Curriculum Vitae

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Professional Preparation:

University of Texas, Austin, Civil & Environmental Engineering, PhD.	1980-1981
University of Texas, Austin, Civil & Environmental Engineering, M.S.	1980
Indian Institute of Technology, Kanpur Civil Engineering, B. Tech.	1976

Employment Record:

Columbia University

Director, Columbia Water Center	*2008-date*
Alan & Carol Silberstein Professor of Engineering	*2005-date*
Chair, Earth & Environmental Eng.,	*2003-2006*
Professor, Civil Eng. & Eng. Mechanics,	*2002-date*
Professor, Earth & Environmental Eng.,	*2001-date*
Senior Research Scientist, International Research Institute for Climate & Society	*2001-date*
Visiting Prof., Columbia Earth Institute	*1999-2001*
Adjunct Res. Scientist (LDEO.)	*1997-1999*

Utah State University

Professor, Civil & Environmental Eng.,	*1995-2001*
Associate Director, Utah Water Research Lab.,	*1997-2001*
Associate Professor, Civil & Environmental Eng.	*1988-1995*
U.S.G.S., Salt Lake City, UT, *Hydrologist*	*1988-1989*

University of Utah

Associate Professor, Civil & Environmental Eng.	*1987-1988*
Assistant Professor, Civil & Environmental Eng.	*1981-1987*
ISMAL, Ranchi, India, *Prestressed Consulting Development Engineer*	*1976-1977*

Recent Publications:

1. Assessing chronic and climate induced water risk through spatially distributed cumulative deficit measures: A new picture of water sustainability in India, N Devineni, S Perveen, U Lall, Water Resources Research, 2013
2. Optimal Crop Choice, Irrigation Allocation, and the Impact of Contract Farming, WT Huh, U Lall, Production and Operations Management, 2013
3. A Tree Ring based Reconstruction of Delaware River Basin Streamflow using Hierarchical Bayesian Regression, N Devineni, U Lall, N Pederson, E Cook, Journal of Climate, 2013
4. Multi-variate flood damage assessment: a tree-based data-mining approach, B Merz, H Kreibich, U Lall, Nat. Hazards Earth Syst. Sci 13, 53-64, 2013
5. Is an Epic Pluvial Masking the Water Insecurity of the Greater New York City Region?, N Pederson, ER Cook, AR Bell, U Lall, N Devineni, R Seager, K Eggleston, KP ..., Journal of Climate 26 (4), 1339-1354, 2013
6. Uncertainty assessment of hydrologic and climate forecast models in Northeastern Brazil, HH Kwon, F Assis de Souza Filho, P Block, L Sun, U Lall, DS Reis, Hydrological Processes 26 (25), 3875-3885, 2012
7. Diagnostics of Western Himalayan Satluj River flow: Warm season (MAM/JJAS) inflow into Bhakra dam in India, I Pal, U Lall, AW Robertson, MA Cane, R Bansal, Journal of Hydrology, 2012
8. Mining time-lagged relationships in spatio-temporal climate data, J Kawale, S Liess, V Kumar, U Lall, A Ganguly, Intelligent Data Understanding (CIDU), 2012 Conference on, 130-135, 2012
9. Dynamical structure of extreme floods in the US Midwest and the UK, J Nakamura, U Lall, Y Kushnir, AW Robertson, R Seager, Journal of Hydrometeorology, 2012
10. Contract farming in a developing country with possible reneging: Can it work?, WT Huh, S Athanassoglou, U Lall, IIMB Management Review, 2012
11. Assessing impacts of climate change, sea level rise, and drainage canals on saltwater intrusion to coastal aquifer, P Rasmussen, TO Sonnenborg, G Goncear, K Hinsby, Hydrol. Earth Syst. Sci. Discuss 9, 7969-8026, 2012
12. Predictability of Western Himalayan River flow: melt seasonal inflow into Bhakra Reservoir in Northern India, I Pal, U Lall, AW Robertson, MA Cane, R Bansal, Hydrol. Earth Syst. Sci. Discuss 9, 8137-8172, 2012
13. Designing Sustainable and Scalable Rural Water Supply Systems: Evidence and Lessons from Northeast Brazil, T Heikkila, FOE da Silva, D Stellar, FA de Souza Filho, S Tress, U Lall, 2012
14. Surface Temperature Gradients as Diagnostic Indicators of Midlatitude Circulation Dynamics, C Karamperidou, F Cioffi, U Lall, Journal of Climate 25 (12), 4154-4171, 2012
15. From local to global classification of atmospheric circulation patterns associated with some European floods, B Merz, F Cioffi, E Rus Peres, R Purini, J Reusser, U Lall, EGU General Assembly Conference Abstracts 14, 7721, 2012
16. Space-time structure of extreme precipitation in Europe over the last century: a climate perspective, F Cioffi, E Rus, CK Krishnamurthy, C Karamperidou, U Lall, EGU General Assembly Conference Abstracts 14, 4405, 2012
17. What are the important flood damage-influencing parameters? A data mining approach, B Merz, H Kreibich, U Lall, EGU General Assembly Conference Abstracts 14, 7518, 2012
18. Contract farming with possible reneging in a developing country: Can it work?, WT Huh, S Athanassoglou, U Lall, 2012
19. Real-time flood forecasting coupling different postprocessing tecniques of precipitation forecast ensembles with a distributed hydrological model. The case study of may 2008 flood in western

Piemonte, Italy, D Cane, S Ghigo, D Rabuffetti, M Milelli, Natural Hazards and Earth System Sciences, 2012

20. W00L05 Over-extraction from shallow bedrock versus deep alluvial aquifers: Reliability versus sustainability considerations for India's groundwater irrigation (doi 10.1029/2011WR010617), R Mukul Fishman, T Siegfried, P Raj, V Modi, U Lall, Water Resources Research 48 (6), 2012
21. What's the P in PPP?, T Heikkila, U Lall, AGU Fall Meeting Abstracts 1, 1114, 2011
22. Extreme precipitation in Europe over the last century: a climate perspective, F Cioffi, C Karamperidou, CB Krishnamurthy, U Lall, AGU Fall Meeting Abstracts 1, 1002, 2011
23. Developing" Hydrology or Hydromorphology: A modern research agenda that can inform the trenches, U Lall, American Geophysical Union, Fall Meeting 2011, abstract# H32C-02, 2011
24. Predictability and Diagnostics of Western Himalayan Hydro-climatology, I Pal, U Lall, AW Robertson, MA Cane, AGU Fall Meeting Abstracts 1, 1172, 2011
25. Low-frequency modulation of large-scale weather regimes and impacts on extreme flooding over the Midwest of the United States, AW Robertson, Y Kushnir, U Lall, J Nakamura, AGU Fall Meeting Abstracts 1, 1018, 2011
26. The water-energy-food-climate-economics nexus: solving hunger and resource scarcity, U Lall, AGU Fall Meeting Abstracts 1, 01, 2011
27. Incorporating Seasonal Forecast of Inflow into Existing Water Resource Management at Ubolratana Dam, Thailand, V Chatikavanij, PJ Block, U Lall, AGU Fall Meeting Abstracts 1, 1121, 2011
28. Spatio-Temporal Non-Stationary Flood Frequency Modeling: Seasonal Peak Floods in Southern Brazil Modeled Using Pre-and Concurrent Pacific and Atlantic Ocean Conditions, CH Lima, U Lall, AGU Fall Meeting Abstracts 1, 06, 2011
29. Decadal ENSO variability as reflected by Local Lyapunov Exponents, C Karamperidou, MA Cane, AT Wittenberg, U Lall, PN Di Nezio, AGU Fall Meeting Abstracts 1, 03, 2011
30. The historical impact of climate extremes on global agricultural production and trade, TJ Troy, I Pal, PJ Block, U Lall, AGU Fall Meeting Abstracts 1, 1031, 2011
31. Delaware River Streamflow Reconstruction using Tree Rings: Exploration of Hierarchical Bayesian Regression, N Devineni, U Lall, E Cook, N Pederson, AGU Fall Meeting Abstracts 1, 07, 2011
32. Climatic precursors of autumn streamflow in the northeast United States, G Gong, L Wang, U Lall, International Journal of Climatology 31 (12), 1773-1784, 2011
33. Predicting foraging wading bird populations in Everglades National Park from seasonal hydrologic statistics under different management scenarios, HH Kwon, U Lall, V Engel, Water Resources Research 47 (9), 2011
34. Over-extraction from shallow bedrock versus deep alluvial aquifers: Reliability versus sustainability considerations for India's groundwater irrigation, RM Fishman, T Siegfried, P Raj, V Modi, U Lall, Water Resources Research 47 (6), 2011
35. Insights from a joint analysis of Indian and Chinese monsoonrainfall data, M Zhou, F Tian, U Lall, H Hu, Hydrology and Earth System Sciences 15 (8), 2709, 2011
36. Quantifying Sustainability: Methodology for and Determinants of, K Abayomi, V de la Pena, U Lall, M Levy, Green Finance and Sustainability: Environmentally-Aware Business Models and ..., 2011
37. CLIMATE CHANGE—ITS IMPACT ON AGRICULTURE PRODUCTIVITY AND LIVELIHOOD: THE POLICY RESPONSE-Climate Change Impact and Management Strategies for Sustainable Water-Energy-Agriculture Outcomes in Punjab, RS Sidhu, K Vatta, U Lall, Indian Journal of Agricultural Economics 66 (3), 328, 2011
38. Visionary Reflections from a Crystal Clear Pool of Water Scientists, U Lall, Journal of Contemporary Water Research and Education 123 (1), 4, 2011

39. Will hydrologists learn from the world around them?: Empiricism, models, uncertainty and stationarity, U Lall, AGU Fall Meeting Abstracts 1, 01, 2010
40. Northern Hemisphere Meridional and Zonal Temperature Gradients and their Relation to Hydrologic Extremes at Mid-latitudes: Trends, Variability and Link to Climate Modes in Observations and Simulations., C Karamperidou, U Lall, F Cioffi, AGU Fall Meeting Abstracts 1, 0142, 2010
41. GCM Projections of Precipitation Extremes in the Mediterranean: Changes and Low Frequency Characteristics, F Cioffi, U Lall, E Volodin, C Karamperidou, R Purini, AGU Fall Meeting Abstracts 1, 0933, 2010
42. Bayesian Non-Stationary Flood Frequency Estimation at Ungauged Basins Using Climate Information and a Scaling Model, CH Lima, U Lall, AGU Fall Meeting Abstracts 1, 06, 2010
43. Sensitivity of Storage Systems in India: Role of Human Behavior Responsive to Low Frequency Climate Variations, N Devineni, S Perveen, U Lall, AGU Fall Meeting Abstracts 1, 04, 2010
44. Understanding Changes in frequency of extreme rainfall over Central India, CB Krishnamurthy, U Lall, AGU Fall Meeting Abstracts 1, 1027, 2010
45. 2010: Why is it flooding everywhere this year? Coincidence or a predictable climate phenomenon, and how can we respond?, U Lall, AGU Fall Meeting Abstracts 1, 03, 2010
46. Exploring oceanic source regions and moisture transport of extreme floods over large basins in the contiguous United States, J Nakamura, U Lall, Y Kushnir, AW Robertson, AGU Fall Meeting Abstracts 1, 06, 2010
47. Sea Level fluctuations and their hydrologic impacts in S. Florida, V Engel, C Karamperidou, E Stabenau, U Lall, AGU Fall Meeting Abstracts 1, 1222, 2010
48. An Examination of the Sensitivity of Runoff in the Northeastern US to 20th Century Development, IN Mohammed, DG Tarboton, R Cohen, U Lall, AGU Fall Meeting Abstracts 1, 1263, 2010
49. Quantifying the Dimensions of Water Crisis in India: Spatial Water Deficits and Storage Requirements, S Perveen, N Devineni, U Lall, AGU Fall Meeting Abstracts 1, 03, 2010
50. A rainwater harvesting system reliability model based on nonparametric stochastic rainfall generator, M Basinger, F Montalto, U Lall, Journal of Hydrology 392 (3), 105-118, 2010
51. Modeling irrigated area to increase water, energy, and food security in semiarid India, T Siegfried, S Sobolowski, P Raj, R Fishman, V Vasquez, K Narula, U Lall, V Modi, Weather, Climate, and Society 2 (4), 255-270, 2010
52. A nonparametric stochastic approach for multisite disaggregation of annual to daily streamflow, K Nowak, J Prairie, B Rajagopalan, U Lall, Water Resources Research 46 (8), W08529, 2010
53. A modified support vector machine based prediction model on streamflow at the Shihmen Reservoir, Taiwan, PH Li, HH Kwon, L Sun, U Lall, JJ Kao, International Journal of Climatology 30 (8), 1256-1268, 2010
54. A Simple Framework for Incorporating Seasonal Streamflow Forecasts into Existing Water Resource Management Practices1, G Gong, L Wang, L Condon, A Shearman, U Lall, JAWRA Journal of the American Water Resources Association 46 (3), 574-585, 2010
55. Seasonal hydrologic dynamics under changing climate, land use-land cover and human influence, P Kumar, AJ Valocchi, M Sivapalan, X Cai, U Lall, 2010
56. Mid Latitude Extreme Precipitation under future changed climate Mid Latitude Extreme Precipitation under future changed climate Mid Latitude Extreme Precipitation under future changed climate, E Volodin, NA Diansky, U Lall, C Karamperidou, F Cioffi, C Transerici, R Purini, EGU General Assembly Conference Abstracts 12, 11125, 2010
57. Predictive downscaling based on non-homogeneous hidden Markov models, AF Khalil, HH Kwon, U Lall, YH Kaheil, Hydrological Sciences Journal–Journal des Sciences Hydrologiques 55 (3), 333-350, 2010

58. Spatial scaling in a changing climate: A hierarchical bayesian model for non-stationary multi-site annual maximum and monthly streamflow, CHR Lima, U Lall, Journal of Hydrology 383 (3), 307-318, 2010
59. Local Polynomial–Based Flood Frequency Estimator for Mixed Population, S Apipattanavis, B Rajagopalan, U Lall, Journal of Hydrologic Engineering 15 (9), 680-691, 2010
60. Interpreting variability in global SST data using independent component analysis and principal component analysis, S Westra, C Brown, U Lall, I Koch, A Sharma, International Journal of Climatology 30 (3), 333-346, 2010
61. El-Niño/Southern Oscillation (ENSO) influences on monthly NO< sub> 3</sub> load and concentration, stream flow and precipitation in the Little River Watershed, Tifton, Georgia (GA), VW Keener, GW Feyereisen, U Lall, JW Jones, DD Bosch, R Lowrance, Journal of hydrology 381 (3), 352-363, 2010
62. Climate informed long term seasonal forecasts of hydroenergy inflow for the Brazilian hydropower system, CHR Lima, U Lall, Journal of Hydrology 381 (1), 65-75, 2010
63. Climate informed monthly streamflow forecasts for the Brazilian hydropower network using a periodic ridge regression model, CHR Lima, U Lall, Journal of Hydrology 380 (3), 438-449, 2010
64. Stochastic methods for modeling precipitation and streamflow, B Rajagopalan, J Salas, U Lall, Advances in Data-based Approaches for Hydrologic Modeling and Forecasting, 17-52, 2010
65. Closing the Carbon Cycle: Liquid Fuels from Air, Water and Sunshine, KS Lackner, E Dahlgren, C Graves, C Meinrenken, T Socci, L Archer, S ..., New York: Lenfest Center for Sustainable Energy, Columbia University, 2010
66. Groundwater and global hydrological change-current challenges and new insight, R Taylor, L Longuevergne, R Harding, M Todd, B Hewitson, U Lall, K Hiscock ..., Hydrocomplexity: New Tools for solving Wicked Water Problems 338, 51-61, 2010

Relevant Publications:

67. Sankarasubramanian, A., U. Lall, F.D.Souza Filho, A.Sharma,Improved Water Allocation utilizing Probabilistic Climate Forecasts: Short Term Water Contracts in a Risk Management Framework, *Water Resources Research*, 45, W11409, doi:10.1029/2009WR007821, 2009
68. Kwon H.-H., U. Lall, A. F. Khalil (2007), Stochastic simulation model for nonstationary time series using an autoregressive wavelet decomposition: Applications to rainfall and temperature, Water Resour. Res., 43, W05407, doi:10.1029/2006WR005258
69. Lall U., Y.-I. Moon, H.-H. Kwon, K. Bosworth (2006), Locally weighted polynomial regression: Parameter choice and application to forecasts of the Great Salt Lake, Water Resour. Res., 42, W05422, doi:10.1029/2004WR003782
70. DeSouza, Filho, F. A., and U. Lall, Seasonal to Interannual Ensemble Streamflow Forecasts for Ceara, Brazil: Applications of a Mutlivariate, Semi-Parametric Algorithm, Water Resources Research, Nov 2003, 39(11), 1307-1321.
71. Sankarsubramanium, A., and U. Lall, Flood quantiles and changing climate: Seasonal Forecasts and Causal relations, Water Resources Research, May 2003, 39(5), 1154-1165.

Synergistic Activities

- Developing Global Roundtable on Water (GROW) with World Economic Forum and others
- Participation in NRC panels:
  - Climate and Water Cycle
  - Flood Risks in the American River

- Estimating and Communicating Uncertainty in Weather and Climate Forecasts
- Committee on Preparing for the Third Decade (Cycle 3) of the National Water-Quality Assessment (NAWQA) Program
- Modeling and uncertainty analysis for the restoration of the Everglades, Florida

- Moderator for President's Regional Panel on Global Climate Change.
- Development of case study based undergraduate environmental engineering curriculum at Columbia University.
- Short courses on stochastic processes and their applications to water resources and climate risk management for state agencies in UT, FL and for UNESCO in India and Ethiopia

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Collaborators & Other Affiliations

H. Ahn (FEMA), V. Engle (National Park Service), F. Filho (Federal University of Ceara), A. Greene (Columbia Univ), T. Heikkila (Univ of Colorado), B. Rajagopalan (Univ of Colorado), C. Ribeiro-Lima (Univ of Brasilia), A. Robertson (Columbia Univ), A. Sharma (Univ of New South Wales), T. Siegfried (Columbia University), Y.I. Moon (Seoul University), S. Westra (University of New South Wales).
Advisors: Phd: L R Beard, MS: L. W. Mays
Advisees (last 5 years):
Heillweger F. (Northeastern Univ.), G. Pizarro (UN Millenium Project), Arumugam, S. (N.C. State), Sveinnson, O. (Iceland), Samuels, R., (Tel Aviv University), Brown C. (Columbia University), Marks, D., Lima, C. (Columbia University), Nakamura, J. (Columbia University), Tuglus, C. (University of California, Berkeley), Landel, G., Sgallari, S., (University of Padua), Landot, T. (Goldman Sachs), Khalil A., (Partner Re), Kwon, H. (Korea Institute of Construction Technology).

Awards:

Kim Award for Faculty Involvement, Columbia University	*2008*
Borland Lecture on Hydrology, AGU Hydrology Days	*2006*
Research Excellence Award, College of Engineering, Utah State University	*1995-1996*
Outstanding Researcher, Dept. of Civil & Environ. Eng., Utah State University	*1995-1996*
John R. Parks Teachers Fellowship, College of Engineering, University of Utah	*1982-1983*