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HOSHIN VIJAI GUPTA

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Ph.D (1984): Systems Engineering Case Western Reserve University, Cleveland, Ohio
M.S (1982): Systems Engineering Case Western Reserve University, Cleveland, Ohio
B.Tech (1979): Civil Engineering Indian Institute of Technology, Bombay, India

RESEARCH INTEREST: Surface water hydrology, Terrestrial hydrometeorology, Semi-arid hydrology, Prediction in ungaged basins, Hydrologic modeling, Multi-criteria analysis, Diagnostic analysis, Bayesian estimation, Uncertainty analysis, Information theory, Data assimilation, Hydrologic process dominance and scale, Artificial neural networks, Stochastic global optimization, Multi-resolution multi-disciplinary integrated modeling, Decision support systems.

PROFESSIONAL AFFILIATIONS: American Geophysical Union, American Meteorological Society, AGU Surface Water Committee, ASCE Task Committee on Neural Networks in Hydrology, Life Member Indian Association of Hydrologists (IAH), International Association of Hydrological Sciences (IAHS), GAPP Core Advisory Panel for MOPEX, Section Member, IAHS Ed. Board for Series on Benchmark Papers in Hydrology.

HONORS: Medals: 2014 *John Dalton Medal* of the European Geosciences Union. Editor: 2009-2012 *Editor of Water Resources Research*. Fellowships: 2009 *Fellow of the American Geophysical Union*, 2014 *Tucson Electric Power Gallileo Circle Fellow* of The University of Arizona. Teaching Award: 2015 *UA Graduate College Graduate and Professional Education Teaching and Mentoring Award*; 2006, 2007, 2008 & 2009 *Aquaman Award for Excellence in Teaching*, selected by vote of students, UA-HWR/Engineering; Professorship: 2006-2009 *SRP Professor of Technology, Public Policy & Markets*, Salt River Project, Phoenix, AZ; Penman lecturer: 2000 *7th Annual British Hydrological Society National Symposium*, Univ. of Newcastle upon Tyne, Sept 6-8. Invited lecturer: 2001 *Royal Society Discussion Meeting on Flood Risk in a Changing Climate*, London UK, Nov 21-22.

REVIEWER FOR: Advances in Water Resources, American Society of Civil Engineers, British National Environmental Research Council (NERC), Experimental Council to Stimulate Competitive Research (EPSCoR), Hydrologic Sciences Bulletin, Hydrologic Processes Journal, Hydrology & Earth Systems Sciences, John Wiley & Sons, Journal of the American Meteorological Society, Journal of Geophysical Research, Journal of Hydrology, Journal of Hydrometeorology, National Science Foundation, National Aeronautical and Space Administration, National Oceanographic and Atmospheric Administration, Nordic Hydrology, Water Resources Research.

TEACHING & MENTORING: 22+ courses taught, 18+ Post-doctoral students co-supervised, 44+ Ph.D. students co-supervised, 21+ M.S. students co-supervised, 43+ student thesis committees, 11+ external examiner committees

RESEARCH & SCHOLARSHIP: H-Index = 56 with 11,609 total cites of 135 articles. 9 co-authored or edited technical books, 8 publications in preparation, 10 publications in review, 3 publications in press, 147 refereed journal articles, 37 refereed book chapters, 28 conference proceedings, 1 CD Rom, 89+ keynote and/or invited talks, 307+ contributed talks

EDITORIAL: Editor *Water Resources Research* 2009-2012; Special Editor *Journal of Hydrology Special Issue on Distributed Model Intercomparison Project*, expected 2008; Editor *IAHS Red Book Regional hydrologic impacts of climate variability and change with an emphasis on less developed countries*, 2 Volumes, Spring 2005; Editorial Board, *Benchmark Papers in Hydrology*, IAHS Press.

PROPOSALS FUNDED: \$ 49,765,740

NATIONAL/INTERNATIONAL LEADERSHIP & SERVICE

Chair (4) IAHS/PUB Theme Six on "New Model Approaches" (2007-2009); IAHS/PUB Working Group on Model Diagnostics (2006-present); AGU Surface Water Committee (2005-2007); Chair, Hydroarchive website for free software exchange (2003-present).
President (1) ICCLAS/IAHS Intl. Commission on the Coupled Land-Atmosphere System (2005-2007)
Co-Organizer (1) Hydrologic Uncert. Grp, Expt. (HUGE) comparison of uncertainty estimation methods (2003-present)
Member (9) NSF Committee on Modeling for Environmental Observatories (2006-present); Science Board International Symposium on "Hydrology delivering Earth System Science to Society", 2007 Tsukuba, Japan; International Advisory Committee for International Conference on Water, Energy and Society (WEES)-2008, Roorkee, India; IAHS/PUBS Working Group on Uncertainty (2003-present); IAHS/PUBS Top Down modeling Working Group (2005-present); GAPP Core Advisory Panel for MOPEX (2003-present); MOPEX Model Parameter Estimation Experiment organizing committee (2000-present); AGU Surface Water Committee (2000-present); GLASS/GEWEX Panel on Global Land Atmosphere System Study (2000-2002)

UNIVERSITY COMMITTEES/PANELS

- Co-Chair (3) UA Committee: Program on Terrestrial Hydrometeorology, UA-HWR/ATMO (2004-present). HWR Colorado River Basin Working Group (2007-present); HWR Faculty Working Group on Hydrologic Synthesis (2006-present)
- Member (6) UA Committee for Remote Sensing & Spatial Analysis (2005-present); UA Global Change Committee (2005-present); UA-ATMO faculty position search committee (2005); UA-HWR Surface Water Committee (2005-present); UA-HWR Faculty Post-tenure Review Committee (2005-present); UA-HWR Graduate Committee (2005-2006)

BOOKS PUBLISHED

- Bloeschl G, and several authors/editors including HV Gupta (2013), *Runoff Prediction in Ungauged Basins – A Benchmark Assessment*, IAHS Publications
- Brookshire D, HV Gupta, and OP Matthews (Editors) (2012), *Water Policy in New Mexico: Addressing the Challenge of an Uncertain Future*, RFF Press, Issues in Water Resources Policy Series. ISBN 978-1-933115-99-3
- Yilmaz KK, I Yucel, HV Gupta, et al. (Eds) (2009), *New Approaches to Hydrological Prediction in Data Sparse Regions*, Proc. Symposium HS.2 at Joint IAHS/IAH Convention, Hyderabad, Sept 2009, IAHS Redbook Pub 333
- Boegh E, H Kunstmann, T Wagener, et al. (Eds) (2007), *Quantification and reduction of predictive uncertainty for sustainable water resources management*, IAHS Redbook Publ. no. 313, 507pp. ISBN 978-1-901502-09-1.
- Franks S, T Wagener, HV Gupta, et al. (Eds) (2005), *Regional hydrologic impacts of climate variability and change with an emphasis on less developed countries – Volume II – Modeling of climate change*. IAHS Redbook Publications
- Wagener T, HV Gupta, E Bøgh, et al (Editors) (2005), *Regional hydrologic impacts of climate variability and change with an emphasis on less developed countries – Volume I – Impacts of climate change*, IAHS Pubs 295, pp 356.
- Wagener T, HS Wheaton and HV Gupta, (Authors) (2004), *Rainfall-Runoff Modeling in Gauged and Un-gauged Catchments*, Imperial College Press, London, UK, 300 pp.
- Duan Q, HV Gupta, S Sorooshian, A Rousseau and R.Turcotte (Editors) (2003), *Advances in Calibration of Watershed Models*, AGU Monograph, Water Science and Application Series, American Geophysical Union, Washington, D.C
- Sorooshian S, HV Gupta and J Rodda (Editors) (1996), *Land Surface Processes in Hydrology: Trials and Tribulations of Modeling and Measuring*, Proceedings of NATO Advanced Research Workshop, Tucson, Arizona, May 17-21, 1993, NATO ASI Series I 46, XVII, 497 p. Springer-Verlag Berlin Heidelberg New York.

13 MOST RECENT PAPERS PUBLISHED IN REFEREED JOURNALS:

- Sapirza-Azuri G, J Jodar-Bermudez, V Navarro, L Jan Slooten, J Carrera-Ramirez, and HV Gupta (accepted Jan 2015), *Impacts of Rainfall Spatial Variability on Hydrogeological Response*, Water Resources Research
- Mendoza PA, MP Clark, M Barlage, B Rajagopalan, L Samaniego, G Abramowitz and H Gupta (Accepted Jan 2015), *Are we unnecessarily constraining the agility of complex process-based models?* Water Resources Research
- Pechlivanidis IG, B Jackson, H McMillan and HV Gupta (Accepted Dec 2014), *Robust informational entropy-based descriptors of flow in catchment hydrology*, Hydrologic Sciences Journal, doi: 10.1080/02626667.2014.983516
- Nearing GS and HV Gupta (2015), *The Quantity and Quality of Information in Hydrologic Models*, Water Resources Research, 51, 524–538, doi:10.1002/2014WR015895
- Crochemore L, C Perrin, V Andréassian, U Ehret, S Seibert, S Grimaldi, H Gupta and JE Paturel (2014), *Comparing expert judgement and numerical criteria for hydrograph evaluation*, Hydrologic Sciences Journal, DOI: 10.1080/02626667.2014.903331
- Gharari S, M Shafiei, M Hrachowitz, R Kumar, F Fenicia, HV Gupta and HHG Savenije (2014), *A “Constraint-based” Strategy for Parameter Specification of Environmental Models*, Hydrology and Earth System Sciences, 18, 4861–4870, doi:10.5194/hess-18-4861-2014
- Pechlivanidis IG, B Jackson, H McMillan and HV Gupta (2014), *Use of an entropy-based metric in multi-objective calibration to improve model performance*, Water Resources Research, 50, doi:10.1002/2013WR014537
- Rodrigues DBB, HV Gupta, A Serrat-Capdevila, PTS Oliveira, EM Mendiondo and T Maddock III (2014), *Contrasting Brazilian and American Systems for Water Allocation and Transfers*, ASCE Journal of Water Resources Planning and Management, 10.1061/(ASCE)WR.1943-5452.0000483, 04014087
- Oliveira PTS, MA Nearing, MS Moran, DC Goodrich, E Wendland and HV Gupta (2014), *Trends in water balance components across the Brazilian Cerrado*, Water Resources Research, 50, doi:10.1002/2013WR015202
- Rodrigues DBB, HV Gupta and EM Mendiondo (2014), *A Blue/Green Water-Based Accounting Framework For Assessment Of Water Security*, Water Resources Research, 50, 7187–7205, doi:10.1002/2013WR014274
- Gupta HV and GS Nearing (2014), *Debates—The future of hydrological sciences: A (common) path forward? Using models and data to learn: A systems theoretic perspective on the future of hydrological science*, Invited Commentary, Water Resources Research, 50, doi: 10.1002/2013WR015096
- Gong W, D Yang, HV Gupta and G Nearing (2014), *Estimating Information Entropy for Hydrological Data: One Dimensional Case, Technical Note*, Water Resources Research, 50, doi: 10.1002/2014WR015874
- Rajagopal S, F Dominguez, HV Gupta, PA Troch, CL Castro (2014), *On physical mechanisms related to climate-induced drying of two semi-arid watersheds in the southwest US*, Journal of Hydrometeorology, 10.1175/JHM-D-13-0106.1