155. Tixier, A. J.-P., M. Hallowell, B. Rajagopalan, D. Bowman, Construction Safety Clash Detection: Identifying Safety Incompatibilities among Fundamental Attributes using Data Mining, *Automation in Construction*, 74, 39-54, 2017<sup>+++</sup>
154. Kohler, L., J. Silverstein and B. Rajagopalan, Risk-cost estimation of on-site wastewater treatment system failures using extreme value analysis, *Water Environment Research*, 89(5), 406-415, 2017<sup>+++</sup>
153. Yanto, B. Livneh, B. Rajagopalan and J. Kasprzyk, Modeling the Hydrologic Processes of the Java Island, Indonesia, *Journal of Hydrology Regional Studies*, 9, 127-139, 2017<sup>+++</sup>
152. Saouma V. E, Hariri-Ardebili MA, Le Pape Y, Balaji R, Effect of alkali-silica reaction on the shear strength of reinforced concrete structural members: A numerical and statistical study, *Nuclear Engineering and Design*, 310, 295-310, 2016<sup>+++</sup>
151. Gill, E., B. Rajagopalan, P. Molnar, and T. M. Marchitto, Reduced-dimension reconstruction of the equatorial Pacific SST and zonal wind fields over the past 10,000 years using Mg/Ca and alkenone records, *Paleoceanography*, 31, 928-952, 2016<sup>+++</sup>
150. Kohler, L., JoAnn Silverstein, and Balaji Rajagopalan, Modeling on-site wastewater treatment system performance fragility to hydroclimate stressors, *Water Science and Technology*, 74 (12), 2917-2926. 2016<sup>+++</sup>
149. Bracken, C., B. Rajagopalan, W. Kleiber and L. Cheng and S. Gangopadhyay, Efficient Bayesian hierarchical modeling of spatial precipitation extremes over a large Domain, *Water Resources Research*, 52(8), 6643-6655, 2016<sup>+++</sup>
148. Bracken, C., B. Rajagopalan, and C. Woodhouse, Bayesian hierarchical nonhomogeneous hidden Markov model for multisite streamflow reconstructions, *Water Resources Research*, 52(10), 7837-7850, 2016<sup>+++</sup>
147. Tixier, A., M. Hallowell, B. Rajagopalan and D. Bowman, Application of machine learning to construction injury prediction, *Automation in Construction*, 69, 102-114, 2016<sup>+++</sup>
146. Erkyihun, S., B. Rajagopalan, E. Zagona, U. Lall and K. Nowak, Wavelet-based Time Series Bootstrap Model for Multi-decadal Streamflow Simulation Using Climate Indicators, *Water Resources Research*, 52, 4061-4077, 2016<sup>+++</sup>
145. Suchetana, B., B. Rajagopalan and J. Silverstein, A Hierarchical Modeling Approach to Evaluate Spatial and Temporal Variability of Wastewater Treatment Compliance with Biochemical Oxygen Demand, Total Suspended Solids and Ammonia Limits in the US, *Environmental Engineering and Science*, 33(7), 514-524, 2016<sup>+++</sup>
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32. Grantz, K., B. Rajagopalan, M. Clark and E. Zagona, A Technique for incorporating large-scale climate information in basin-scale ensemble streamflow forecasts *Water Resources Research*, 41, W10410, 1-13, 2005<sup>+++</sup>
31. Clark, M.S., S. Gangopadhyay, D. Brandon, K. Werner, L. Hay, B. Rajagopalan and D. Yates, Development and Application of a resampling procedure to generate conditioned daily weather sequences, *Water Resources Research*, 40, W04304, 2004<sup>+++</sup>
30. Gangopadhyay, S., M. Clark, K. Werner, D. Brandon and B. Rajagopalan, Effects of Spatial and Temporal Aggregation on the Accuracy of Statistically Downscaled Precipitation Estimate in the Upper Colorado River Basin, *Journal of Hydrometeorology*, 5, 1192-1206, 2004
29. Clark, M.S., S. Gangopadhyay, L. Hay, B. Rajagopalan and R. Wilby, The Schaake Shuffle: Method for Reconstructing space-time variability in forecasted precipitation and temperature fields, *Journal of Hydrometeorology*, 5, 243-262, 2004<sup>+++</sup>
28. Yates, D., S. Gangopadhyay, B. Rajagopalan, and K. Strzepek, A nearest neighbor bootstrap technique for generating regional climate scenarios for integrated assessments, *Water Resources Research*, 2003<sup>+++</sup>
27. Neumann, D., B. Rajagopalan and E. Zagona, A regression model for daily maximum stream temperature, *ASCE Journal of Environmental Engg*, 129, 667-674, 2003<sup>+++</sup>
26. Rajagopalan, B., U. Lall, and S. Zebiak, Optimal Categorical Climate Forecasts through Multiple GCM Ensemble Combination and Regularization, *Monthly Weather Review*, 130, 1792-1811, 2002
25. Turre, Y., B. Rajagopalan, Y. Kushnir, M. Barlow and W. White, Patterns of coherence decadal time scale variability in the Pacific Ocean during the twentieth century, *Geophysical Research Letters*, 28(10), 2069-2072, 2001
24. Rajagopalan, B., E. Cook, U. Lall, B. Ray, Temporal Variability of ENSO-drought association in the South West US, *Journal of Climate*, 13, 4244-4255, 2000

23. Rajagopalan, B., and U. Lall, A Nearest Neighbor Bootstrap Resampling Scheme for Resampling Daily Precipitation and other Weather Variables, *Water Resources Research*, 35(10), 3089-3101, 1999
22. Tourre, Y., B. Rajagopalan, and Y. Kushnir, Dominant patterns of climate variability in the Atlantic ocean region during the last 136 years, *Journal of Climate*, 12, 2285-2299, 1999
21. KrishnaKumar, K., R. Kleeman, M. A. Cane, and B. Rajagopalan, Epochal changes in Indian Monsoon - ENSO Precursors, *Geophysical Research Letters*, 26(1), 75-78, 1999
20. Phillips, J., B. Rajagopalan, M. Cane, and C. Rosenzweig, The Role of ENSO in determining climate and maize yield variability in the US cornbelt, *International Journal of Climatology*, 19, 877-888, 1999
19. Krishna Kumar, K., B. Rajagopalan, and M.A. Cane, On the weakening relationship between the monsoon and ENSO, *Science*, 284, 2156-2159, 1999\*\*\*
18. Stone, L., A. Huppert, B. Rajagopalan, H. Bhasin, and Y. Loya, Mass coral reef bleaching: A recent outcome of increased El Nino activity?, *Ecology Letters*, 2(5), 325-330, 1999
17. Rajagopalan, B., U. Lall, and M. Cane, Comment on? Reply to the comments of Trenberth and Hoar?, *Bulletin of the American Meteorological Society*, 80, 2724-2726, 1999
16. Kaplan, A., M. A. Cane, Y. Kushnir, A. C. Clement, B. Blumenthal, and B. Rajagopalan, Analyses of Global Sea Surface Temperature, 1856 - 1991, *Journal of Geophysical Research*, 103, 18567-18589, 1998
15. Rajagopalan, B., M. E. Mann and U. Lall, A multivariate frequency-domain approach to long-lead climatic forecasting, *Weather and Forecasting*, 13(1), 58-74, 1998
14. Rajagopalan, B., and U. Lall, Low Frequency Variability in Western U.S. Precipitation, *Journal of Hydrology*, 210, 51-67, 1998
13. Rajagopalan, B., Y. Kushnir, Y. Tourre, Observed decadal midlatitude and tropical Atlantic climate variability, *Geophysical Research Letters*, 25(21), 3967-3970, 1998\*\*\*
12. Price, C., L. Stone, A. Hupert, B. Rajagopalan, and P. Alpert, A Possible Link Between El Nino and Precipitation in Israel, *Geophysical Research Letters*, 25(21), 3963-3966, 1998\*\*\*
11. Rajagopalan, B., and U. Lall, Nearest Neighbour Local Polynomial Estimation of Spatial Surfaces, Spatial Interpolation Comparison Contest, *Journal of Geographic Information and Decision Analysis*, 2(2), 48-57, 1998
10. Rajagopalan, B., U. Lall, D.G. Tarboton, and D. S. Bowles, Multivariate Nonparametric Resampling Scheme for Simulation of Daily Weather Variables, *Journal of Stochastic Hydrology and Hydraulics*, 11(1), 65-93, 1997
9. Rajagopalan, B., U. Lall, and D. G. Tarboton, Evaluation of Kernel Density Estimation Methods for Daily Precipitation Resampling, *Journal of Stochastic Hydrology and Hydraulics*, 11(6), 523-547, 1997
8. Rajagopalan, B., U. Lall, and M. A. Cane, Anomalous ENSO occurrences: an alternate view, *Journal of Climate*, 10(9), 2351-2357, 1997
7. Rajagopalan, B., U. Lall, and D. G. Tarboton, A Nonhomogeneous Markov Model for Daily Precipitation Simulation, ASCE, *Journal of Hydrologic Engineering*, 1(1), 33-40, 1996
6. Lall, U., B. Rajagopalan, and D. G. Tarboton, A Nonparametric Wet/Dry Spell Model for Resampling Daily Precipitation, *Water Resources Research*, 32(9), 2803-2823, 1996
5. Rajagopalan, B., and U. Lall, A Kernel Estimator for Discrete Distributions, *Journal of Nonparametric Statistics*, 4, 409-426, 1995
4. Rajagopalan, B., and U. Lall, Seasonality of Precipitation along a meridian in the Western U.S., *Geophysical Research Letters*, 22(9), 1081-1084, 1995\*\*\*
3. Kshirsagar, M. M., B. Rajagopalan, and U. Lall, Optimal Parameter Estimation for Muskingum Routing with Ungauged Lateral Inflow, *Journal of Hydrology*, 169, 25-35, 1995
2. Moon, Y., B. Rajagopalan, and U. Lall., Estimation of Mutual Information Using Kernel Density Estimators, *Physical Review E*, 52(n3B), 2318-2321, 1999
1. Rajagopalan, B., and D. G. Tarboton, Understanding Complexity in the structure of rainfall, *Fractals*, 1(3), 606-628, 1993

#### BOOK CHAPTERS

1. Rajagopalan, B. and U. Lall, STOCHASTIC STREAMFLOW SIMULATION AND FORECASTING, Book Chapter in the Handbook of Applied Hydrology, Ed. Vijay Singh. McGraw Hill, 2017
2. Lall, U. and B. Rajagopalan, NONPARAMETRIC METHODS, Book Chapter in the Handbook of Applied Hydrology, Ed. Vijay Singh, McGraw Hill, 2017
3. Rajagopalan, B., J. Salas and U. Lall, in Encyclopedia of Environmetrics Second Edition, A. H. El-Shaarawi and W. Piegorisch (eds). John Wiley & Sons Ltd, Chichester, UK, pp. 1316-1321. DOI: 10.1002/9780470057339.vnn038, 2012
4. Rajagopalan, B., and C. Brown, State of resource: Quantity, Chapter 15 (in Volume 2), p 381-395, The United Nations World Water Development Report 4, 2012
5. Rajagopalan, B., R. Connor, P. Glennie, J. van der Gun, G. J. Lloyd and G. Young, The water resource: Variability, vulnerability and uncertainty, Chapter 3, p 77-94, The United Nations World Water Development Report 4, Vol. 1, 2012.
6. Rajagopalan, B., C. Brown, Basic Research and R&D (Chapter 2.11), in Natural Resources Technology, Economics and Policy, Editor: U. Aswathanarayana, CRC Press, Leiden, Netherlands, 2012
7. Rajagopalan, B., J. Salas and U. Lall, Stochastic methods for modeling precipitation and streamflow, in Advances in Data-based Approaches for Hydrologic Modeling and Forecasting, Ed by B. Sivakumar and R. Berndtsson, World Scientific, Singapore, 2010
8. Rajagopalan, B., K. Grantz, S. Regonda, M. Clark and E. Zagona, Ensemble streamflow forecasting: Methods and Applications, in Advances in Water Science Methodologies, Ed by U. Aswathanarayana, Taylor and Francis, Netherlands, 2005<sup>\*\*\*</sup>

#### REFEREED CONFERENCE PROCEEDINGS

1. Cruickshank, R. F., G. Henze, B. Rajagopalan, B-M. S. Hodge and A. Florita, Empirical Investigations of the Opportunity Limits of Automatic Residential Electric Load Shaping, *IEEE Transactions on IAS*, Denver, CO, Mar 29-31, 2017. Also as NREL report NREL/CP-5D00-67800
2. Zachman, B., R. S. Summers and B. Rajagopalan, A model to predict TOC breakthrough in small and field-scale GAC adsorbers, published in the proceedings of the 124th AWWA Annual Conference and Exposition, San Fransisco, CA, June 12-16, 2005
3. Rajagopalan, B., E. Ou, R. Corotis, D. Frangopol, Estimating Structural Reliability Under Hurricane Wind Hazard: Applications to Wood Structures, Proceedings of the 9th ASCE Specialty Conference on Probabilistic Mechanics and Structural Reliability, Albuquerque, NM, July 26-28, 2004. (Abstract published on page 75 in the book of Abstracts)
4. Neumann, D., B. Rajagopalan, E. Zagona, M. Bender, and T. Scott, An Operations Model for Temperature Management of the Truckee River, Proceeding of the *Second Federal Interagency Hydrologic Modeling Conference*, Las Vegas, NV, 2002
5. Prairie, J., B. Rajagopalan, and T. Fulp, Long-term Salinity Prediction with Uncertainty Analysis, Proceedings of the *Second Federal Interagency Hydrologic Modeling Conference*, Las Vegas, NV, 2002
6. Saouma, V., E. Hansen, B. Rajagopalan, Statistical and 3D Nonlinear Finite Element Analysis of Schlegeis Dam, *Proceedings of the Sixth ICOLD Benchmark Workshop on Numerical Analysis of Dams*, Salzburg, Austria, Oct 17 - 19, 2001.
7. Rajagopalan, B., U. Lall, and D. G. Tarboton, A Nonparametric Renewal Model for Modeling Daily Precipitation, published in the Proceedings of the *International Conference in Stochastic and Statistical Methods in Hydrology and Environmental Engg.*, Univ. of Waterloo, Waterloo, Canada, Time series analysis and forecasting, Ed by K. Hipel, A. I. McLeod, U.S. Panu and V.P. Singh, Kluwer, Vol. 3, 47-51, 1994
8. Satagopan, J., and B. Rajagopalan, Comparing Spatial Estimation Techniques for Precipitation Analysis, published in the Proceedings of the *International Conference in Stochastic and Statistical Methods in Hydrology and Environmental Engg.*, Univ. of Waterloo, Waterloo, Canada, Time series analysis and forecasting, Ed by K. Hipel, A. I. McLeod, U.S. Panu and V.P. Singh, Kluwer, Vol. 3, 317 330, 1994

*RESEARCH REPORTS*

1. Lukas, J., L. Wade and B. Rajagopalan, Paleohydrology of the lower Colorado River Basin and implications for water supply availability, project completion report to *Colorado Water Institute*, Oct, 2012
2. Block, P., K. Strzepek and B. Rajagopalan, Intergrated Management of the Blue Nile Basin in Ethiopia - Hydropower and Irrigation Modeling, *International Food Policy Research Institute (IFPRI)*, Discussion paper 00700, May, 2007
3. Xi, Y., B. Rajagopalan, and K. Molenaar, Quantifying construction delays due to weather, Final report of technology study submitted to Federal Highway Administration, Department of Civil, Environmental, and Architectural Engineering, University of Colorado, Boulder, Colorado, 2005
4. Bowles, D. S., E. Bingham, U. Lall, D. G. Tarboton, E. Malek, B. Rajagopalan, T. Chowdhury, and E. Kluzek, Development of Mountain Climate Generator and Snowpack Model for Erosion Predictions in the Western United States Using WEPP. Four project reports submitted to *USDA/USFS*, 1992, 1993, 1994 and 1995

*Popular Press Articles*

[Water Resources Management Lessons from Colorado, \*Frontline Magazine\*, Jan 2016.](#)



**INVITED COLLOQUIA/Keynote Speaker (Since 2010)**

Indian Institute of Information Technology, Hyderabad, India, December 2023.

**Keynote Speaker:** The Korea Water Resources Association Annual Conference, May 25, 2023.

**Keynote Speaker:** HYDRO2023 - 28th International Conference on Hydraulics, Water Resources and River Engineering, National Institute of Technology, Warangal, India, Dec 21-23, 2023,

**Keynote Speaker:** The International Conference on Multidisciplinary Approaches for Sustainable Rural Development (ICMA-SURE), University of General Soedirman, Purwokerto, Indonesia, Oct 19, 2023

**Keynote Speaker:** The 1st Climate and Water Forum at Hongkong University of Science and Technology (HKUST), Hongkong, May 2021

**Keynote Speaker:** Indo-US PICCS, IISER Mohali, India, January, 2020.

Indian Institute of Technology, Gandhinagar, India, June, 2019

Indian Institute of Technology, Hyderabad, India, June, 2018

SRM University, Chennai, India, July, 2018

Indian Institute of Technology, New Delhi, India, Nov 2017

Indian Institute of Technology, Chennai, India, Nov 2017

Institute of Mathematical Sciences, Chennai, India, Jun 2014, Jun 2016

Boulder Fluids Seminar Series, University of Colorado, Boulder, April, 2015

Distinguished research speaker, Neil Drummond Symposium, Dept. of Civil, Construction and Environmental Engineering, University of Alabama, Tuscaloosa, AL, Aug 19-20, 2013

**Keynote Speaker:** Bayes by the Bay - A pedagogical workshop on Bayesian methods in science, Pondicherry, Jan 4-8, 2013

Institute of Mathematical Sciences, Chennai, India, Jan 2013.

University of Colorado, Dept. of Civil, Environmental & Architectural Engineering, Feb, 2012

Institute of Mathematical Sciences, Chennai, India, Jul 2012.

National Research Council Panel on Sea Level Rise in west coast, Seattle, WA, May 11-12, 2011

Workshop on Extended Hydrological Prediction organized by WMO, Pune, Apr, 2011

University of Colorado, CEAE, Feb, 2010

Institute of Mathematical Sciences, Chennai, India, Chennai Science Club, Jun, 2010

Colorado Springs Utilities, Colorado Springs, Oct, 2010

## TEACHING, EDUCATION AND GRADUATE TRAINING

### PRINCIPAL ADVISOR TO GRADUATE STUDENTS

#### **Ph.D Graduated (29)**

Yeonsang Hwang (2005, Co-advised with M. Clark); Somkiat Apipattanavis (2006); Paul Block (2006, Co-advised with K. Strzepek); Satish Regonda (2006, Co-advised with E. Zagona); Katrina Grantz (2006, Co-advised with E. Zagona); Jim Prairie (2006); Eungul Lee (2007, Co-advised with T. Chase); Erin Towler (2010); James McCreight (2010, Co-advised with D. Slater); Ken Nowak (2011); R. Jason Caldwell (2013); Pablo Mendoza (2015, co-advised with M. Clark); Emily Gill (2015); Solomon Erkyihun (2015, Co-advised with E. Zagona); Cameron Bracken (2016); Andrew Verdin (2016); Carleigh Samson (2015, co-advised with R. Summers); Laura Kohler (2016, co-advised with J. Silverstein); Yanto (2016); Srijita Jana (2018); Bihu Suchetana (2017, co-advised with J. Silverstein); Dan Broman (2019, co-advised with T. Hopson); Sarah Baker (2019, co-advised with A. Wood); Sean Horvath (2020, co-advised with J. Stroeve); Rico Salas (2020, co-advised with M. Hallowell); Ben Abel (2021); Kelsey Reeves (2021, co-advised with R. Summers); Aalvaro Ossandon (2022); David Woodson (2023)

#### **Ph.D Current (3)**

Samba Prasad Thota, Naman Rastogi, Rachel Johnson

#### **M.S Graduated (23)**

D. Neumann (2001, Co-advised with E. Zagona); J. Prairie (2002, Co-advised with E. Zagona and T. Fulp); K. Grantz (2003, Co-advised with E. Zagona); Nkrintra Singhrattna (2003); Adam Hobson (2004); A. Kuroda (2004, Report); E. Towler (2006, Co-advised with R. Summers); K. Nowak (2008); Jean-Marc Mayotte (2009, Co-advised with H. Rajaram); Cameron Bracken (2011, Co-advised with E. Zagona); Lisa Wade (2012); N. Caraway (2012); E. Heisman (2012); E. Haagenson (2012); D. Broman (2013, co-advised with T. Hopson); A. Verdin (2013, co-advised with C. Funk); L Daugherty (2013, co-advised with E. Zagona); L. Callihan (2013, co-advised with E. Zagona); N. Stewart (2014); Jennifer Knapp (2015); P. Weil (2015); William Szefranski (2015); D. Zafar (2016); P. Van Dussen (2019), Javi Gual (2022, Visiting Student, Polytechnical University of Catalonia, Spain)

#### **M.S. Current (1)**

Elizabeth Simon

### SCIENTIFIC ADVISOR TO RESEARCH SCIENTISTS / POSTDOCTORAL RESEARCH ASSOCIATES

*Fangfang*, CIRES Postdoctoral Fellow (Jul 2020 - Dec 2022) - Co-advisor B. Livneh

*Jody Weycech*, CIRES Postdoctoral Fellow (Oct 2017 - Sep 2019) - Co-advisor with T. Marchitto and P. Molnar

*Angela Boag*, CIRES Postdoctoral Fellow (Dec 2018 - Oct 2019) - co-advisor with A. Ray

*Emily Gill*, NSF Postdoctoral Fellow Oct 2016 - Sep 2018

*Adam Schneider*, CIRES Visiting Postdoctoral Fellow Aug 2015 - Jul 2017

*Adam Schneider*, CIRES Research Affiliate, Jul 2017 - present

*Atreyee Bhattacharya*, CIRES Research Affiliate, Sep 2020 - present

*Linyin Cheng*, CIRES Visiting Postdoctoral Fellow Oct 2014 - Sep 2015

*James McCreight*, NASA postdoctoral Fellow, hosted at CEAE, University of Colorado, Boulder, Nov 2010 - Oct 2012

*Olga Yoshida*, Visiting Scientist from IPT- IPT-Institute of Technological Research Sao Paulo, Brazil, 2010-2011

*Krishna Kumar Kanikicharla*, from Indian Institute of Tropical Meteorology, Pune, India, Visiting Research Fellow, CIRES, University of Colorado, Boulder, 2003-2004, 2011

*Trent Biggs* from International Water Management Institute, Hyderabad, India, Visiting Scientist, CEAE, University of Colorado, Boulder, Oct 2005-My 2006

*Subhrendu Gangopadhyay*, Research Scientist, CIRES, University of Colorado, Boulder, 2002-2004

## **PRINCIPAL ADVISOR TO UNDERGRADUATE STUDENTS FOR RESEARCH EXPERIENCE**

### **NSF REU**

Andrea Yarberry (Sum 2010); Melissa Merril (Sum 2008); Cameron Bracken (Sum 2007); Laura Condon (sum 2006); Noah Fox (Sum 2003); Arun Wahi (Sum 2002); Marie Shrieber (Sum 2000, Co-advised with Y. Kushnir); Sarah Rudd (Sum 1999, Co-advised with Y. Kushnir); Joseph Casola (Sum 1998, Co-advised with Y. Kushnir); Miriam Zuk (Sum 1998; Co-advised with Y. Kushnir)  
Marcus Walter (Sum 2009, NCAR, Co-advised with R. Katz and E. Gilleland)

### **DISSERTATION/THESIS COMMITTEE**

Serving/served on more than 50 research advisory / examination committees for Ph.D and M.S. students from CEAE, Mechanical Engg., Aerospace Engg., ATOC, Geology, Geography, and Environmental Studies

### **EXTERNAL REVIEWER OF PH.D DISSERTATIONS**

T. Reshma (2015), National Institute of Technology, Warangal, India; Nayana Deshpande, University of Pune, India, (2010); Seth Westra, University of New South Wales, Sydney, Australia, (2007); Lochan Prasad Devkota, Tribhuvan University, Kathmandu, Nepal, (2004); Timothy Harrold, University of New South Wales, Sydney, Australia, (2002); K. Ramaswamy, Bharathiar University, Coimbatore, India, (2000); David Barg, New York University, New York, NY, (1997), J. Das (2018), National Institute of Technology, Warangal, India, M. Pascolini (2018), Columbia University, New York, H. Shah (2019), Indian Institute of Technology, Gandhinagar, India.

### **PRINCIPAL COURSEWORK INSTRUCTOR: EXISTING COURSES and NEW COURSES DEVELOPED(\*)**

CVEN3323      *Hydraulic Engineering*, service undergraduate course: F01, F02, F03, S04  
CVEN4333/5333 *Engineering Hydrology*: S01, S02  
CVEN5333\*      *Physical Hydrology and Hydroclimatology*, introductory graduate course: F02, F03, F12, F13, F14, F22  
CVEN5833      *Advanced Data Analysis Techniques*, upper-level graduate course: F00, S02  
CVEN5454      *Quantitative Methods*, introductory level graduate course: S03, S04  
CVEN5454      *Statistical Methods for Water and Env. Engineers*: S05, S06, S07, S09, S10, S11, S12, S13, S14, S15, S16, S17, S18, S19, S20, S21, S22, S23  
CVEN 5393\*      *Water Resources Development and Management*, S11, S13  
CVEN 4899      *Senior Design*, service undergraduate course: S09, F09, F10, F11, F12, F13, F14, F15, S16, S17, S18, S19, S20, S21, S22, S23  
CVEN6833\*      *Understanding and Detecting Hydroclimate Variability*, S04  
CVEN6833\*      *Advanced Data Analysis Techniques*, F05, F06, F07, F09, F10, F11, F13, F15, F16, F17, F18, F19, F20, F21  
CVEN6393\*      *Hydrology and Water Resources Seminar*, S09, F09, S10, F10, S11, F11, S12, F12, S13, F13, S14, F14, S15, F15, S16, F16, S17, F17, S18, F18, S19, F19, S20, F20, S21, F21, S22, F21, S22, F22, S23

### **PROFESSIONAL DEVELOPMENT WORKSHOPS**

Attended the Summer Institute 2009 for *New Media Pedagogy, Scholarship, and Learning Technologies using Web 2.0 Tools*, organized by FTEP, CU Boulder, May 11-15, 2009

Attended the NSF's *LEAP* workshop for Junior Faculty at CU Boulder, Jan 5-7, 2005 (To improve negotiation, time management and career planning skills in young faculty, useful in teaching and research)

Attended the Summer Institute 2004 for *New Media Pedagogy, Scholarship, and Learning Technologies*, organized by FTEP, CU Boulder, May 10-21, 2004

Attended the *NSF's Engineering Education Scholars Program* at University of Wisconsin, Madison, July 16-20, 1996 (This was a training program on various teaching techniques for science and engineering)

*NSF CMMI Panel Fellow* after completion of the 2023 Cohort - CMMI Game Changer Academies professional development course (January - May, 2023).

## SERVICE AND PROFESSIONAL ACTIVITIES

### National / International

#### EDITORSHIPS

Associate Editor, *Advances in Water Resources*, 2014-2019  
Associate Editor, *Water Resources Research*, 2009-2015, 2018-  
Associate Editor, *Climate Research*, 2008-  
Associate Editor, *Geophysical Research Letters*, 2004-2012  
Associate Editor, *Journal of Hydrologic Engineering (ASCE)*, 2004-2010  
Associate Editor, *Journal of Water Resources Planning and Management (ASCE)*, 2010-2012

#### COMMITTEES

- Serving on the prestigious AGU Macelwane Medal 2020- and Chair of the Committee 2022-
- Invited to be on the *Review Panel for NOAA proposals submitted to MAPP-Drought program*, Feb 13-14, 2017
- Invited to be on the *Review Panel for NASA proposals to the Advanced Information Systems Technology (AIST) Program, Albuquerque, NM, April 24 - 28, 2017*
- Invited to be on the *Electronic Review Panel for NSF proposals to the PREEVENTs program Jan 10, 2017*
- Member, *Predictions, Predictability and Applications Panel, U.S. Climate Variability and Predictability Research (CLIVAR)*, July 2007 - 2012  
(This organization helps set the climate research agenda that is considered by funding agencies like NSF, NOAA, NASA etc.)
- Invited to Co-author the *Climate Extremes Chapter of National Climate Assessment (NCA) South Western US, 2011-2012*  
(This is set up on the same lines as IPCC by US National Climate Change Assessment Program. The report was released in Dec 2012)
- UNESCO: Invited to author Chapter 15 "State of the Resources" of the *World Water Development Report, 4th edition, 2010-2012*. This report is put together every four years and was released in March 2012
- Invited to be on the *Review Panel for NOAA proposals submitted to MAPP-Drought program*, Dec 5, 2010
- Member, *Technical Advisory Committee, Colorado Water Availability Study, (State of Colorado)*, Aug 2009 - 2011
- Member, *Project Advisory Committee, American Water Works Association Research Foundation*, March 2006-Oct 2009
- Member, *Scientific Committee, International Conference on Environmental Management*, Oct 28-30, Hyderabad, India, 2005
- Member, 'Best Paper Award' Committee, for *ASCE Journal of Hydrologic Engineering*, 2005
- Invited to be on the *Review Panel for NSF proposals submitted to the Structural Systems and Hazard Mitigation program of CMS/ENG Division*, Apr 5, 2005
- Invited to be on the *Review Panel for NSF proposals submitted to the Structural Systems and Hazard Mitigation Program in CMS/ENG*, Aug 2003.
- Member, *Precipitation Committee, American Geophysical Union*, 1996 - 2000.  
(This committee is responsible for soliciting and deciding special sessions at the AGU meetings)
- Invited to participate in the *NOAA Intra-Seasonal to Interannual Prediction Program Workshop*, Maryland, August, 2003  
(to develop research priorities and program evaluation metrics for long term planning and budgeting)

### CONFERENCE AND CONFERENCE SESSION ORGANIZATION

- Co-organized a session on Chronic Kidney Disease (CKDu) at the, International Conference of the Public Health Foundation of India & Pacific Basin Consortium, New Delhi, India, Nov 14 - 16, 2017. Also organized a workshop on this topic after the conference (on Nov 17, 2017) in conjunction with researchers from India, Sri Lanka and USA.
- Co-organized Aspen Global Climate Change Institute (AGCI) Workshop, Health Impacts from Climate Change: The Importance of Public Health Partnerships, Sep 11-16, 2016, Aspen, CO
- Conceptualized and Co-organized the Symposium on Sustainability for Infrastructure - Rocky Mountain Region - Integrating Sustainability into Infrastructure Development, Boulder, CO, May 23, 2106
- Co-Organized AGU Chapman Conference on Seasonal to Interannual Hydroclimate Forecasts and Water Management, July 28-Aug1, 2013, Portland, OR, USA
- Co-Organized the summer colloquium on Statistical Assessment of Extreme Weather Phenomena under Climate Change, June 6-24, 2011, NCAR, Boulder, CO, USA
- Organized and Co-chaired a poster special session *Indian Monsoon*, at the American Geophysical Union Meeting, Dec 5-9, 2011.
- Organized and chaired an oral and poster special session *Indian Monsoon*, at the American Geophysical Union Meeting, Dec 14-18, 2009.
- Conceptualized, Proposed and Organized the *Indo-US Workshop on Integrating Climate and Weather Information in Water Management*, July 5-7, 2006, Pune, India. (This workshop was sponsored by the Indo-US Science and Technology Forum)
- Organized and chaired an oral and poster special session *North American Summer Monsoon: Understanding Its Interannual and Intra-annual Variability and Implications to Water Resources Management*, at the Spring Joint Assembly, American Geophysical Union Meeting, May 23-27, 2005.
- Organized and chaired an oral and poster special session *Ensemble Forecasts for Weather and Seasonal Climate*, at the Spring Joint Assembly, American Geophysical Union Meeting, May 23-27, 2005.
- Organized and chaired an oral and poster special session, “*Incorporating climate variability information in water resources decision making*”, at the American Geophysical Union Meeting, San Francisco, Dec 2002.
- Organized and chaired an oral and poster special session, *Low Frequency Climate Variability Signatures on Regional Hydrometeorological Variables - Implications to Hydrologic Forecasting and Planning*, at the American Geophysical Union Meeting, Boston, May 1998

### REVIEWER - Journal Papers

AGU, Water Resources Research; ASCE Journal of Hydrologic Engineering; ASCE Journal of Water Resources Planning and Management; AGU, Geophysical Research Letters; AGU, Journal of Geophysical Research; AMS, Journal of Climate; AMS, Journal of Hydrometeorology; AMS, Monthly Weather Review; AMS, Bulletin of American Meteorological Society; AGU Monographs; Climate Dynamics; Journal of Hydrology; Advances in Water Resources; IEEE; Journal of Agriculture and Forest Meteorology; International Journal of Climatology; Quarterly Journal of Royal Meteorological Society; Emerging Infectious Diseases; Tellus; Nature; Science

### REVIEWER - GRANT PROPOSALS

*National Science Foundation*: Hydrologic Sciences program, Climate dynamics program, Structural Systems and Hazard Mitigation program; *National Oceanic and Atmospheric Administration*: Office of Global Programs; *National Aeronautic and Space Agency*: Hydrologic Sciences Program; *United States Bureau of Reclamation*: Science and Technology Program; NSF - Hongkong; NSF-UK

**SERVICE AT THE UNIVERSITY OF COLORADO**

*CO-OPERATIVE INSTITUTE FOR RESEARCH IN ENVIRONMENTAL SCIENCES (CIRES)*

2022-2023 Chair, Innovative Research Proposal Review Committee  
2014-15 Chair, Faculty Search Committee  
2013-14 Faculty Search Committee  
2013-14 Chair, Innovative Research Proposal Program  
2012-13 Visiting Fellowship Committee  
2011-12 Chair, Visiting Fellowship Committee  
2010-13 Visiting Fellowship Committee  
2009-10 Member, Graduate Student Fellowship Committee  
2006-08 Member, Executive Committee: Spring 2006-Spring 2008  
2006-07 Member, Promotion Committee of Dr. Xinzhao Chu (to Assoc. Prof. without tenure)  
2005-06 Chair, Graduate Student Fellowship Committee (2005-2006)  
2004-06 Member, Graduate Student Fellowship Committee  
2002-04 Visiting Fellowship Committee

Served on two faculty search committees during 2006-2007

*DEPT. OF CIVIL, ENVIRONMENTAL AND ARCHITECTURAL ENGINEERING*

2011- 14 Executive Committee  
2014 -23 as Chair  
2012-14 Faculty Director  
2010-12, Associate Chair  
2022-23  
2010- Personnel Committee  
2006-07 Operations Committee  
2001-06 Curriculum Committee  
2009-10 Curriculum Committee

Faculty Meeting Secretary: Spring 2001, Fall 2001, Spring 2002

Served on four faculty search committees during 2003-2004, 2006-2007, 2011-2012 and 2017-2018 (as Chair)

*COLLEGE OF ENGINEERING AND APPLIED SCIENCES*

2022-2023 Member, College diverse faculty search committee  
2012 Member, Outstanding Dissertation Award Committee  
2014-2022 Member, Admin Council

**PUBLISHED ABSTRACTS AND CONFERENCE PAPER PRESENTATIONS (SINCE 2000)**

- Suchetana, B., G. Rajan, H. Pande and B. Rajagopalan, A Machine Learning-based Approach for Assessing Extreme Precipitation Responses of Separate Sewer Systems: A Cross-Country Perspective, presented at the Fall AGU Dec 11 - 16, 2023, San Francisco, CA
- Yao, F., B. Livneh, B. Rajagopalan, H. Borstlap, J. Goodall, K. Grise, K. Schiro and L. Band, Current state of knowledge and future directions in global lake hydrology in the Anthropocene, presented at the Fall AGU Conference, Dec 11-15, San Francisco, CA, 2023.
- Yao, F., B. Livneh, B. Rajagopalan, J. Wang, J-F. Crétau, Y. Wada and M. Berge-Nguyen, Global declines in lake water storage (Invited), presented at the Fall AGU conference, Dec 11-16, 2023, San Francisco, CA, 2023.
- Yao, F., B. Rajagopalan, B. Livneh, J. Wang, K. Yang, C. Wang, J-F Cretaux and J. T. Minear, Global reconstruction of multi-decadal lake water levels using ICESat-2 and long-term satellite imagery, presented at the Fall American Geophysical Union (AGU) conference, Chicago, IL, and Online, Dec 12-16, Online, 2022
- Guniganti, S.K, S. Regonda, S. Reed and B. Rajagopalan, Application of Hybrid Optimization for Calibration of Streamflow in Narmada River Basin, presented at the Fall American Geophysical Union (AGU) conference, Chicago, IL, and Online, Dec 12-16, Online, 2022
- Gual, J., Ossandon, A and B. Rajagopalan, Spatial and temporal Bayesian hierarchical model for reconstruction of sea surface temperatures over equatorial Pacific Ocean, presented at the Fall American Geophysical Union (AGU) conference, Chicago, IL, and Online, Dec 12-16, Online, 2022
- Woodson, D., B. Rajagopalan, E. Zagana, Long Lead Forecasting of Spring Flows in the Colorado River Using Random Forest, presented at the Hydrologic Sciences Symposium, CU Boulder, Apr 8-10, 2022
- Woodson, D., Rajagopalan, B., E. Zagana and U. Lall, How unprecedented is the current Colorado River drought? A paleo perspective, presented at the AGU Hydrology Days conference, Fort Collins, CO, Apr 25-27, 2022
- Yao, F., J. T. Minear and B. Rajagopalan, Assessing Reservoir Sedimentation in the United States, Presented at the AGU Chapman Conference on Solving Water Availability Challenges through an Interdisciplinary Framework | Golden, Colorado, 12-16 September 2022
- Ossandon, A and B. Rajagopalan, A space-time Bayesian hierarchical modeling framework for projection of seasonal high flow risk, presented at the AGU Frontiers in Hydrology Conference, San Juan, Puerto Rico, June 19-24, 2022.
- INVITED TALK: B. Rajagopalan, A. Ossandon, M. Brunner, W. Kleiber, V. Mishra, Bayesian Hierarchical Modeling Approaches for Hydroclimate Risk Assessment and Management, presented at the Fall American Geophysical Union (AGU) conference, New Orleans, LA, and Online, Dec 13-17, Online, 2021
- Ossandon, A., B. Rajagopalan, A.D. Tiwari and V. Mishra, Experimental daily ensemble streamflow forecasting system using physical model output in a Bayesian hierarchical framework, presented at the Fall American Geophysical Union (AGU) conference, New Orleans, LA, and Online, Dec 13-17, Online, 2021
- Kleiber, W., A. Ossandon and B. Rajagopalan, Spatial-temporal Bayesian hierarchical model for summer monsoon precipitation extremes over India presented at the Fall American Geophysical Union (AGU) conference, New Orleans, LA, and Online, Dec 13-17, Online, 2021
- Woodson, D., B. rajagopalan, S. Baker, R. Smith, J. Prairie, E. Towler, M. Ge and E. Zagana, E. Towler, S. Baker, R. Smith, J. Prairie and E. Zagana, Stochastic Decadal Projections of Colorado River Streamflow and Reservoir Pool Elevations Conditioned on Temperature Projections, presented at the Fall American Geophysical Union (AGU) conference, New Orleans, LA, and Online, Dec 13-17, Online, 2021
- Yao, F, B. Livneh, B. Rajagopalan, J. Wang, J-F Cretaux, Y. Wada, M. B-Nguyen and L. Pitcher, Multi-decadal global lake volume variability impacted by climate and human activities, presented at the Fall American Geophysical Union (AGU) conference, New Orleans, LA, and Online, Dec 13-17, Online, 2021
- Puente, P., B. Rajagopalan, D. Woodson and L. Condon, Exploring the Role of Nonlinear Dynamics on Low Frequency Extreme Streamflow Events, presented at the Fall American Geophysical Union



- (AGU) conference, New Orleans, LA, and Online, Dec 13-17, Online, 2021
- Thota, S. P., A., Ossandon, B. Rajagopalan and S. Regonda, A space-time Bayesian Hierarchical modeling approach for streamflow extremes in the Krishna River basin of South India, presented at the Fall American Geophysical Union (AGU) conference, New Orleans, LA, and Online, Dec 13-17, Online, 2021
- INVITED TALK: Wood, A., V. Mishra, M. Saharia, B. Rajagopalan, N. Mizukami and M. Clark, Advances in land surface modeling and prediction frameworks and tools to support risk-based national-scale water and emergency management , presented at the Fall American Geophysical Union (AGU) conference, New Orleans, LA, and Online, Dec 13-17, Online, 2021
- Rittger, K., W. Kleiber, MJ Brodzik, B. Rajagopalan, T. Painter, et al. Fusion of high spatial and high temporal snow surface properties from satellite observations for estimating snow water equivalent, presented at the Fall American Geophysical Union (AGU) conference, Dec 1-17, Online, 2020
- B. Rajagopalan, Woodson, D., E. Towler, S. Baker, R. Smith, J. Prairie and E. Zagona, Midterm Projections of Colorado River Streamflow and Water Resources Operations Conditioned on Temperature Projections, presented at the Fall American Geophysical Union (AGU) conference, Dec 1-17, Online, 2020
- Ossandon, A., B. Rajagopalan, U. Lall, V. Mishra and J.S. Nanditha, A Bayesian Hierarchical Network Model for Daily Streamflow Forecasting, presented at the Fall American Geophysical Union (AGU) conference, Dec 1-17, Online, 2020
- Nanditha, J.S., A. Ossandon, B. Rajagopalan and V. Mishra, A Coupled Physical-Statistical Model for Daily Streamflow Forecasting, presented at the Fall American Geophysical Union (AGU) conference, Dec 1-17, Online, 2020
- Puente, P., L. Condon and B. Rajagopalan, Identifying Patterns in Long Term Streamflow Variability and Predictability in the Upper Colorado River Basin using a Nonlinear Dynamics Approach presented at the Fall American Geophysical Union (AGU) conference, Dec 1-17, Online, 2020
- Kleiber, W., A. Ossandon, B. Rajagopalan and M. Brunner, A Space-Time Modeling Framework for Projection of Seasonal Streamflow Extremes presented at the Fall American Geophysical Union (AGU) conference, Dec 1-17, Online, 2020
- Perez-Angel, L., J. Sepulveda, P. Molnar, C. Montes, B. Rajagopalan, et al., Soil and Air Temperature Calibrations Using Branched GDGTs for the Tropical Andes of Colombia: Towards a Pantropical calibration, presented at the Fall American Geophysical Union (AGU) conference, Dec 1-17, Online, 2020
- Horvath, S., J. Stroeve and B. Rajagopalan, A linear mixed effects model for seasonal forecasts of Arctic sea ice retreat presented at the Fall American Geophysical Union (AGU) conference, Dec 1-17, Online, 2020
- Yao, F, J. Wang, B. Livneh, B. Rajagopalan, J-F Cretaux and Y. Wada, Quantifying and attributing recent changes in global lake and reservoir storage using satellite observations and hydrological modeling presented at the Fall American Geophysical Union (AGU) conference, Dec 1-17, Online, 2020
- Abel, B., M. Hartman and B. Rajagopalan, An Integrated Climate-Ecological Modeling Framework for Simulating Vegetation Changes due to Climate Change in the Prairie Pothole Region of the United States presented at the Fall American Geophysical Union (AGU) conference, Dec 1-17, Online, 2020
- E. towler, S. Baker, M. Ge, B. Rajagopalan, S. Shanathan, R. Smith and D. Woodson, Harnessing Mid-Term Temperature Skill to Improve Streamflow Management in the Colorado River Basin (Invited) presented at the Fall American Geophysical Union (AGU) conference, Dec 1-17, Online, 2020
- Lall, U.,S. Arumugam, F. Cioffi, N. Devineni, J. Doss-Gollin, H-H Kwon and B. Rajagopalan, America's Water: Multiscale Forecasting and Innovation in Infrastructure Design & Management Instruments is critical for Climate Adaptation (Invited) presented at the Fall American Geophysical Union (AGU) conference, Dec 1-17, Online, 2020
- Bajaj, K., A. Bhattacharya, S. Chakraborty, A. Bazaz, E. Vance and B. Rajagopalan, A database of paleo climate & environment from the Indian subcontinent: A regional initiative for science and society presented at the Fall American Geophysical Union (AGU) conference, Dec 1-17, Online,

2020

- Ossandon, A., B. Rajagopalan and W. Kleiber, A Space-Time Modeling Framework for Streamflow Extremes, presented at the European Geophysical Union (EGU) conference, May 4-8, Online, 2020
- Horvath, S., B. Rajagopalan, J. Stroeve and W. Kleiber, Early Predictions of Summer Sea Ice Attributes Using A Bayesian Hierarchical Spatio-Temporal Model, presented at the Fall American Geophysical Union (AGU) meeting, Dec 9-13, 2019, San Francisco, CA
- Wycech, J., B. Rajagopalan, T. Marchitto and P. Molnar, Multiproxy Reduced-Dimension Reconstruction of Pliocene Atlantic Sea Surface Temperatures, presented at the Fall American Geophysical Union (AGU) meeting, Dec 9-13, 2019, San Francisco, CA
- Kasprzyk, R. Smith, W., Raseman, J. Jacobson and B. Rajagopalan, Improving Interpretability of Multi-Objective Tradeoff Sets for Environmental Systems, presented at the Fall American Geophysical Union (AGU) meeting, Dec 9-13, 2019, San Francisco, CA
- Abel, B., B. Rajagopalan and A. Ray, Understanding the Dominant Moisture Tracks and Their Sources for Summer Rainfall and Extremes Over the United States Prairie Pothole Region, presented at the Fall American Geophysical Union (AGU) meeting, Dec 9-13, 2019, San Francisco, CA
- Nandhita, J.S., V. Mishra, B. Rajagopalan and A. Wood, Atmospheric drivers of major flood producing storms in India, presented at the Fall American Geophysical Union (AGU) meeting, Dec 9-13, 2019, San Francisco, CA
- Rajagopalan, B., E. Gill, Y. Kushnir and J. Wycech, Reduced Space Reconstruction of Atlantic Sea Surface Temperature Variability During Holocene from Marine Proxies, presented at the Fall American Geophysical Union (AGU) conference, Dec 9-13, 2019, San Francisco, CA
- Downscaling Daily Remotely Sensed Snow Cover Fraction Based on a Two Stage Machine Learning Model, presented at the Fall American Geophysical Union (AGU) conference, Dec 9-13, 2019, San Francisco, CA
- INVITED TALK: Rajagopalan, B., A. Ossandon, V. Mishra, Understanding, Modeling and Mitigation of Flood Risk over India, presented at the Fall American Geophysical Union (AGU) conference, Dec 9-13, 2019, San Francisco, CA
- Ossandon, A., B. Rajagopalan and W. Kleiber, Spatial Bayesian Hierarchical Model for Summer Extreme Precipitation over the Southwest U.S., presented at the Fall American Geophysical Union (AGU) meeting, Dec 9-13, 2019, San Francisco, CA
- Culler, E., B. Livney, K. Tiampo, and B. Rajagopalan, A data-driven approach to identifying post-fire landslide triggers, presented at the Fall American Geophysical Union (AGU) conference, Dec 9-13, 2019, San Francisco, CA
- Samantha, D., B. Rajagopalan, K. Karnauskas, L. Zhang and N. Goodkin, La Niña Diminishing Fingerprint on the Indian Summer Monsoon, presented at the Fall American Geophysical Union (AGU) conference, Dec 9-13, 2019, San Francisco, CA
- McKnight, D., M. Gooseff and B. Rajagopalan, The Onyx River in The McMurdo Dry Valleys of Antarctica- Long-Term Record Reveals Influence of Climate Teleconnections on Streamflow and Aquatic Ecosystems, presented at the Fall American Geophysical Union (AGU) conference, Dec 9-13, 2019, San Francisco, CA
- Wood, A., S. Baker and B. Rajagopalan, Enhancing Sub-seasonal Climate Forecast Skill through Post-processing at the Scales of Water Management, presented at the Fall American Geophysical Union (AGU) conference, Dec 9-13, 2019, San Francisco, CA
- Rittger, K., N. Bair, W. Kleiber, K. Musselman, K. Bormann, A. Dugger, H. Chan, M. J. Brodzik and B. Rajagopalan, Multi-platform, multi-sensor snow surface properties for energy balance and model validation, presented at the Fall American Geophysical Union (AGU) conference, Dec 9-13, 2019, San Francisco, CA
- Horvath, S., B. Rajagopalan, J. Stroeve and W. Kleiber, A Bayesian Categorical Regression Model for Probabilistic Predictions of Minimum Sea Ice, presented at the Fall American Geophysical Union (AGU) meeting, Dec 10-14, 2018, Washington D.C
- Raseman, W., J. Kasprzyk, S. Summers, B. Rajagopalan, F. Rosario-Ortiz, W. Kleiber and B. Livneh, Advancing Stochastic Water Quality and Simulation-Optimization Techniques for Potable Water Systems Facing Source Water Quality Degradation, presented at the Fall American Geophysical Union (AGU) meeting, Dec 10-14, 2018, Washington D.C.

- Reeves, K., B. Rajagopalan and S. Summers, Modeling Surface Water Quality Variables Using Climate and Land Surface Predictors, presented at the Fall American Geophysical Union (AGU) meeting, Dec 10-14, 2018, Washington D.C
- Abel, B., B. Rajagopalan and A. Ray, Interannual Variability and Prediction of Summer Hydroclimate and Ecology in the United States Prairie Pothole Region, presented at the Fall American Geophysical Union (AGU) meeting, Dec 10-14, 2018, Washington D.C
- Van Dusen, P., B. Rajagopalan, D. Lawrence, L. Condon, G. Smillie, S. Gangopadhyay and T. Pruitt, Nonstationary extreme value models for assessing flood risk at seasonal and multidecadal time scales in U.S. National Parks, presented at the Fall American Geophysical Union (AGU) meeting, Dec 10-14, 2018, Washington D.C
- Baker, S., A. Wood, B. Rajagopalan, F. Lehner and P. Peng, Developing new watershed-based climate forecast products for water managers, presented at the Fall American Geophysical Union (AGU) meeting, Dec 10-14, 2018, Washington D.C
- Wycech, J., B. Rajagopalan, T. Marchitto and P. Molnar, Multiproxy Reduced-Dimension Reconstruction of Pliocene Equatorial Pacific Sea Surface Temperatures and Precipitation over India and Southeastern United States, presented at the Fall American Geophysical Union (AGU) meeting, Dec 10-14, 2018, Washington D.C
- Van Dusen, P., B. Rajagopalan, C. Bracken and W. Kleiber, A Nonstationary Hidden Markov Model with Generalized Extreme Value Distributions to Model Streamflow Extremes, presented at the Fall American Geophysical Union (AGU) meeting, Dec 10-14, 2018, Washington D.C
- Stroeve, J., S. Horvath and B. Rajagopalan, Identifying Atmospheric Moisture Sources Contributing to Early or Late Melt Onset of Arctic Sea Ice, presented at the Fall American Geophysical Union (AGU) meeting, Dec 10-14, 2018, Washington D.C
- Rajagopalan, B., S. Jana, Y. Kushnir and A. Ray, Assessment of the space-time variability of southwest U.S. summer rainfall in AMIP model simulations, presented at the Fall American Geophysical Union (AGU) meeting, Dec 10-14, 2018, Washington D.C
- Sahany, S., B. Rajagopalan, S. Mishra and R. Pathak, Rainfall Seasonality and its Spatio-temporal Variability over India, presented at the Fall American Geophysical Union (AGU) meeting, Dec 10-14, 2018, Washington D.C
- Baker, S., J. Prairie, C. Jerla, A. Butler, E. Zagona, B. Rajagopalan and A. Wood, A Testbed to Analyze Colorado River Streamflow Forecasts and Operational Projections, presented at the Fall American Geophysical Union (AGU) meeting, Dec 10-14, 2018, Washington D.C
- Funk, C., S. Power, S. Stevenson, D. Lea, A. Hoell, B. Rajagopalan and S. Shukla, Consistent with recent observations, a climate change meta-ensemble robustly projects 2020-2039 climate hazards associated with El Nino and La-Nina related sea surface temperature extremes, presented at the Fall American Geophysical Union (AGU) meeting, Dec 10-14, 2018, Washington D.C
- Cruickshank, R. F., G. Henze, B. Rajagopalan, B-M. S. Hodge and A. Florita, Empirical Investigations of the Opportunity Limits of Automatic Residential Electric Load Shaping, 2017 Ninth Annual IEEE Green Technologies Conference, Mar 29-31, 2017, Denver, CO
- INVITED TALK Climate Signatures in Human Health: Insights from Tropics, presented at the Weather Climate and Health Symposium in NCAR, Boulder, Jul 17 - 21, 2017
- INVITED TALK, Rajagopalan, B., Climate Controls on Human Health, presented at the International Conference of the Public Health Foundation of India & Pacific Basin Consortium, New Delhi, India, Nov 13 - 15, 2017
- Reeves, K., B. Rajagopalan and R. Summers, Development of Thresholds and Exceedance Probabilities for Influent Water Quality to Meet Drinking Water Regulations, presented at the Fall AGU meeting, New Orleans, LA, Dec 11 - 15, 2017
- Smith, R., J. Kasprzyk and B. Rajagopalan, Using multiobjective tradeoff sets and Multivariate Regression Trees to identify critical and robust decisions for long term water utility planning, presented at the Fall AGU meeting, New Orleans, LA, Dec 11 - 15, 2017
- Crawford, A., J. Stroeve, M. Serreze, B. Rajagopalan and S. Horvath, Modulation of Sea Ice Melt Onset and Retreat in the Laptev Sea by the Timing of Snow Retreat in the West Siberian Plain, presented at the Fall AGU meeting, New Orleans, LA, Dec 11 - 15, 2017
- Kasprzyk, J., R. Smith, W. Raseman, M. DeRousseau, L. Dilling, K. Ozekin, R. Summers, B.

- Rajagopalan, B. Livneh, F. Rosario-Ortiz, L. Sparin and W. Srubar, Collaborative Workshops for Assessment and Creation of Multi-Objective Decision Support for Multiple Sectors, presented at the Fall AGU meeting, New Orleans, LA, Dec 11 - 15, 2017
- Baker, S., A. Wood, B. Rajagopalan, P. Peng and K. Werner, Watershed-based climate forecast products for Hydrologists and water managers, presented at the NMME SubX Meeting organized by NOAA in Silver Spring, MD, Sep 13-15, 2017
- INVITED Rajagopalan, B., Conditional Stochastic Weather Generator for Seasonal to Multi-Decadal Simulations - from WGEN to BayGEN, presented at the Colorado River Hydrologic Research Symposium Las Vegas, NV, May 22-23, 2017
- INVITED Rajagopalan, B., Climate Variability, Change and Hydroclimate Extremes, Water Policy Summit, University of Alabama/National Water Center, Tuscaloosa, AL, April 6-7, 2017
- Hopson, T., D. Broman, E. Riddle, S. Priya, R. Brakenridge, C. M. Birkett, J. Boehnert, T. De Groeve, A. Dumont, B. Rajagopalan, K. Sampson, and D. Yates, The Predictability of River Flood Forecasting in the Brahmaputra and Ganges River Catchments utilizing Remotely-Sensed Data, presented at the 97th AMS annual conference, Jan 21-26, 2017, Seattle, WA
- Baker, S., A. Wood, B. Rajagopalan, F. Lehner, P. Peng, A. Ray, J. Barsugli and K. Werner, New watershed-based climate forecast products for hydrologists and water managers, presented at the Fall AGU meeting, New Orleans, LA, Dec 11 - 15, 2017
- Rajagopalan, B. C. Samson and R. Summers, Modeling Source Water Threshold Exceedances with Extreme Value Theory, presented at the Fall AGU meeting, San Francisco, CA, Dec 12-16, 2016
- Broman, D., T. Hopson, B. Rajagopalan, E. Riddle, M. Gebremichael, S. S. Demissie, Sub-seasonal Evaluation of East African Rainfall for Improved Hydrologic Forecasting, presented at the Fall AGU meeting, San Francisco, CA, Dec 12-16, 2016
- Yanto, M., J. Kasprzyk, B. Rajagopalan and B. Livneh, Multi-objective Optimization Based Calibration of Hydrologic Model and Ensemble Hydrologic Forecast for Java Island, Indonesia, presented at the Fall AGU meeting, San Francisco, CA, Dec 12-16, 2016
- Bracken, C., K. Holman, B. Rajagopalan and H. Moradkhani, A Bayesian hierarchical approach to multivariate nonstationary hydrologic and infrastructure frequency analysis, presented at the Fall AGU meeting, San Francisco, CA, Dec 12-16, 2016
- Gill, E., B. Rajagopalan, P. Molnar, T. Marchitto and Y. Kushnir, Multiproxy Reduced-Dimension Reconstruction of Holocene Tropical Pacific SST Fields and Indian Monsoon Variability, presented at the Fall AGU meeting, San Francisco, CA, Dec 12-16, 2016
- INVITED TALK. B. Rajagopalan, Monsoons, Climate and Water Challenges in the South Asian Monsoon Region, presented at the Workshop on Health Impacts from Climate Change: The Importance of Public Health Partnerships, Aspen Global Change Institute, Aspen, CO, Sep 12-16, 2016
- INVITED TALK. B. Rajagopalan, W. Kleiber, A. Verdin, R. Katz, G. Podesta and F. Bert, From WGEN to BayGEN, presented at the Third Workshop on Stochastic Weather Generators, Vannes, France, May 16th-20th, 2016
- INVITED TALK. Bracken, C., B. Rajagopalan, W. Kleiber, L. Cheng and S. Gangopadhyay, Generating gridded fields of extreme precipitation for large domains with a Bayesian hierarchical Model, presented at the Third Workshop on Stochastic Weather Generators, Vannes, France, May 16th-20th, 2016
- Verdin, A., B. Rajagopalan, W. Kleiber, G. Podesta and F. Bert, Crop Production Risk in the Pampas: A Bayesian Weather Generator for Climate Change and Land Use Impact Studies, presented at the Fall AGU meeting, San Francisco, CA, Dec 14-18, 2015
- Erkyihun, S., E. Zagona and B. Rajagopalan, Application of Decadal Scale Projections Based on Large Scale Climate Indices to Decision Making in the Colorado River Basin, presented at the Fall AGU meeting, San Francisco, CA, Dec 14-18, 2015
- Yanto, B. Livneh, B. Rajagopalan and J. Kasprzyk, Hydrologic Modeling and Parameter Estimation under Data Scarcity for Java Island, Indonesia, presented at the Fall AGU meeting, San Francisco, CA, Dec 14-18, 2015
- Bracken, C., B. Rajagopalan, L. Cheng and S. Gangopadhyay, Coupled Bayesian hierarchical modeling of streamflow and precipitation extremes, presented at the Fall AGU meeting, San Francisco, CA, Dec 14-18, 2015

- Kohler, L., Silverstein, J. and Rajagopalan, B. Resilience of On-site Wastewater Treatment Systems Following an Extreme Storm Event presented at UNC Water and Health Conference, Chapel Hill, NC. October 26-30, 2015.
- Rajagopalan, B., D. Broman and T. Hopson, Scenario-neutral Food Security Risk Assessment: A livestock Heat Stress Case Study, presented at the Fall AGU meeting, San Francisco, CA, Dec 14-18, 2015
- Brekke L., M. Clark, E. Gutmann, A. Wood, N. Mizukami, P. Mendoza, R. Rasmussen, K. Ikeda, T. Prutt, J. Arnold and B. Rajagopalan, Revealing Risks in Adaptation Planning: expanding Uncertainty Treatment and dealing with Large Projection Ensembles during Planning Scenario development, presented at the Fall AGU meeting, San Francisco, CA, Dec 14-18, 2015
- Wood, A., P. Mendoza, N. Mizukami, P. Mendoza, B. Rajagopalan, M. Clark, L. Brekke and J. Arnold, Understanding institutional constraints and preferences influencing the development and use of seasonal water supply forecasts, presented at the Fall AGU meeting, San Francisco, CA, Dec 14-18, 2015
- Erkyihun, S., E. Zagona and B. Rajagopalan, Wavelet-based Time Series Bootstrap Model for Multi-decadal Streamflow Simulation Using Climate Indicators, presented at the AGU Hydrologydays Conference, Fort Collins, CO, Mar 23-15, 2015
- Gill, E., B. Rajagopalan and P. Molnar, Temporal and spatial signatures of ENSO on the Indian summer monsoon from 1901-2009, presented at the AGU Hydrologydays Conference, Fort Collins, CO, Mar 23-15, 2015
- Bracken, C., B. Rajagopalan, L. Cheng and S. Gangopadhyay, A Spatial Bayesian Hierarchical Modeling Approach for Precipitation Extremes, presented at the AGU Hydrologydays Conference, Fort Collins, CO, Mar 23-15, 2015
- Suchetana, B., B. Rajagopalan and J. Silverstein, A Hierarchical Modeling Approach to Evaluate Spatial and Temporal Variability of Wastewater Effluent BOD, TSS and Ammonia, presented at the AGU Hydrology days Conference, Fort Collins, CO, Mar 23-15, 2015
- Yanto, B. Rajagopalan and B. Livneh, Modeling the Hydrology of Watersheds over Java Island, Indonesia, presented at the AGU Hydrologydays Conference, Fort Collins, CO, Mar 23-15, 2015
- L. Cheng, B. Rajagopalan, C. Bracken and A. AghaKouchak, A Generalized Spatio-temporal Framework for Climate Informed Extreme Precipitation Analysis, presented at the AGU Hydrologydays Conference, Fort Collins, CO, Mar 23-15, 2015
- Brekke, L., M. Clark, E. Gutmann, N. Mizukami, P. Mendoza, R. Rasmussen, K. Ikeda, T. Prutt, J. Arnold and B. Rajagopalan, Assessing the Assessment Methods: Climate Change and Hydrologic Impacts, presented at the AGU Fall meeting, San Francisco, CA, Dec 15-19, 2014
- Caldwell, R., E. Zagona and B. Rajagopalan, (INVITED), Decision Support System for Mitigating Stream Temperature Impacts in the Sacramento River, presented at the AGU Fall meeting, San Francisco, CA, Dec 15-19, 2014
- Dai, A., L. Saito, J. Sapin, B. Rajagopalan, R. Hanna and D. Kauneckis, Modeling Shasta Dam operations to regulate temperatures for Chinook salmon under extreme climate and climate change, presented at the AGU Fall meeting, San Francisco, CA, Dec 15-19, 2014
- Rajagopalan, B., J. Sapin and L. Saito, Nonparametric Stochastic Hydroclimate Simulation for Water Temperature Modeling in Lake Shasta, presented at the AGU Fall meeting, San Francisco, CA, Dec 15-19, 2014
- Mendoza, P., M. P. Clark, B. Rajagopalan, N. Mizukami, E. Gutmann, A. Newman, M. Barlage, L. Brekke and J. Arnold, Implications of the subjectivity in hydrologic model choice and parameter identification on the portrayal of climate change impact, presented at the AGU Hydrology Days Conference, Fort Collins, CO, Mar 24-26, 2014.
- Song, B., B. Rajagopalan and G-H Lim, A Markov track model for simulating Typhoon Tracks in North Western Pacific Ocean, presented at the AGU Hydrology Days Conference, Fort Collins, CO, Mar 24-26, 2014.
- Verdin, A., B. Rajagopalan W. Kleiber and R.W. Katz, Coupled Stochastic Weather Generation Using Spatial and Generalized Linear Models, presented at the AGU Hydrology Days Conference, Fort Collins, CO, Mar 24-26, 2014.
- Erkyihun, S., B. Rajagopalan and E. Zagona, A Nonlinear Dynamical Systems based Model for

- Stochastic Simulation of Streamflow, presented at the AGU Hydrology Days Conference, Fort Collins, CO, Mar 24-26, 2014
- Yanto, M., B. Rajagopalan and E. Zagona, Understanding and Modeling Climate Variability in Ciliwung Watershed, Jakarta, Indonesia, presented at the AGU Hydrology Days Conference, Fort Collins, CO, Mar 24-26, 2014.
- Jana, S., B. Rajagopalan and A. Ray, Variability of Summer Hydroclimate Extremes in Southwestern United States, presented at the AGU Hydrology Days Conference, Fort Collins, CO, Mar 24-26, 2014.
- Mendoza, P., M. Clark, B. Rajagopalan, N. Mizukami, E. Gutmann, A. Newman, M. Barlage, Implications of the subjectivity in hydrologic model choice and parameter identification on the portrayal of climate change impact, presented at the European Geosciences Union General Assembly, Vienna, Austria, Apr 27-May 2, 2014
- Song, B., B. Rajagopalan and G-H Lim, A Markov track model for simulating Typhoon Tracks in North-Western Pacific Ocean, presented at the AGU Fall meeting, San Francisco, CA, Dec 15-19, 2014
- Mendoza, P., B. Rajagopalan, M. Clark, G. Cortes, J. McPhee, A Robust Multimodel Framework for Ensemble Seasonal Hydroclimatic Forecasts , presented at the AGU Fall meeting, San Francisco, CA, Dec 15-19, 2014
- Yanto. M., B. Rajagopalan and E. Zagona, Understanding and Modeling Rainfall and Temperature Variability in Ciliwung Watershed, Jakarta, Indonesia, presented at the AGU Fall meeting, San Francisco, CA, Dec 15-19, 2014
- Bracken, C., B. Rajagopalan and S. Gangopadhyay, Characterizing moisture delivery mechanisms for extreme precipitation in large geographic regions, presented at the AGU Fall meeting, San Francisco, CA, Dec 15-19, 2014
- Erkyihun, S., B. Rajagopalan and E. Zagona, A Nonlinear Dynamical Systems based Model for Stochastic Simulation of Streamflow, presented at the AGU Fall meeting, San Francisco, CA, Dec 15-19, 2014
- Verdin, A, B. Rajagopalan, W. Kleiber, R. Katz and G. Podesta, Generation of Gridded Daily Weather Ensembles for Decision Support in the Argentine Pampas, presented at the AGU Fall meeting, San Francisco, CA, Dec 15-19, 2014
- Broman, D., B. Rajagopalan T., Quantifying Livestock Heat Stress Impacts in the Sahel, presented at the AGU Fall meeting, San Francisco, CA, Dec 15-19, 2014
- Jana, S., B. Rajagopalan and A. Ray, Understanding Dominant Tracks of Moisture for the North American Monsoon Region, presented at the AGU Fall meeting, San Francisco, CA, Dec 15-19, 2014
- INVITED Rajagopalan, B., A. Verdin, P. Mendoza, W. Kleiber, J. McCreight, A. Wood, M. Clark and C. Funk, Bayesian Methods for Hydrometeorological Modeling and Forecasting, presented at the Fall AGU Meeting, San Francisco, CA Dec 8 - 13, 2013.
- Yates, D., L. Basdekas, B. Rajagopalan and N. Stewart, Climate Narratives: Combining multiple sources of information to develop risk management strategies for a municipal water utility, presented this at the Fall AGU meeting, San Francisco, CA, Dec 8-13, 2013.
- Brekke, L., M. Clark, E. Gutman, T. Pruitt, N. Mizukami, P. Mendoxa, R. Rasmussen, J. Arnold, D. Raff and B. Rajagopalan, Evaluating the adequacy of climate change information to support long-term water resource planning, presented this at the Fall AGU meeting, San Francisco, CA, Dec 8-13, 2013.
- Mendoza, P., M. Clark, B. Rajagopala, N. Mizukami and E. Gutman, Implications of the choice and configuration of hydrologic models on the portrayal of climate change impact, presented this at the Fall AGU meeting, San Francisco, CA, Dec 8-13, 2013.
- Sapin, J., L. Saito, B. Rajagopalan and R. J. Caldwell, Simulating reservoir releases to mitigate climate impacts on fish sustainability below Shasta Lake using stochastic and mechanistic modeling approaches, presented at Fall AGU meeting, San Francisco, CA Dec 8-13, 2013.
- Gill, E., B. Rajagopalan and P. Molnar, An assessment of mean annual precipitation in Rajasthan, India needed to maintain Mid-Holocene lakes, presented this at the Fall AGU meeting, San Francisco, CA, Dec 8-13, 2013.
- Bracken, C., B. Rajagopalan and S. Gangopadhyay, Variability of Hydroclimate Extremes on Seasonal to Multidecadal Time Scales in the Western US, presented this at the Fall AGU meeting, San Francisco, CA, Dec 8-13, 2013.

- Callihan, L., E. Zagona and B. Rajagopalan, A Robust Decision-Making Technique for Water Management under Decadal Scale Climate Variability, presented this at the Fall AGU meeting, SanFrancisco, CA, Dec 8-13, 2013.
- Daugherty, L., E. Zagona, B. Rajagopalan, K. Grantz, W.P. Miller and K. Werner, Seasonal Water Resources Management and Probabilistic Operations Forecast in the San Juan Basin, presented this at the Fall AGU meeting, SanFrancisco, CA, Dec 8-13, 2013.
- Verdin, A., B. Rajagopalan and C. Funk, Improving High-resolution Spatial Estimates of Precipitation in the Equatorial Americas, presented this at the Fall AGU meeting, SanFrancisco, CA, Dec 8-13, 2013.
- Jana, S., B. Rajagopalan and A. Ray, Spatial and Temporal Variability of Summer Hydroclimate Extremes in Southwestern United States, presented this at the Fall AGU meeting, SanFrancisco, CA, Dec 8-13, 2013.
- Erkyihun, S., B. Rajagopalan and E. Zagona, Wavelet-based Time Series Bootstrap Approach for Multidecadal Hydrologic Projections Using Observed and Paleo Data of Climate Indicators, presented this at the Fall AGU meeting, SanFrancisco, CA, Dec 8-13, 2013.
- Daugherty, L., E. Zagona and B. Rajagopalan, Application of Stochastic Weather Generator based Seasonal Ensemble Streamflow Forecasts to Water Resources Management, presented at the AGU Hydrology Days conference, Fort Collins, CO, Mar 25-27, 2013.
- Verdin, A., B. Rajagopalan and C. Funk, High-resolution Spatial Estimates of Precipitation in Equatorial Americas by Blending Station and Satellite Data, presented at the AGU Hydrology Days conference, Fort Collins, CO, Mar 25-27, 2013.
- Erkyihun, S., B. Rajagopalan and E. Zagona, Modeling Large Scale Climate Indicators Using Wavelet-based Time Series Method, presented at the AGU Hydrology Days conference, Fort Collins, CO, Mar 25-27, 2013.
- Mendoza, P., M. Clark, B. Rajagopalan and N. Mizukami, Towards a better understanding of hydrologic sensitivity to climate change: impact of hydrologic model choices, presented at the AGU Hydrology Days conference, Fort Collins, CO, Mar 25-27, 2013.
- Broman, D., T. Hopson and B. Rajagopalan, Climatic Variability of the West African Monsoon and its Influence on Meningococcal Meningitis Susceptibility, presented at the AGU Hydrology Days conference, Fort Collins, CO, Mar 25-27, 2013.
- Song, B. and B. Rajagopalan, Record Breaking Typhoon Touchdowns on Korean Peninsula during July to September 2012: Climatological Features and Hydrometeorological Perspective, presented at the AGU Hydrology Days conference, Fort Collins, CO, Mar 25-27, 2013.
- Samson, C., B. Rajagopalan and R. S. Summers, Modeling TOC Threshold Exceedances for Meeting Disinfection By-Product Drinking Water Regulations Under the Impact of Climate Change, presented at the ASA, CSSA and SSA International annual meetings, Tampa, FL, Nov 3-6, 2013.
- Samson, C., B. Rajagopalan and R. S. Summers, Modeling the impact of climate change on TOC threshold exceedances for meeting DBP regulations, presented at the Water Quality Technology conference, Long Beach, CA, Nov 3-7, 2013.
- Jones, M., R. Katz and B. Rajagopalan, Exploring multi-annual regimes in total and extreme Argentinian precipitation using hidden Markov models, presented at the the 12th International Meeting on Statistical Climatology (IMSC) to be held during June 24-28, 2013 in Jeju, Korea
- Daugherty, L., E. Zagona, B. Rajagopalan, K. Grantz, W. P. Miller and K. Werner, Probabilistic Operational Forecasting in the San Juan Basin using Stochastic Weather Generator based Seasonal Ensemble Streamflow Forecasts, presented at the AGU Chapman Conference, Portland OR, Jul 28-31, 2013.
- Callihan, L., E. Zagona and B. Rajagopalan, A Robust Decision Making Technique for Water Management Under Uncertainty Due to Climate Variability, presented at the AGU Chapman Conference, in Portland, OR, Jul 28-31, 2013
- Caraway, N., A. Wood and B. Rajagopalan, Advancing Ensemble Streamflow Prediction with Stochastic Meteorological Forcings for Hydrologic Modeling, presented at the AGU Chapman Conference, in Portland, OR, Jul 28-31, 2013
- Mendoza, P., B. Rajagopalan, M. Clark and J. McPhee, A multisite ensemble seasonal streamflow forecasting framework for semi-arid Andean basins, presented at the AGU Chapman Conference, in

- Portland, OR, Jul 28-31, 2013
- Stewart, N., L. Basdekas and B. Rajagopalan, Stochastic generation for inter-annual municipal water supply planning, presented at the AGU Chapman Conference, in Portland, OR, Jul 28-31, 2013
- Harding, B., S. Gangopadhyay, B. Rajagopalan and A. Rodriguez, A Probabilistic Seasonal Forecasting System for Water Utilities, presented at the AGU Chapman Conference, in Portland, OR, Jul 28-31, 2013
- Zagona, E., B. Rajagopalan, C. Jerla and J. Prairie, Tools and Techniques for Complex Water Management Models on Interannual to Multidecadal Time Scales, presented at the AGU Chapman Conference, in Portland, OR, Jul 28-31, 2013
- May-Ostendorp, P., G. Henze, B. Rajagopalan, D. Kalz, M. Fischer and, J. Mehnert, Experimental investigation of model predictive control-based rules for a radiantly cooled office, Proceedings of the 2012 Conference on Building Energy and Environment, August 2, 2012, Boulder, Colorado, USA
- Esmaeili, B., M. Hallowell and B. Rajagopalan, Multivariate Data Analysis on Struck-by Risk Attributes, presented at the CIB W099 International conference on Modeling and Building health and safety, Sep 10-11 Singapore, 2012
- INVITED: Pfeiffer, T and B. Rajagopalan, Future sea level rise assessment by constrained extrapolation, presented at the Fall meeting of American Geophysical Union, San Francisco, CA, Dec 3-7, 2012
- Wade, L., B. Rajagopalan, J. Lukas and D. Kanzer, Can the Gila River reduce risk in the Colorado River Basin?, presented at the Fall meeting of American Geophysical Union, San Francisco, CA, Dec 3-7, 2012
- INVITED: Yates, D., L. Basdekas and B. Rajagopalan, Challenges and Methods for Exploring Climate Risk in an Integrated Water Resource Plan by a Municipal Water Supplier, presented at the Fall meeting of American Geophysical Union, San Francisco, CA, Dec 3-7, 2012
- Zagona, E., B. Rajagopalan, W. Oakley, N. Wilson, P. Weinstein, A. Verdin, C. Jerla and J. Prairie, Tools and Techniques for Basin-Scale Climate Change Assessment , presented at the Fall meeting of American Geophysical Union, San Francisco, CA, Dec 3-7, 2012
- Caraway, N., A. Wood, B. Rajagopalan, E. Zagona and L. Dougherty, Advancing Ensemble Streamflow Prediction with Stochastic Meteorological Forcings for Hydrologic Modeling, presented at the Fall meeting of American Geophysical Union, San Francisco, CA, Dec 3-7, 2012
- Mendoza, P., M. Clark and B. Rajagopalan, Evaluating Different Model Structures for Representing Watershed Functions through the use of Signature Measures, presented at the Fall meeting of American Geophysical Union, San Francisco, CA, Dec 3-7, 2012
- Caraway, N., B. Rajagopalan, A. Wood and K. Werner, Stochastic Weather Generator Based Ensemble Streamflow Forecasting, presented at the AGU Hydrology Days Conference, Mar 21-23, 2012
- Mendoza, P., B. Rajagopalan and M. Clark, Probabilistic quantitative precipitation estimates using reanalysis datasets: a comparison of different approaches, presented at the AGU Hydrology Days Conference, Mar 21-23, 2012
- Wade, L., B. Rajagopalan, J. Lukas and D. Kanzer, Beyond Lees Ferry: Assessing the Long-term Hydrologic Variability of the Lower Colorado River Basin, presented at the AGU Hydrology Days Conference, Mar 21-23, 2012
- Esmaeili, B., M. Hallowell and B. Rajagopalan, Multivariate Data Analysis on Struck-by Risk Attributes, presented at the CIB W099 International conference on Modeling and Building health and safety, Sep 10-11 Singapore, 2012
- Caldwell, J. and B. Rajagopalan, Statistical Modeling of Daily Stream Temperature for Mitigating Fish Mortality, presented at the AGU Fall meeting, San Francisco, CA, Dec 5-9, 2011
- Wade, L., B. Rajagopalan, J. Lukas and D. Kanzer, Beyond Lees Ferry: Assessing the Long-term Hydrologic Variability of the Lower Colorado River Basin, presented at the AGU Fall meeting, San Francisco, CA, Dec 5-9, 2011
- Bracken, C., B. Rajagopalan and E. Zagona, A Nonstationary Hidden Markov Model for Stochastic Streamflow Simulation and Inter-annual Forecasting in the Upper Colorado River Basin, presented at the AGU Fall meeting, San Francisco, CA, Dec 5-9, 2011



- INVITED Caraway, N., K. Werner, B. Rajagopalan and A. Wood, Stochastic Weather Generator Based Ensemble Streamflow Forecasting, presented at the AGU Fall meeting, San Francisco, CA, Dec 5-9, 2011
- Nowak, K., E. Zagana and B. Rajagopalan, Adapting Colorado River Operations to Decadal Climate Projections, presented at the World Environmental & Water Resources Congress, Palm Springs, CA, May 22-26, 2011.
- Wade, L., B. Rajagopalan, J. Lukas and D. Kanzer, Beyond Lees Ferry: Long-Term Hydrologic Variability of the Lower Colorado River Basin, presented at the Universities Council on Water Resources (UCOWR) Annual Conference in Boulder, CO, July 11-14, 2011.
- Nowak, K., B. Rajagopalan and E. Zagana, Colorado River Decadal Flow Projections: A Spectral Approach, presented at the Universities Council on Water Resources (UCOWR) Annual Conference in Boulder, CO, July 11-14, 2011.
- Bracken, C., B. Rajagopalan, and E. Zagana, Interannual Forecasting of Upper Colorado River Flow. Poster presented at the Hydrologic Sciences Symposium, University of Colorado at Boulder, March 13 2011.
- Bracken, C., B. Rajagopalan, and E. Zagana, Reclamation Review of Stochastic Streamflow Simulation at Interannual and Interdecadal Time Scales and Implications to Water Resources Management: Project overview. Presented at the Seasonal to Year-Two Colorado River Streamflow Prediction Workshop, Colorado Basin River Forecast Center, Salt Lake City, Utah, March 21, 2011
- Kanikicharla, Krishna Kumar, B. Rajagopalan, M. Hoerling, A. Kumar and R. Nemani, On the Asymmetry of Indian Summer Monsoon Predictability During Warm and Cold ENSO Events, presented at the AGU Fall meeting, San Francisco, CA, Dec 5-9, 2011
- Phillips, T., R. S. Nerem, B. Fox-Kemper, J. Famiglietti and B. Rajagopalan, The influence of ENSO on global surface water storage using GRACE, presented at the AGU Fall meeting, San Francisco, CA, Dec 5-9, 2011
- Towler, E. and B. Rajagopalan, Modeling the impacts of climate change on drinking source water quality, presented at the 3<sup>rd</sup> International Perspective on Current & Future State of Water Resources & the Environment, EWRI of ASCE Conference, Chennai, India, Jan 5-7, 2010.
- INVITED Rajagopalan, B., U. Lall, Translation of Large Scale Climate Information to Regional Hydrologic and Ecologic Decision Making, presented at the AGU Fall meeting, San Francisco, CA, Dec 14-18, 2009
- Rajagopalan, B., A. Verdin, M. Merrill, K. Krishna Kumar, R. Nemani, Sub-annual Variability of Indian Monsoon Rainfall, presented at the AGU Fall meeting, San Francisco, CA, Dec 14-18, 2009
- McCright, J., B. Rajagopalan, A. G. Slater and H. Marshall, A comparison of methods for estimation and prediction of snow depth and its spatial non-stationarity at the first-order basin scale, presented at the AGU Fall meeting, San Francisco, CA, Dec 14-18, 2009
- Pike, A., E. Danner, S. Lindley, F. S. Melton, R. Nemani, H. Hashimoto, B. Rajagopalan, R. J. Caldwell, Improving stream temperature model predictions using high-resolution satellite-derived numerical weather forecasts, presented at the AGU Fall meeting, San Francisco, CA, Dec 14-18, 2009
- Kim., Y., R. W. Katz, B. Rajagopalan, G. P. Podesta, Statistical Downscaling of Seasonal Forecasts and Climate Change Scenarios using Generalized Linear Modeling Approach for Stochastic Weather Generators, presented at the AGU Fall meeting, San Francisco, CA, Dec 14-18, 2009
- Caldwell, R.J., E. Danner, A. Pike, B. Rajagopalan, F. S. Melton, S. Lindley and R. Nemani, An Integrated Framework for Improved Stream Temperature Predictions to Mitigate Fish Mortality, presented at the AGU Fall meeting, San Francisco, CA, Dec 14-18, 2009
- Kim., Y., R. W. Katz, B. Rajagopalan and G. Podesta, Statistical Downscaling of Seasonal Forecasts and Climate Change Scenarios using Generalized Linear Modeling Approach for Stochastic Weather Generators, presented at the XIII Latin American and Iberian Congress on Meteorology (CLIMET XIII) X Argentine Congress on Meteorology (CONGEMET X), Buenos Aires, Argentina, Oct 5-9, 2009.
- McCright, J. L., A. G. Slater and B. Rajagopalan, So bad they're good: Model diagnostic signatures from poor parameter and model behavior, presented at the International Symposium on Snow and Avalanches : Processes & Effects of Global Climatic Change, Manali, India, Apr 5-10, 2009

- Salas, J. D., C. Fu and B. Rajagopalan, Long Range Forecasting of Streamflows using Hydro-climatic Information, presented at the AGU Hydrology Days Conference, Fort Collins, CO, Mar 25-27, 2009
- Nowak, K., J. Prairie and B. Rajagopalan, Nonparametric daily disaggregation of annual streamflow values, presented at the AGU Hydrology Days Conference, Fort Collins, CO, Mar 25-27, 2009
- Towler, E., B. Rajagopalan, R. S. Summers and D. Yates, A framework for probabilistic forecasting of seasonal water quality threshold exceedance, presented at the AGU Hydrology Days Conference, Fort Collins, CO, Mar 25-27, 2009
- Apipattanavis, S. and B. Rajagopalan, Local Polynomial technique for analyzing frequency of mixed population, presented at the ASCE *Thailand 2009: An International Perspective on Environmental and Water Resources*, Bangkok, Thailand, Jan 5-7, 2009
- INVITED Rajagopalan, B., K. Nowak, J. Prairie, B. Hardeing and M. Hoerling, A Streamflow Generation Technique Under Climate Change Using Paleo and Observational Data for Colorado River, presented at the AGU Hydrology Days Conference, Fort Collins, CO, Mar 26-28, 2008
- Salas, J. and B. Rajagopalan, Predictability of the Upper Colorado River Streamflows, presented at the Colorado Water Congress, Denver, Jan 23-25, 2008
- Gan, T., B. Rajagopalan and R. Barry, Changes to North American Snowpacks from 1979-2004 based on the Snow Water, presented at the EGU General Assembly, Vienna, Austria, April 13-18, 2008
- Zagona, E., B. Rajagopalan and T. Magee, Riverware decision support tools for planning and sustainable river development with hydropower, presented at the High-level International Forum on Water Resources and Hydropower, Oct 16-18, 2008, Beijing, China.
- Prairie, J., L. Brekke, T. Pruitt, B. Rajagopalan and C. Woodhouse, Developing planning hydrologic ensembles that reflect combined paleoclimate and projected climate information sets, presented at the AGU Fall meeting, Dec 15-19, 2008, San Francisco, CA
- Rajagopalan, B., K. Nowak, M. Hoerling, B. Harding, A. Ray, J. Barsugli, B. Duall, Climate, Growth and Drought Threat to Colorado River Water Supply, presented at the AGU Fall meeting, San Francisco, CA, Dec 15-19, 2008
- Brekke, L., J. Prairie, T. Pruitt, B. Rajagopalan and C. Woodhouse, Comparing Planning Hydrologic Ensembles associated with Paleoclimate, Projected Climate, and blended Climate Information Sets, presented at the Fall AGU meeting, San Francisco, CA, Dec 15-19, 2008
- Gan, T., B. Rajagopalan, R. Barry and A. Gobena, Changes to North American Snowpacks from 1979-2004 based on Snow Water Equivalent data of SMMR and SSM/I Passive Microwave and related Climatic factors, presented at the AGU Fall meeting, San Francisco, CA, Dec 15-19, 2008
- Podestá, G.P., F. Bert, B. Rajagopalan, S. Apipattanavis, E. Weber, C. Laciana, W. Easterling, R. Katz and D. Letson, Climate and complexity in agricultural production systems of the Argentine Pampas. Intergovernmental Panel on Climate Change, Task Group on Data Scenario Support for Impact and Climate Analyses (IPCC/TGICA) Expert Meeting: Integrating analysis of regional climate change and response options. 20-22 June 2007, Nadi, Fiji.
- Podestá, G.P., F. Bert, E. Weber, C. Laciana, B. Rajagopalan, and D. Letson, Adaptation to interannual and interdecadal climate variability in agricultural production systems of the Argentine Pampas. AGU Joint Assembly Meeting, Acapulco, Mexico, 22-25 May 2007. EOS Transactions of the American Geophysical Union 88(23), Joint Assembly Supplement, Abstract U34B-03.
- Lee, E., T. Chase, B. Rajagopalan and R. Barry, Effects of spring land cover change on early Indian summer monsoon variability, Presented at the AGU Hydrology Days Conference, Fort Collins, CO, Mar 19-21, 2007
- Salas, J. D., C. Fu and B. Rajagopalan, Long Range Streamflow Forecast for Colorado Streams, Presented at the AGU Hydrology Days Conference, Fort Collins, CO, Mar 19-21, 2007
- Lee, E., T. Chase and B. Rajagopalan, Highly Improved Predictability in the Forecasting of the East Asian Summer Monsoon, Presented at the AGU Fall meeting, San Francisco, CA, (abstract published in Eos, 88(52)), Dec 10-14, 2007
- Bracken, C., B. Rajagopalan and J. Prairie, A Multi-Site Streamflow Forecast Framework: Application to the Upper Colorado River Basin, Presented at the AGU Fall meeting, San Francisco, CA, (abstract published in Eos, 88(52)), Dec 10-14, 2007
- Prairie, J., and Rajagopalan, B, Stochastic Streamflow Generation Incorporating Paleo-Reconstruction, Presented at the World Environmental & Water Resources Congress, Tampa, FL, May, 2007

- Bert F.E., G.P. Podestá, B. Rajagopalan, and S. Apipattanavis. 2006. Uso de modelos agronómicos de simulación para evaluar un método semi-paramétrico de generación de series climáticas sintéticas, presented at the XI Reunión Argentina de Agrometeorología. Facultad de Ciencias Agrarias y Forestales, Universidad de La Plata, La Plata, Argentina, 6-8 September 2006
- Block, P., B. Rajagopalan and K. Strzepek, Interannual Variability and Ensemble Forecast of Upper Blue Nile Basin Kiremt Season Precipitation, presented at the Spring Joint Assembly Meeting of American Geophysical Union, May 23-26, Baltimore, MD, 2006
- Apipattanavis, S., G. Podesta, B. Rajagopalan, Semiparametric Multivariate and Multi-site Weather Generator, presented at the Hydrology Days conference of American Geophysical Union, March 20 - 22, 2006, Fort Collins, CO
- Block, P., and B. Rajagopalan, Interannual Variability and Ensemble Prediction of Upper Blue Nile Basin Kiremt Season Precipitation, presented at the Hydrology Days conference of American Geophysical Union, March 20 - 22, 2006, Fort Collins, CO
- Towler, E., B. Rajagopalan and S. Summers, Simulating influent water quality parameters using a nearest-neighbor technique, presented at the Hydrology Days conference of American Geophysical Union, March 20 - 22, 2006, Fort Collins, CO
- Grantz, K., B. Rajagopalan, M. Clark and E. Zagona, Seasonal Shifts in the North American Monsoon, presented at the Hydrology Days conference of American Geophysical Union, March 20 - 22, 2006, Fort Collins, CO
- Towler, E.L., Rajagopalan, B., Summers, R.S., and Seidel, C. 2006. Characterizing influent water quality across the United States. Proceedings of the AWWA Water Quality Technology Conference, Denver, CO, November 5-9, 2006. (Erin received the Best Student paper award at this conference for this paper)
- Grantz, K., B. Rajagopalan, M. Clark and E. Zagona, "Interannual Variability of North American Monsoon: Precipitation, Streamflow and Water Management", presented at the first Climate Prediction Program for the Americas (CPPA) Pls Meeting, Tucson, AZ, Aug 14-16, 2006 (organized by NOAA).
- INVITED TALK, Neumann, D., E. Zagona and B. Rajagopalan, A Statistical Model-based Decision Support System for Managing summer Stream Temperatures with Quantified Confidence Analysis, presented at the Fall Meeting of American Geophysical Union, Dec 5-9, San Fransisco, CA, 2005.
- INVITED TALK, Rajagopalan, B., J. Prairie and U. Lall, A Stochastic Nonparametric Technique for Space-Time Disaggregation of Streamflows, presented at the Spring Joint Assembly of American Geophysical Union, May 23-27, New Orleans, LA, 2005.
- INVITED TALK, Neumann, D., E. Zagona and B. Rajagopalan, "A Statistical Model-Based Decision Support System for Managing Summer Stream Temperatures with Quantified Confidence Analysis", presented at the Fall Meeting of American Geophysical Union, Dec 5-9, San Fransisco, CA, 2005.
- Bert F.E., G.P. Podestá, B. Rajagopalan, and S. Apipattanavis. 2006. Uso de modelos agronómicos de simulación para evaluar un método semi-paramétrico de generación de series climáticas sintéticas, (presented) at the XI Reunión Argentina de Agrometeorología. Facultad de Ciencias Agrarias y Forestales, Universidad de La Plata, La Plata, Argentina, 6-8 September 2006.
- Block, P., B. Rajagopalan and K. Strzepek, Interannual Variability and Ensemble Forecast of Upper Blue Nile Basin Kiremt Season Precipitation, presented at the Spring Joint Assembly Meeting of American Geophysical Union, May 23-26, Baltimore, MD, 2006.
- Apipattanavis, S., G. Podesta, B. Rajagopalan, Semiparametric Multivariate and Multi-site Weather Generator, presented at the Hydrology Days conference of American Geophysical Union, March 20 - 22, 2006, Fort Collins, CO.
- Block, P., and B. Rajagopalan, Interannual Variability and Ensemble Prediction of Upper Blue Nile Basin Kiremt Season Precipitation, presented at the Hydrology Days conference of American Geophysical Union, March 20 - 22, 2006, Fort Collins, CO.
- Towler, E., B. Rajagopalan and S. Summers, Simulating influent water quality parameters using a nearest-neighbor technique, presented at the Hydrology Days conference of American Geophysical Union, March 20 - 22, 2006, Fort Collins, CO.

- Grantz, K., B. Rajagopalan, M. Clark and E. Zagona, Seasonal Shifts in the North American Monsoon, presented at the Hydrology Days conference of American Geophysical Union, March 20 - 22, 2006, Fort Collins, CO.
- Regonda, S., B. Rajagopalan, U. Lall, M. Clark and Y. Moon, Local polynomial method for Ensemble Forecast of Time Series, presented at the Fall Meeting of American Geophysical Union, Dec 5-9, San Francisco, CA, 2005.
- Hwang, Y., Martyn Clark and B. Rajagopalan "Impact of Spatial Interpolation Methods for Precipitation on Ensemble Streamflow Simulation From Watershed Models", presented at the Spring Joint Assembly of American Geophysical Union, May 23-27, New Orleans, LA, 2005.
- Regonda, S., B. Rajagopalan, M. Clark and E. Zagona, "Multi-model Ensemble Forecast of Spring Seasonal Flows in the Gunnison River Basin", presented at the Spring Joint Assembly of American Geophysical Union, May 23-27, New Orleans, LA, 2005.
- Grantz, K., B. Rajagopalan, M. Clark and E. Zagona, "Spatio-Temporal Trends in the North American Monsoon", presented at the Spring Joint Assembly of American Geophysical Union, May 23-27, New Orleans, LA, 2005.
- Chase, T., P. Lawrence and B. Rajagopalan, Interactions between ENSO and tropical landcover change, presented at the Spring Joint Assembly of American Geophysical Union, May 23-27, New Orleans, LA, 2005.
- Regonda, S., B. Rajagopalan, U. Lall, M. Clark and Y. Moon, "Local Polynomial Method for Ensemble Forecast of Time Series", presented at the Fall Meeting of American Geophysical Union, Dec 5-9, San Francisco, CA, 2005.
- Zachman, B., R. S. Summers and B. Rajagopalan, A model to predict TOC breakthrough in small and field-scale GAC adsorbers, presented at the 124th AWWA Annual Conference and Exposition, San Francisco, CA, June 12-16, 2005.
- Podestá, G., B. Rajagopalan, J. Brown, M. Skansi, L. Núñez, S. Núñez, UN GENERADOR ESTOCÁSTICO HÍBRIDO PARA ANÁLISIS DE RIESGO CLIMÁTICO, presented at the CONGRESMET IX, 9th Argentine Congress of Meteorology, Buenos Aires, Argentina, October 3-7, 2005.
- Lee, E., T. Chase and B. Rajagopalan, "Relationship between East Asian Summer Monsoon Precipitation and the Heat Budgets of Surrounding Lands and Oceans", presented at the 5th International Symposium on Asian Monsoon System, 11-15 October, 2005, Yongpyong Resort, Pheongchang-gun, Gangwon-do, Republic of Korea
- Rajagopalan, B., M. Clark, K. Grantz and S. Regonda, Incorporating Large-Scale Climate Information in Water Resources, presented at the HEPEX workshop, NCAR, Boulder, CO, 19-22 July, 2005.
- Regonda, S., B. Rajagopalan, U. Lall, M. Clark and Y. Moon, Local Polynomial method for ensemble forecast of time series, presented at the Hydrology Days conference of American Geophysical Union, March 7 - 9, 2005, Fort Collins, CO.
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