

SHAFIQL ISLAM

Professor of Civil and Environmental Engineering
Professor of Water Diplomacy, Fletcher School of Law and Diplomacy
Director, Water Diplomacy Program
Tufts University; Medford, MA 02155
Tel: (617) 627-4290; Fax: (617) 627-3994
E-Mail: Shafiqul.Islam@tufts.edu
Web: <http://waterdiplomacy.org/>
<http://engineering.tufts.edu/cee/reason/>

POSITIONS HELD

Tufts University, Medford, Massachusetts.

Professor (tenured) of Civil and Environmental Engineering, 2004-Current.
Professor of Water Diplomacy, Fletcher School, 2008 – Current.
Director, Water Diplomacy Program, 2010 – current
Associate Dean of Engineering for Research, 2006 -2009

University of Cincinnati, Cincinnati, Ohio.

Director of Graduate Studies, Department of Civil and Environmental Engineering, 2000-2004.
Founding Director, Cincinnati Earth Systems Science Program, 1995-2004.
Professor (tenured), 2001-2004.
Associate Professor (tenured), 1997-2000; Assistant Professor, 1991-1996.

Bangladesh University of Engineering and Technology, Dhaka, Bangladesh

Visiting Professor and Senior Fulbright Scholar, 2001-2002.
Lecturer, Civil Engineering, 1983-1984.

SELECTED HONORS, AWARDS, & RECOGNITIONS

2016 Prince Sultan Bin Abdulaziz International Water Prize in Creativity
2004 Bernard M. Gordon Senior Faculty Fellow in Engineering, Tufts University
2004 Distinguished Senior Faculty Research Award, Engineering, University of Cincinnati
2001 Senior Fulbright Scholar
1999 Professor of the Quarter, College of Engineering, University of Cincinnati
1995 Nominated for Presidential Faculty Fellowship
1987 NSF Supercomputer Fellowship Award
1984 Commonwealth Scholar in Engineering
1983 National TV Debate Champion, Bangladesh
1981 Engineering University Outstanding Student Award, Bangladesh
1978 Valedictorian, Board of Education, Bangladesh

EDUCATION

Sc.D. in Hydrometeorology and Hydroclimatology, Massachusetts Institute of Technology, 1991
M.S. in Environmental Engineering, University of Maine, 1987
B.S. in Civil Engineering, Bangladesh University of Engineering and Technology, 1983

PROFESSIONAL SERVICE & EXPERIENCES

Editor

Founding Editor	Water Diplomacy Series Anthem Press	2012 – current
Associate Editor	Water Resources Research	1995-2001
Associate Editor	Reviews of Geophysics	1997-2001

National Committee

Member	National Academy of Sciences Panel on Global Energy and Water Cycle Experiments, 1997-2001
Member	Remote Sensing in Hydrology Committee American Geophysical Union, 1995-present
Member	NSF/EPA Panel for Water and Watershed Initiative National Science Foundation, 1996, 1997, 1998, 1999
Member	Large Scale Field Experimentation Committee in Hydrology, American Geophysical Union, 1993-1995
Delegate	University Council on Water Resources, 1993-2013
Delegate	Board of Oceans and Atmosphere, 1993-2004
Delegate	National Association of Land Grant Colleges and Universities, 1993-2013

Selected Consulting

World Bank	2010 - current
ExxonMobil	2009 - 2012
United States Geological Survey	2004 – 2009
South Florida Water Management District	2001- 2008
Proctor and Gamble	2003 – 2004

University Committee Services

Departmental: Tufts University

Member, Civil and Environmental Engineering Graduate Education Committee, 2017 – current
Chair, Water Faculty Search Committee, 2015- 2018
Member, Environmental Engineering Curriculum Committee, 2004 – current
Member, Reappointment, Promotion, and Tenure Committee, 2004 - current
Chair, PhD Qualifying Examination Committee, 2006 - current

Departmental: University of Cincinnati

Chair, PhD Qualifying Examination Committee, 1992-1994, 1996-1997.
Member, Academic Quality Committee, 1992-1997.
Member, Departmental Computer Committee, 1992-1999.
Chair, Graduate Admissions, 1997- 1999.
Chair, Faculty Recruitment Policy Committee, 1999.
Member, Undergraduate Curriculum Committee, 1996-2000.
Chair, Class of 2007 Advising Committee
Member, Departmental Executive Committee, 2001- 2004
Member, Reappointment, Promotion, and Tenure Committee, 2001 - 2004
Executive Liaison, Industrial Advisory Board, 2001 – 2004

School/University: Tufts University

Member, University Impact on Society Committee, 2012- 2013
 Member, University Thematic Working Group in Water, 2012 - current
 Member, University Council on Graduate Education, 2005 – 2011
 Member, School of Engineering Curriculum Task Force, 2004 - 2010

College/University: University of Cincinnati

Lecturer, EIT Review Course in Fluid Mechanics, 1994 and 1995.
 Member, University Research Council Summer Fellowship Committee, 2001-present.
 Member, Graduate Faculty, 1997-2004
 Chair, College Tuition Recovery Policy Committee, 2003.
 Member, Graduate Exit Survey Committee, 2003.

Reviewer for Selected Proposals and Journal Papers

National Science Foundation
 National Aeronautics and Space Administration
 Environmental Protection Agency
 Department of Energy
 Department of Agriculture
 Army Research Office
 Fulbright Senior Specialist Program
 Water Resources Research
 Reviews of Geophysics
 Journal of Geophysical Research-Atmosphere
 Geophysical Research Letters
 Journal of Hydrology
 Remote Sensing of Environment
 Atmospheric Environment
 Boundary Layer Meteorology
 Journal of Climate
 Journal of Applied Meteorology
 Journal of Hydraulic Engineering
 Advances in Water Resources
 ASCE Journal of Environmental Engineering

International Advisory Role

South Asian Consortium of Interdisciplinary Water Studies, Project Advisory Committee, 2006-Current.
 Ministry of Science and Technology, Government of Bangladesh, Advisor, 2001-2002.
 Served as external examiners for Ph.D. Examinations in Argentina, Australia, and Bangladesh.

TEACHING**Courses Developed at University of Cincinnati**

<u>Number</u>	<u>Title</u>	<u>Credit Hours</u>
493	Hydraulic Systems	4
494	Fluid Mechanics Laboratory	2
676	Advanced Environmental Seminar	1

691	Climate Change & Environ. Impact	3
694	Statistical Principles for Environmental Systems	4
794	Hydrologic Signal Processing	4
907	Land-Atmosphere Interactions	3

Courses Developed at Tufts University

<u>Number</u>	<u>Title</u>	<u>Credit Hours</u>
12	Hydrology and Hydraulics	1
101	Water Diplomacy	1
293	Environmental Signal Processing	1
193	Water: Constraints, Conflicts, and Cooperation	1
291	Environmental Seminar	1
201	Water Diplomacy I	1
202	Water Diplomacy III	1
293	Advanced Data Science	1
294	Complexity Science	1

GRADUATE RESEARCH

I supervised over thirty graduate students in their MS/PhD research as a major advisor. Eight of my Ph.D. students are now faculty members, two are scientists at federal research laboratories and all of the others are employed in the private sector. Four of my MS graduates completed their doctoral research elsewhere two of who are now faculty members. Three of my MS graduates work in government laboratories and all of the others work in industries. In addition, I have served in numerous MS/PhD thesis committees.

Graduate Students Supervision as a Major Advisor

Graduated : Ph.D.

- Zhenglin Hu (1996 Thesis Title: Effects of Spatial Heterogeneity on Land-Atmosphere Interactions)
- Jiann-Long Chen (1997 Thesis Title: Characterization of In-Situ Electroosmosis Using Conductive Fractures; co-advisor)
- Chris Matsoukas (1999 Thesis Title: Precipitation Estimation and Forecast Using Radar and Rain Gage Measurements with Artificial Neural Networks)
- Le Jiang (2000 Thesis Title: Estimation of Land Surface Evaporation Map Over Large Areas Using Remote Sensing Data)
- Dyi-Huey Chang (2002 Thesis Title: Analysis and Modeling of Space Time Organization of Remotely Sensed Soil Moisture)
- Joseph Sobieraj (2003 Thesis Title: Spatial Pattern of Saturated Hydraulic Conductivity and its Controlling Factors for Forested Soils)
- David Small (2006 Thesis Title: A Diagnostic Study of Possible Acceleration of the Hydrologic Cycle)
- Virginia Venturini (2007 Thesis Title: Estimation of Evapotranspiration Using Remote Sensing)
- Ali Akanda (2011 Thesis: Hydro climatological Controls on Cholera)
- Antar Jutla (2012 Thesis: Predicting Seasonal Cholera Outbreaks from Satellite)
- Margaret Garcia (2017: Infrastructure, Hydrology, and Policy: Socio-Hydrological Modeling of Urban Water Consumption Dynamics)

M.S.

- Tim Arendt (1993 Thesis Title: A Factorial Study of the Energy-Moisture Transfer Processes at the Earth-Atmosphere Interface)
- Zhiquan Bo (1994 Thesis Title: Scale Considerations in Hydrologic Modeling: Part Aggregation and Disaggregation of Temporal Rainfall; Part II Effects of Land Surface Heterogeneities on Evaporation)
- Yun Le (1995 Thesis Title: Effects of Initial Atmospheric States on the Generation of Mesoscale Circulations)
- Qing Liu (1995 Thesis Title: Nonlinearities and Issues of Space-Time Averages in Streamflow Data)
- Zhenglin Hu (1996 Thesis Title: Prediction of Moments of Soil Moisture Images at Different Resolutions; co-advisor)
- Ravi Kanda (1997 Thesis Title: Characterization of Ozone Dynamics in Urban Areas)
- Deeptha Thattai (1998 Thesis Title: Spatial Characterization of Remotely Sensed Soil Moisture)
- Jikang Li (1999 Thesis Title: Retrieval of Root Zone Soil Moisture from Remote Sensing Observations)
- Douglas Whitaker (1999 Thesis Title: El-Nino, Teleconnections, and Flow in the Ganges: A New Paradigm for Streamflow Forecasting)
- Bharadawaj Karthik (2001 Thesis Title: Spatial Variability of Groundwater Arsenic in Bangladesh)
- Gautam Bisht (2004 Thesis: Estimation of Net Radiation from Satellite Data)
- Namrata Batra (2005 Thesis: Comparison of evaporation estimates from multiple satellites)
- Tianyi Luo (2012 Thesis: Evapotranspiration Estimation over Agricultural Plains using MODIS Data for All Sky Conditions)
- Yudan Jiang (2014 Thesis: A Simple Streamflow Forecasting Scheme for the Ganges Basin)
- Ercan Yavuz (2015 Thesis: Uncharted Waters of the Middle East: Re-Visiting the Euphrates-Tigris Conflict in Troubled Times)
- Agustin Botteron (2016 Thesis: Creating Flexibility in Freshwater Availability for the Nile Basin)

Current Graduate Students

Ph.D.

Tahira Sayed
Kevin Smith
Wahid Palash

M.S.

Colleen O'Brien

RESEARCH FUNDING

<u>Project/Date</u>	<u>Source</u>	<u>Amount</u>
IGERT: Water Across Boundaries - Integration of Science, Engineering and Diplomacy P.I.: Islam (Partner: 14 national and international)	NSF	\$4,200,000

organizations and academic institutions)
Period of Support: 07/10 – 12/17

RCN-SEES A Global Water Diplomacy Network: NSF \$749,448
Synthesis of Science, Policy, and Politics for a
Sustainable Water Future
P.I.: Islam (co-PI: Susskind, MIT)
Period of Support: 01/12 – 12/18

Effects of Climate Change on Cholera Dynamics NIH Challenge Grant \$499,582
and Prediction
P.I.: Islam (Partner: University of Maryland; Institute
of Water Modeling, Bangladesh)
Period of Support: 10/09 – 09/11

Collaborative Research – Variations and NSF \$298,546
Trends in Fall Precipitation over the Central
United States: Issues of Physical Mechanisms,
Circulation Anomalies and Boundary Forcing
P.I.: Islam (Partner: Columbia University)
Period of Support: 06/08 – 07/13

Collaborative Research – A Precipitation NSF \$269.854
Dipole in Eastern North America: Issues of
Space-Time Variability and Physical Mechanisms
P.I.: Islam (Partner: University of Massachusetts)
Period of Support: 07/08 – 07/13

Collaborative Research – Groundwater NSF \$155,145
Dynamics and Arsenic Contamination in the
Ganges Delta: Irrigated Agriculture, Subsurface
Chemical Transport, and Aquifer Flushing
P.I.: Islam
Period of Support: 08/05 – 07/10

Estimation of Evapotranspiration and Crop NRICGP \$380,000
Water Stress Over Large Areas Using
Remote Sensing Observations
P.I.: Islam
Period of Support: 02/05 – 01/09

Science and Mathematics Authentic NSF \$100,000
Inquiry-Based Teaching: Project SMART
Co-P.I.: Islam
Period of Support: 09/02 – 08/04

Study of a Possible Acceleration NASA \$72,000

of the Hydrologic Cycle

P.I.: Islam

Period of Support: 09/02 – 08/05

Arsenic Contaminated Groundwater
in Bangladesh: Characterizing the source,
mobilization and transport

NSF

\$152,004

P.I.: Islam

Period of support: 08/00 – 07/05

US-Bangladesh Collaborative Workshop
on the Ganges-Brahmaputra-Meghna Delta

NSF

\$41,670

P.I.: Islam

Period of support: 01/02 – 12/04

NSF GK-12 Proposal - Science and
Technology Enhancement Program:
Project STEP

NSF

\$1,499,998

Co-P.I.: Islam

Period of Support: 09/02 – 08/05

A Diagnostic Study of Possible
Enhancement of the Hydrologic Cycle

NASA

\$278,000

P.I.: Islam

Period of Support: 02/02 – 02/06

Interdisciplinary Research and
Education in Hydrology

NSF

\$562,500

P.I.: Islam

Period of support: 09/95 - 03/04

Generate Satellite Based Actual
Daily Evapotranspiration Estimation
P.I. Islam

South Florida Water
Management District

\$99,586

Project Period: 04/03 – 09/03

Satellite or Radar Based Evapotranspiration
Estimation.

South Florida Water
Management District

\$94,000

P.I.: Islam

Project Period: 09/01 – 09/02

Identification of Soil Physical and
Hydraulic Properties Using Remote
Sensing and Artificial Neural Network

National Research
Initiative Competitive
Grants Program

\$107,000

P.I.: Islam

Project Period: 09/99 - 08/02

Sustainability of Water Resources and

Fulbright Award

\$33,050

S. Islam: CV

Page 7 of 28

Environment: Issues of Abundance and Scarcity of Water in Bangladesh” P.I.: Islam Project Period: 10/01 – 04/02	US State Department	
Water Supply System in Arsenic Affected Asian Environment Co-P.I.:Islam (a collaborative project With MIT, University of Tokyo, and ETH (Switzerland) Project Period: 01/00 -12/00	Alliance For Global Sustainability	\$150,000
Space-Time Characterization of Remotely Sensed Soil Moisture P.I. Islam Project Period: 09/97 - 08/01	NASA	\$66,000
Effects of Space-Time Dynamics of Surface Processes on Land-Atmosphere Interactions at the Mesoscale P.I.: Islam Period of support: 04/96 - 03/00	NSF	\$140,000
Analyzing and Parameterizing Effects of Surface Heterogeneity on Land Surface Representations and Remote Sensing Algorithms P.I. Islam Project Period: 09/95 - 08/98	NASA	\$66,000
Use of Rain gage and Radar Measurement of Precipitation for the Calibration and Ground Validation of Satellite Based Estimates P.I. Islam Project Period: 09/95-08/98	NASA	\$66,000
Environmental Technology and Policy Support and the 1990 Clean Air Act Amendments; Co-P.I.:Islam Project Period: 1/93-12/93	US ARMY	\$35,000
Land surface-atmosphere interactions and climatic feedbacks in the mid-western U.S. P.I.: Islam; Project Period: 07/92-06/94	National Institute for Global Environmental Change	\$80,753

COLLABORATIVE EXPERIENCES

Professor Islam's teaching and research interests are to understand, characterize, measure, and model water issues ranging from climate to cholera to water conflicts with a focus on scale issues and remote sensing. His research group WE REASoN (Water and Environmental Research, Education, and Actionable Solutions Network) and interdisciplinary Water Diplomacy initiative emphasizes national and international collaborative partnership to address water problems by synthesizing scientific information and contextual understanding and create actionable knowledge. To facilitate and bolster his interdisciplinary research agenda, he has developed collaborative partnerships with the faculty, students, practitioners, and industrial partners from a wide range of institutions including:

Bangladesh University of Engineering
BRAC University, Bangladesh
CALFED Bay Delta Program
CDM Inc.
Columbia University
Dhaka University
Harvard University
IMSG Inc.
Indian Institute of Technology, Bombay, India
International Center for Diarrheal Disease Research, Bangladesh (ICDDR, B)
Massachusetts Institute of Technology
McGill University
National Aeronautics and Space Administration
National Oceanic and Atmospheric Administration
Proctor and Gamble
Purdue University
Princeton University
Stockholm Environmental Institute
South Asian Consortium of Interdisciplinary Studies
South Florida Water Management District
United States Geological Survey
University of Maryland
University of Rhode Island
University of Massachusetts
University of Peradeniya, Sri Lanka
University of Tokyo
West Virginia University
World Bank
Water Diplomacy Research Coordination Network (An interdisciplinary group of researchers and practitioners from institutions on 5 continents. Funded through a grant from the National Science Foundation to grow a diverse community of water scholars and practitioners, as well as complex systems scientists, social scientists, and information technologists from around the world. An overarching goal is to create actionable water knowledge that synthesizes theory and practice across disciplines. RCN Partner institutions and the primary Water Diplomacy point of contacts are available at <http://waterdiplomacy.org/research-coordination-network/>)

PUBLICATIONS

Selected Peer-Reviewed Journal Articles

(*papers published with one or more of my graduate students)

- *80. A Streamflow and Water Level Forecasting Model for the Ganges, Brahmaputra and Meghna Rivers with Requisite Simplicity, *J. of Hydrometeorology*, doi:10.5194/20-73-2016, 2017 (with Palash, W., Jiang, Y., Akanda, A., Small, D. and Nozari, A.)
- *79. A Question Driven Socio-Hydrological Modeling Process, *Hydrol. Earth Syst. Sci.*, 20, 73-92, doi:10.5194/hess-20-73-2016, 2016 (with Garcia, M., and Portney, K.)
- 78. Nonlinear Interval Parameter Programming Combined with Cooperative Games: A Tool for Addressing Uncertainty in Water Allocation Using Water Diplomacy Framework, 2015 29(12), *Water Resources Management* (With Zarghami, Safari, and Szidarovszky)
- 77. Water Diplomacy: A Negotiated Approach to Manage Complex Water Problems, 2015, 155:1-10; **UCOWR Special Issue on Water Diplomacy** (with Repella, A.)
- 76. Nature of Transboundary Water Conflicts: Issues of Complexity and the Enabling Conditions for Negotiated Cooperation, 2015, 155:43-52; **UCOWR Special Issue on Water Diplomacy** (with Choudhury, E.)
- 75. Understanding the water crisis in Africa and the Middle East: How can science inform policy and practice? 2015, *Bulletin of Atomic Scientists*, Vol. 71(2) 39–49 (with Susskind, L.)
- *74. Evapotranspiration estimation over agricultural plains using MODIS data for all sky conditions, 2014, *International Journal of Remote Sensing*, Vol. 36, No. 5, 1235–1252, <http://dx.doi.org/10.1080/01431161.2015.1009648>, (with Luo, T. and Jutla, A)
- *73. Population Vulnerability to Biannual Cholera Outbreaks and Associated Macro-Scale Drivers in the Bengal Delta, 2013, *American Journal of Tropical Medicine and Hygiene*, 2013 Nov;89(5):950-9. doi: 10.4269/ajtmh.12-0492. Epub 2013 Sep 9. (with Jutla, A., and Akanda, A.S.)
- *72. A framework for predicting endemic cholera using satellite derived environmental determinants, 2013, *Environmental Modeling and Software*, 47: 148-158. (with Jutla, and A.S., Akanda, A.S.)
- *71. A water marker monitored by satellites to predict seasonal endemic cholera framework for for predicting endemic cholera, 2013, *Remote Sensing Letters*, Vol. 4, No. 8, 822–831, <http://dx.doi.org/10.1080/2150704X.2013.8020977>: 148-158. (with Jutla,A., Akanda, A.S., Huq, A., Faruque, S.G. and Colwell, R.)

70. Water Diplomacy: Creating Value and Building Trust in Transboundary Water Negotiations, 2012, *AAAS Science and Diplomacy*, September 2012 (with L. Susskind)
- *69. Satellite Remote Sensing of Space-Time Plankton Variability in the Bay of Bengal: Connections to Cholera Outbreaks, 2012 *Remote Sensing of Environment*, 123: 196-206. doi:10.1016/j.rse.2012.03.005 (with Jutla, and A.S., Akanda, A.S.)
- *68. Reducing Cholera Burden through Proactive Intervention. *Bull World Health Organ*, 2012, 90: 243-244. doi:10.2471/BLT.11.092189 (with Akanda, A.S., Jutla, A.S., Gute, D.M., Evans, T.)
67. Clonal transmission, dual peak, and off-season cholera in Bangladesh. *Infection Ecology and Epidemiology*, 2011, 1: 7273. doi:10.3402/iee.v1i0.7273. (with Alam, M., Islam, A., Bhuyan, N.A., Rahim, N., Hossain, A., Khan, G.Y., Ahmed, D., Watanabe, H., Izumiya, H., Faruque, A.S.G., Akanda, A.S., Sack, R.B., Huq, A., Colwell, R.R. and Cravioto)
- *66. Warming oceans, phytoplankton, and river discharge: Implications for cholera outbreaks” *American Journal of Tropical Medicine and Hygiene*. doi:10.4269/ajtmh.2011.11-0181 (with Jutla, A., Akanda, A., Griffiths, J. & Colwell, R.)
- *65. Hydroclimatic Influences on Seasonal and Spatial Cholera Transmission Cycles: Implications for Public Health Intervention in the Bengal Delta”, *Water Res Res*, 47, W00H07, doi:10.1029/2010WR009914 2011,(Akanda, A.S., Jutla, A.S., Siddique, A.K., Alam, M., Sack, R., Huq, A., Colwell, R.)
- *64. Tracking Cholera in Coastal Regions Using Satellite Observations, *Journal of the American Water Resources Association*, v46, doi: 10.1111/j.1752-1688.2010.00448.x, (with A. Akanda and A. Jutla).
63. Observed Trends in Summertime Precipitation over the Southwestern United States, *Journal of Climate*, V23, doi: 10.1175/2009jcli3317.1, 2010 (with Anderson, B. T.; Wang, J. Y.; Salvucci, G.; and Gopal, S.
62. A Calibrated, High-Resolution GOES Satellite Solar Insolation Product for a Climatology of Florida Evapotranspiration, *Journal of the American Water Resources Association*, v45, ISI:000272439300002, 2009, (with Paech, S. J.; Mecikalski, J. R.; Sumner, D. M.; Pathak, C. S.; Wu, Q. L.; and Sangoyomi, T.)
- *61. Dual peak cholera transmission in Bengal Delta: A hydroclimatological explanation, *Geophysical Research Letters*, doi: L19401 10.1029/2009gl039312, 2009 (with A. Akanda and A. Jutla).
60. A review of T-s/VI remote sensing based methods for the retrieval of land surface energy fluxes and soil surface moisture, *Progress in Physical Geograph*, V33, doi: 10.1177 0309133309338997, 2009, (with Petropoulos, G.; Carlson, T. N.; and Wooster, M. J.)

- *59. A Synoptic View of Trends and Decadal Variations in Fall Precipitation Across the United States from 1948 to 2004, *Journal of Geophysical Research, Atmospheres*, V114, D10102 10.1029/2008jd011579 (with D. Small)
- *58. Low Frequency Variability in Fall Precipitation Across the United States from 1895 to 2004, *Water Resources Research*, Vol 44, N4, doi: 10.1029/2006WR005623, 2009, (with D. Small).
- *57. Metodología para la estimación de la fracción evaporable y la evapotranspiración con productos MODIS, 2008, *Revista de Teledetección de la Asociación Española de Teledetección.*, (with V. Venturini, and L. Rodríguez)
- *56. Estimation of Evaporative Fraction and Evapotranspiration From MODIS Products Using a Complementary Based Model, *Remote Sensing of Environment*, (with V. Venturini, L. Rodríguez).
- *55. A satellite-based daily actual evapotranspiration estimation algorithm over south Florida, 2009, *Global Planetary Change*, V67, 10.1016/j.gloplacha.2008.12.008 (with L. Jiang, W. Guo, A. Jutla, S. Senarath, B.Ramsay and E. Eltahir).
- *54. Decadal variability in the frequency of fall precipitation over the United States, *Geophysical Research Letters*, VOL. 34, L02404, doi:10.1029/2006GL028610, 2006(with D. Small)
- *53. “Trends in precipitation and streamflow in the eastern U.S.: Paradox or perception?”, *Geophysical Research Letters*, VOL. 33, L03403, doi:10.1029/2005GL024995, 2006 (with D. Small and R. Vogel)
- *52. “Estimation and Comparison of Evapotranspiration from Multiple Satellites for Clear Sky Days”, 103 (1), p.1-15, 2006, *Remote Sensing of Environment*, (with N. Batra, V. Venturini, G. Bisht, and L. Jiang).
51. “Groundwater Dynamics and Arsenic Contamination in Bangladesh: Aquifer Flushing and the Source of Recharge”, vol. 228(1-3), doi:10.1016/j.chemgeo.2005.11.025, 2006, *Chemical Geology*, (with C. F. Harvey, K. N. Ashfaq, W. Yu, A. M. Badruzzaman, M. A.Ali, Peter M. Oates, H. Michael, R. Neumann, R. Beckie and , M. F. Ahmed)
- *50. “Temporal Invariance of Leading EOFs for Western United States Precipitation Over a Range of Scales”, 2006, *Journal of Geophysical Research*, 111, D07108, doi:10.1029/2005JD005876. (with D. Small)
- *49. “A precipitation dipole in eastern North America”, 2006, *Geophys. Res. Lett.*, 33, L21703, doi:10.1029/2006GL027500 (with A. Jutla and D. Small)
- *48. “Estimation of Net Radiation Using MODIS (Moderate Resolution Imaging Spectroradiometer) Terra Data”, 97: 52-67, 2005, *Remote Sensing of Environment*, (with G. Bisht, V.Venturini, and L. Jiang).

47. "Groundwater arsenic contamination on the Ganges Delta: biogeochemistry, hydrology, human perturbations, and human suffering on a large scale", 337(2005): 285-296, *C.R.Geoscience*, (with C. Harvey, C. Swartz, A. B. M. Badruzzaman, N. Keon, W. Yu, M. Ali, J. Jay, R. Beckie, V. Niedan, D. Brabander, P. Oates, K. Ashfaq, H. Hemond, and M. F. Ahmed).
- *46. Comparison of evaporative fractions estimated from AVHRR and MODIS sensors over South Florida, 93: (2004): 77-86, *Remote Sensing of Environment*, (with V. Venturini, G. Bisht, and L. Jiang).
- *45. "Towards the Uncertainty of Surface Fluxes Estimation and Implications for Using a Simplified Approach With Remote Sensing Data", 30(5): 769-787, 2004, *Canadian Journal of Remote Sensing* (with Jiang, L., and Carlson, T.).
44. "Subsurface geochemistry and arsenic mobility in Bangladesh", 68(22):4539-4557, 2004, *Geochemica Acta*, (with Swartz, C., Keon, N., Badruzman, B., Ali, A., Brabander, D, Jay, J., Hemond,H., Harvey, C.)
43. "Arsenic Mobility and Groundwater Extraction in Bangladesh: Technical Comments and Discussion", 300: 584b-584e, *Science*, 2003 (with C. Harvey, C. Swartz, A. B. M. Badruzzaman, N. Keon, W. Yu, M. Ali, J. Jay, R. Beckie, V. Niedan, D. Brabander, P. Oates, K. Ashfaq, H. Hemond, and M. F. Ahmed).
- *42. Estimation of Soil Physical Properties Using Remotely Sensed Brightness Temperature Over the Southern Great Plains", 41(3): 664-674, *IEEE Transactions in Geoscience and Remote Sensing*, 2003. (with Chang, D. and Kothari, R.).
- *41. "An Intercomparison of Regional Latent Heat Flux Estimation Using Remote Sensing Data" 24(11): 2221-2236, *Int'l Journal of Remote Sensing*, 2003. (with Jiang, L.)
40. "Arsenic Mobility and Groundwater Extraction in Bangladesh", 298: 1602-1606, *Science*, 2002 (with C. Harvey, C. Swartz, A. B. M. Badruzzaman, N. Keon, W. Yu, M. Ali, J. Jay, R. Beckie, V. Niedan, D. Brabander, P. Oates, K. Ashfaq, H. Hemond, and M. F. Ahmed).
- *39. "Estimation of Root Zone Soil Moisture and Surface Fluxes Partitioning Using Near Surface Soil Moisture", 259: 1-14, *Journal of Hydrology*, 2002. (with Li, J.)
- *38. "Estimation of Surface Evaporation Map over Southern Great Plains Using Remote Sensing Data", 37(2): 329-340, *Water Resources Research*, 2001. (with Jiang, L.)
- *37. "Detrended Fluctuation Analysis of Rainfall and Stream Flow Time Series", 105(D23): 29,165-29,172, *Journal of Geophysical Research*, 2000. (with Matsoukas, C., and Rodriguez-Iturbe, I)
- *36. "Estimation of Soil Physical Properties Using Remote Sensing and Artificial Neural Network", 74: 534-544, *Remote Sensing of Environment*, 2000. (with Chang, D.)

- *35. "Spatial Analysis of Remotely Sensed Soil Moisture Data", 5(4): 386-392, *Journal of Hydrologic Engineering*, 2000. (with Thattai, D.)
- *34. "Issues of Soil Moisture Coupling in MM5: Simulation of Diurnal Cycle Over the FIFE Area", 1(6): 477-490, *Journal of Hydrometeorology*, 2000.(with Chang, D., and Jiang, L.)
- *33. "The El-Nino Southern Oscillation and Long Range Forecasting of Flows in the Ganges" 21:77-87, *International J. of Climatology*, 2001. (with Whitaker, D., and Wasimi, S.)
32. "Artificial Neural Networks in Hydrology. I: Preliminary Concepts," 5(2): 115-123, *Journal of Hydrologic Engineering*, 2000. (with the ASCE Task Committee on Applications of Artificial Neural Networks in Hydrology)
31. "Artificial Neural Networks in Hydrology. II: Hydrologic Applications," 5(2): 124-137, *Journal of Hydrologic Engineering*, 2000. (with the ASCE Task Committee on Applications of Artificial Neural Networks in Hydrology)
30. "Artificial Neural Networks in Remote Sensing of Hydrologic Processes," *Journal of Hydrologic Engineering*, 138-144, 2000. (with Kothari, R)
- *29. "Nonlinear Dynamics of Hourly Ozone Concentrations: Nonparametric Short Term Prediction: Discussion"34: 837-838, *Atmospheric Environment*, 2000. (with Chen, J., and Biswas, P.)
- *28. "On the Estimation of Soil Moisture Profile and Surface Fluxes Partitioning From Sequential Assimilation of Surface Layer Soil Moisture", 220:86-103, *Journal of Hydrology*, 1999. (with Li, J.)
- *27. "A Methodology for Estimation of Evapotranspiration Over Large Areas Using Remote Sensing Information", 26(17): 2773-2776, *Geophysical Research Letters*, 1999. (with Jiang, L.)
- *26. "Fusion of Radar and Rain gauge Measurements for an Accurate Estimation of Rainfall", 104 (D24): 31,437 – 31,450, *Journal of Geophysical Research*, 1999. (with Matsoukas, C., and Kothari, R.)
- *25. "Approaches for Aggregating Heterogeneous Surface Parameters and Fluxes for Mesoscale and Climate Models"" 93:313-336, *Boundary Layer Meteorology*, 1999. (with Hu, Z. and Jiang, L.)
- *24. "Spatial Characterization of Remotely Sensed Soil Moisture Data Using Self Organizing Feature Maps, 37(2): 1162-1165, *IEEE Transactions in Geoscience and Remote Sensing*, 1999. (with Kothari, R.)
- *23. "Multiscaling Properties of Soil Moisture Images and Decomposition of large and Small Scale Features Using Wavelet Transforms," 19:2451-2467, *International Journal of Remote Sensing*, 1998. (with Hu, Z., and Cheng, Y.)
- *22. "Nonlinear Dynamics of Hourly Ozone Concentrations: Nonparametric Short Term Prediction," 32:1839-48, *Atmospheric Environment*, 1998. (with Chen, J., and Biswas, P)

- *21. "Phase-space analysis of daily streamflow: Characterization and Prediction," 21:463-475, *Advances in Water Resources*, 1998. (with Liu, Q., Le, Y., and Rodriguez-Iturbe, I.)
- *20. "Effects of Subgrid-Scale Heterogeneity of Soil Wetness and Temperature on Grid-Scale Evaporation and its Parameterization", 17:1-15, *International Journal of Climatology*, 1998. (with Hu, Z.)
- *19. "Evaluation of Sensitivity of Land Surface Hydrology Representation with and without Land-Atmosphere Feedback", 11(1997): 1557- 1572, *Hydrological Processes*. (with Hu, Z.)
- *18. "Daily Temperature and Precipitation Relationships for Selected States within the Continental United States," 12(1997):1-12, *Hydrological Science and Technology*.(with Arendt, T.)
- *17. "Statistical Characterization of Remotely Sensed Soil Moisture Images,"61(1997):310-318, *Remote Sensing of Environment*. (with Hu, Z.,and Cheng, Y.)
- *16. "Effect of spatial variability on the scaling properties of land surface parameterizations," 83(1997): 441-461, *Boundary Layer Meteorology*. (with Hu, Z.)
- *15. "A Framework for Analyzing and Designing Scale Invariant Remote Sensing Algorithms," 35(3) (1997):747-755, *IEEE Trans. in Geoscience and Remote Sensing*. (with Hu, Z.)
- 14. "Why Bother for 0.0001% of Earth's Water: Challenges and Opportunities in Soil Moisture Research," 77(43) (1996): 420 , *EOS -Transactions of the American Geophysical Union*. (with Engman, T.)
- *13. "A Method to Evaluate the Importance of Interactions Between Land surface and Atmosphere," *Water Resources Research*, 32(8) (1996): 2497-2505. (with Hu, Z.)
- *12. "A factorial study of the energy and moisture transfer processes at the land surface," *Journal of Hydrology*, 174: 263-284, 1996. (with Arendt, T., and Hu, Z.)
- *11. "A model for monthly evaporation", *Hydrological Science and Technology*,10 (1-4)(1995):79-89. (with Liu, Q., and Hu, Z.)
- *10. "Prediction of ground surface temperature and soil moisture content by the force-restore method," *Water Resources. Research* 31(10) (1995): 2531- 2539. (with Hu, Z.)
- 9. " Growth and decay of error in a numerical cloud model due to small initial perturbations and parameter changes", *Journal of Applied Meteorology*, 34(7)(1995):1622-1632. (with Hang L., and Bras R.L.)
- *8. "Aggregation-disaggregation properties of a stochastic rainfall model," *Water Resources Research*, 30(12) 1994: 3423-3435. (with Bo Z., and Eltahir, E.)

- *7. "Estimation of the dominant degrees of freedom for air pollutant concentration data: Application to Ozone Measurements," *Atmospheric Environment*, 28(9) (1994):1707-1714.(with Li I., and Biswas P.)
6. "Predictability of mesoscale rainfall in the tropics", *Journal of Applied Meteorology*, 32(2)(1993):297-310. (with Bras R.L.and Emanuel K.)
5. "An Explanation For Low Correlation Dimension Estimates For the Atmosphere", *Journal of Applied Meteorology*, 32(2)(1993):203-208. (with Bras R.L., and Rodriguez-Iturbe I.)
4. "Reply to Burlando and Rosso on Parameter Estimation", *Journal of Geophysical Research-Atmosphere*, 96D(5)(1991):9397-9398. (with Entekhabi D., Bras R.L., and Rodriguez-Iturbe I.)
3. "Parameter Estimation and Sensitivity Analysis for the Modified Bartlett-Lewis Rectangular Pulses Model for Rainfall", *Journal of Geophysical Research-Atmosphere*, 95D(3)(1990):2093-2100. (with Entekhabi D., Bras R.L., and Rodriguez-Iturbe I.)
2. "Comment on Parameter Estimation of Temporal Rainfall Models by Obeysekera et al.", *Water Resources Research*, 25(4)(1989):764-765. (with Bras R. and Rodriguez-Iturbe I.)
1. "Multidimensional Modeling of Cumulative Rainfall: Parameter Estimation and Model Adequacy Through a Continuum of Scales", *Water Resources Research*, 24(8):1317-1322, 1988 (with Bras R.L., and Rodriguez-Iturbe I.)

Books & Book Chapters

13. Water Diplomacy in Action: Contingent Approaches to Managing Complex Water Problems, 2017, Anthem Press, New York, 315pp (with K. Madeni)
12. A Simple Streamflow Forecasting Scheme for the Ganges Basin in "Flood Forecasting: A Global Perspective" Edited by Thomas Sdams and Thomas Pagano, Elsevier, Academic Press, ISBN: 978-0-12-801884-2 (with Y. Jiang, W. Palash, A.S. Akanda, D.L. Small)
11. Water Diplomacy: A Negotiated Approach to Managing Complex Water Networks, 2012, *RFF Press Policy Series*; Taylor and Francis (with L. Susskind)
10. Hydroclimatology and Large Scale Population Vulnerability to Cholera Outbreaks in Bengal Delta; 2012, in Hossain, F. et al., *Climate Vulnerability: Understanding and Addressing Threats to Essential Resources – Water*. Elsevier (with A. Akanda and A. Jutla).
9. Satellite remote sensing based forecasting of cholera outbreaks in the Bengal Delta, 2010, pp 241-243, in Khan, S., et al *Hydroclimatology: New Tools for solving wicked water problems*, IAHS Publication 338 (with A. Akanda and A. Jutla).
8. Hydrology, Climate and Human Health: a hydroclimatological approach to understand cholera transmission in South Asia and sub Saharan Africa, 2010, 237-238; in Khan, S.,

et al *Hydroclimatology: New Tools for solving wicked water problems*, IAHS Publication 338 (with A. Akanda and A. Jutla).

7. "Hydrology of Floods in South Asia", In Floods in South Asia, Ed. P. Mollinga, 2010
6. "Effects of Topography, Soil Properties and Mean Soil Moisture on the Spatial Distribution of Soil Moisture: A Stochastic Analysis", In Methods of Scaling in Soil Physics, Ed Y. Pachepsky, CRC Press, in press, 2003 (with Chang, D.)
5. "Spatial Organization and Characterization of Soil Physical Properties Using Self Organizing Feature Maps", In Artificial Neural Networks in Hydrology Ed. Goviddaraju, R. and R. Rao, Kluwer Academic Publishers, 199-207, 2000. (with Kothari, R.)
4. "Enhancing Access to NEXRAD Data: A Critical National Resource", Report from the Global Energy and Water Cycle Experiment Panel, National Research Council, November 1999, National Academy Press, Washington D.C. (with the GEWEX Panel)
3. "The GEWEX Global Water Vapor Project (GVaP) – U.S. Opportunities", Report from the Global Energy and Water Cycle Experiment Panel, National Research Council, November 1999, National Academy Press, Washington D.C. (with the GEWEX Panel)
2. "GEWEX-CLIVAR: Coordination of U.S. Activities", Report from the Global Energy and Water Cycle Experiment Panel, National Research Council, November 1999, National Academy Press, Washington D.C. (with the GEWEX Panel)
1. "Fluid Mechanics and Hydraulic Systems: Physical Experiments and Interactive Visualizations," McGraw Hill Inc., 1996, pp 63. (with Flanders, M.)

Selected Invited Talks and Key Note Speeches

62. From an Elephant to 18th Camel, Regional Pilot Testing Workshop organized by IUCN; 22-23 December 2017; Bangkok, Thailand.
61. Past, Present, and Future of Water for the Ganges Basin, Ganga-Padma Devising Seminar, Observer Reserarch Foundation, Kolkata, India, August 10-11, 2017
60. Possible to Actionable: A Principled Pragmatic Approach to Create Shared Value, Invited Talk, New Economic Thinking: Bangladesh 2030 and Beyond, Dhaka Chamber of Commerce and Industries, 21st December 2016, Dhaka, Bangladesh.
59. Governing and Managing Complex Water Conflicts: Water Diplomacy and Principled Pragmatism, Keynote Address at the Ministry of Water Resources, Government of Bangladesh, 20th December, Dhaka, Bangladesh

58. Addressing Water Crisis in the Islamic World through Water Diplomacy, Keynote address, The International Summit on Health and Lifestyle: Water, Sustainable Development and Healthy Life, Tehran, Iran 02 – 05 Mar 2016.
57. Can Water Diplomacy Enable a New Future for the Urmia Lake? Invited Talk, Tabriz RoundTable @ Tabriz University, Iran, 01 March 2016.
56. Water Diplomacy: A Keynote @ World Water Week, SIWI, August 25, 2015, Sweden
55. Flood Forecasting for the Indus Basin, Invited Talk, May 28, 2015, Institute of Water Resources Engineering and Management Mehran University of Eng. and Technology Jamshoro, Sindh, Pakistan,
54. Water and Security in 21st Century, Invited Talk, March 4-5, 2015, The World Peace Foundation
53. Nile Basin Development Forum, Nairobi, Kenya “The contingent nature of transboundary water issues: How do we identify binding constraints and enabling conditions for actionable outcomes” October 07, 2014
52. Museum of Science- Boston, “Water Stories: Art Meets Science”, October 02, 2014.
51. Brown University International Advanced Research Institute, “Waterplexity and Water Diplomacy: Actionable water knowledge for Engineering”, June 10, 2014.
50. National University of Singapore, “Water Trends: Past and Future 30 Years”, June 02, 2014.
49. Eastern Nile Regional Workshop, Nazareth Ethiopia, “Water Diplomacy: Finding the 18th Camel for the Nile”, February 05-06, 2014.
48. Harvard University Medical School “Water Diplomacy: A synthesis of ideas and actions for effective intervention”, July 09, 2013.
47. Brown University International Advanced Research Institute, “Actionable water knowledge for Engineering”, June 11, 2013.
46. Water Security Workshop in Jerusalem, Israel “Water Diplomacy - Sⁿ: Linking uncertainty, risk, and trust for decision making”, December 18, 2012
45. National Science Foundation, “Water Diplomacy: A synthesis of science, policy, and politics for water management”, May 31, 2012.
44. Oxford University: Water Security, Risk and Society, “Water Diplomacy: A networked approach to understanding, measuring, and managing water security”, April 17, 2012.

43. New England Water Works Association Fall 2011 Keynote Speech “Water Diplomacy: A synthesis of science, policy, and politics to resolve water conflicts through negotiations”, October 26, 2011.
42. Boston University Colloquium in Biogeosciences “Water Diplomacy in South Asia”, April 13, 2011.
41. Harvard University South Asia Institute “Water Diplomacy in South Asia: Managing the science, policy, and politics of water networks through negotiations”, March 25, 2011.
40. White House Office of Science, Technology, and Policy “I³ to C³: From Isolation and Control to Innovation and Collaboration”, February 26, 2011.
39. South Florida Water Management District, “Interdisciplinary team building in Water Diplomacy” February 16, 2011.
38. Lexington High School, “Water Diplomacy: Create actionable knowledge”, March 17, 2012.
37. Tufts University Science Day, “How Jumbo Became the Eiffel Tower OR Eiffel Tower Became the Jumbo”, January 18, 2011.
36. University of Washington, Burges Wisdom Symposium, “Water 2100: A Synthesis of information and wisdom to create actionable knowledge” March 26, 2010.
35. Meeting of the Americas, Brazil “Water 2100: Create actionable knowledge through water diplomacy”, August 12, 2010.
34. 10th Kovacs Colloquium 2010 - Hydrocomplexity: New Tools for Solving Wicked Water Problems, Paris, France “Water 2100: A synthesis of information and context to create actionable knowledge” July 03, 2010.
33. Tufts University, Fletcher Summer School “Water 2100: A synthesis of information and context”, June 16, 2010.
32. American Institute of Chemical Engineering, “Water: Is it the New Oil?” November 19, 2009.
31. Concord Rotary Annual Speaker Series “Share, create, and use actionable water knowledge through interactive participation” October 29, 2009.
30. World Water Forum 2009 “AquaPedia: Create, share, and use actionable water knowledge”, March 20, 2009
29. Massachusetts Institute of Technology, Invited Talk, “Predictability of Precipitation: Journey of a Toddler to High School and the Story of an Elephant and a Blind Person”, May 10, 2005.
28. Purdue University “Estimation of Evapotranspiration over Large Areas Using Remote Sensing Observations”, April 14, 2003, West Lafayette.

27. South Asia Consortium for Interdisciplinary Water Resources Studies “Floods in South Asia Workshop”, November 28-30, 2002, Dhaka, Bangladesh “Hydrology of Floods in South Asia”.
26. University of Illinois at Urbana-Champaign, Department of Civil and Environmental Engineering, October 16, 2002. “Hydrology, Spatial Variability, and Mobility of Arsenic in the Ganges Basin”.
25. Environmental Protection Agency, EPA-UC Seminar Series, September 17, 2002. “Arsenic Contamination in the Ganges Basin.”
24. North Carolina State University, Department of Marine, Earth, & Atmospheric Sciences, September 16, 2002. “Arsenic Contamination in the Ganges Basin: Hydrology, Spatial Variability, and Mobilization”
23. Northeastern University, Department of Civil and Environmental Engineering, May 02, 2002 “A Voyage to Lilliput and Brobdingnag: Scale Issues and Remote Sensing in Global Environmental Hydrology”.
22. Bangladesh University of Engineering and Technology, February 10, 2002 “Scale Issues and Remote Sensing in Global Environmental Processes”.
21. “From Flood to Drought: Understanding the Water Dilemma in Bangladesh”, US Concept Paper on Thematic Area III, Proceedings of the US-Bangladesh Collaborative Workshop on the Ganges-Brahmaputra-Meghna Delta of Bangladesh: Issues of Land, Water, and Environment, January 28-31, 2001, Gazipur, Dhaka, Bangladesh.
20. Institute of Flood Control and Drainage Research, Bangladesh University of Engineering and Technology, December 20, 2001 “Possible Acceleration of the Hydrologic Cycle: A Diagnostic Study”.
19. “A Voyage to Lilliput and Brobdingnag: Issues of Scales in Soil Moisture”, SSA Annual Meeting, September 2001, Charlotte, North Carolina.
- *18. “An event based study regarding possible acceleration of the hydrologic cycle”,. Proceedings of the 7th International Conference on Precipitation, Rockport, Maine, June 30-July 3, 2001 (with Small, D. & Eltahir, E.)
17. “Artificial Neural Networks in Remote Sensing of Hydrologic Processes, ASCE Task Committee Report on “Applications of Artificial Neural Networks in Hydrology”, June 1999 (with Kothari, R.)
16. University of California at Los Angeles, March 2 1998 “Scale Issues in Hydrology”.
- *15. "Intercomparison of Co-kriging and Artificial Neural Network for the Multi-Sensor Estimation of Rainfall", Proceedings of the Sixth International Conference on Precipitation, Mauna Lani Bay, Hawaii, June 29 - July 01, 1998. (with Matsoukas, C.,and Kothari, R.)

- *14. "The Multisensor Fusion of Precipitation Measurements." AMS Proceedings, 13 th Conference in Hydrology, 1997, J113-114. (with Matsoukas, and Kothari, R.)
- *13. "On the Spatial Structure of Remotely Sensed Soil Moisture Images." AMS Proceedings, 13 th Conference in Hydrology, 1997, 356-358. (with Hu, Z., and Cheng, Y.)
- *12. "Relationships Between Spin-Up Time and the Time Scale of Forcing Data," GEWEX News, 6(1) (1996): 14-15. (with Hu, Z., and Matsoukas, C.)
- *11. "Evaluation of Force-Restore Methods for the Prediction of Ground Surface Temperature," Proceedings of the First International Conference on Water Resources Engineering, San Antonio, Texas, August 14-18, 1995. (with Hu, Z.)
- 10. Oak Ridge Conference on Global Environmental Change, Oak Ridge, Tennessee, 28-30 March 1994, "Atmosphere-soil moisture interactions and climatic feedbacks in the Midwest"
- 9. Discussion Leader, International Conference on Floods in Bangladesh: An Interdisciplinary Analysis of Alternative Solution Strategies, University of Illinois at Urbana-Champaign, April 2-4, 1993, p66.5-103.5. "Floods in Bangladesh: Technical and Hydrological aspects."
- 8. Pennsylvania State University, March 25, 1993 "Predictability of rainfall at hydrologic scales."
- 7. "Effects of flow pattern in mesoscale predictability", Proceedings of the Fourth International Conference on Precipitation, University of Iowa, Iowa City, April 26-28, 1993. (with Li Q., and Bras R.L.)
- 6. International Conference on Modeling of Rainfall: Hydrological and Meteorological Aspects: Texas, Feb 25-28, 1991. "Deterministic Signatures in Stochastic Systems with Power-Law Spectra"
- 5. "Predictability of Space-Time Averages for Tropical Rainfall", Proceedings of the III International Conference on Modeling of Rainfall: Hydrological and Meteorological Aspects; Texas, Feb 25-28, 1991. (with Bras R.L., and Emanuel K.)
- 4. "Adsorption, Retention, and Desorption of Radon and its Progeny on GAC", Proceedings of 1990 Annual AWWA Conference, Cincinnati, Ohio, June 1990 (with Lowry J., Pralkar A., Bezbarua B., and Gould T.)
- 3. "A Distributed Filtering Approach to Rainfall Prediction," Proceedings of the 8th Conference on Hydrometeorology, Calgary, Canada, Oct 22-26, 1990. (with McLaughlin D., Entekhabi D., French M., and Bras R.L.)
- 2. "Long-Term Strategies to Control Floods in Bangladesh", Proceedings of the Int'l Symposium on Floods in Bangladesh, MIT, Cambridge, Sept. 1-3, 1989.

1. "Parameter Estimation for the Modified Bartlett-Lewis Rectangular Pulses Model for rainfall", Proceedings of the Conference on Mesoscale Precipitation, MIT, 1988. (with Entekhabi D., Bras R.L., and Rodriguez-Iturbe I.)

Selected Conference Presentations

82. On Complex Water Conflicts: Role of Enabling Conditions for Pragmatic Resolution, *AGU Fall Meeting, San Francisco, CA, Dec 12-16, 2016* (with E. Choudhury)
- *81. Modeling Per Capita Water Demand Change to Support System Planning, *AGU Fall Meeting, San Francisco, CA, Dec 12-16, 2016* (with M. Garcia)
- *80. A Flood Forecasting Scheme with Requisite Simplicity, *AGU Fall Meeting, San Francisco, CA, Dec 12-16, 2016* (with W. Palash, Y. Jiang, A. Nozari, D. Small, and A. Akanda)
79. Dealing with Uncertainty in Water Management: Finding the Right Balance Between Risk and Opportunity to Build Trust and Create Value, *AGU Fall Meeting, San Francisco, CA, Dec 3-7, 2012* (with L. Susskind)
78. Hydroclimatic Extremes and Cholera Dynamics in the 21st Century. *AGU Fall Meeting, San Francisco, CA, Dec 5-9, 2011* (with A. Jutla and A. Akanda)
77. Regional Water Security and Public Health Implications in Bengal Delta. *Oxford Water Security Conference, Oxford, UK, Apr 16-18, 2012* (with A. Jutla and A. Akanda)
76. A Satellite Water Impurity Marker (SWIM) Index for Predicting Cholera Outbreaks. *AGU Fall Meeting, San Francisco, CA, Dec 5-9, 2011* (with A. Jutla and A. Akanda)
75. Satellite based estimation of evapotranspiration for all sky conditions. *AGU Fall Meeting, San Francisco, CA, Dec 5-9, 2011*. (with T. Luo and A. Jutla)
74. Water Diplomacy: A synthesis of explicit and tacit water information to create actionable Knowledge. *AGU Fall Meeting, San Francisco, CA, Dec 5-9, 2011* (with W. Moomaw, K. Portney, M. Reed and R. Vogel)
73. Water Diplomacy: Managing the science, policy, and politics of water networks through negotiation General Assembly of the European Geosciences Union, Vienna, Austria, April 3-8, 2011 (with L. Susskind)
72. Hydroepidemiology: A synthesis of hydrological and epidemiological understanding for better intervention of water related diseases, General Assembly of the European Geosciences Union, Invited Talk, Vienna, Austria, April 3-8, 2011 (with E. Eltahir)
- *71. Hydro epidemiology of Cholera: Predicting Outbreaks using Satellite Derived Global Cholera Index. General Assembly of the European Geosciences Union, Vienna, Austria, April 3-8, 2011 (with A. Akanda and A. Jutla)

- *70. Hydro epidemiology of Cholera Transmission in Bangladesh: A Spatially Explicit and Seasonally Varying Cholera Prevalence Model. General Assembly of the EGU, Vienna, Austria, April 3-8, 2011 (with A. Akanda and A. Jutla)
- *69. Hydro epidemiology: A Synthesis of Micro- and Macro-Scale Processes for Predicting Cholera Outbreaks in South Asia and Africa. NSF Ecology of Marine Infectious Disease Workshop, San Juan, PR, February 11-13, 2011 (with A. Akanda and A. Jutla)
- *68. From Fall to Spring, or Spring to Fall? Seasonal Cholera Transmission Cycles and Implications for Climate Change. Proceedings of AGU, Fall Meeting 2010, San Francisco, CA, December 13-17, 2010 (with Akanda, A.S., Jutla, A. S., Huq, A., Colwell, R.)
- *67. Hydrology and Human Health: Predicting Cholera Outbreaks using Remote Sensing Data. Proceedings of AGU, Fall Meeting 2010, San Francisco, CA, December 13-17, 2010 (with A. Akanda and A. Jutla)
- *66. Climate Change, Hydrologic Extremes and Cholera Dynamics. Water, and Health: Where Science Meets Policy, Chappel Hill, NC, October 25-26, 2010 (with A. Akanda and A. Jutla)
- *65. Remote Sensing Based Forecasting of Cholera Outbreaks, Remote Sensing and Hydrology Symposium, September 27-30, Jackson, Wyoming., 2010 (with A. Jutla and A. Akanda)
- *64. "AquaPedia: Building Intellectual Capacity Through Shared Learning and Open Access Platform to Resolve Water Conflicts." General Assembly of the European Geosciences Union, April 19-24, Vienna, Austria (with A.S. Akanda, A. Jutla, C. Lin & Y. Gao) 2009.
- *63. "Dual Peak Cholera transmission in South Asia: A Hydroclimatological Explanation." General Assembly of the European Geosciences Union, April 19-24, Vienna, Austria. (with Akanda, A.S., A. Jutla) 2009.
- *62. "Relationship between Phytoplankton, Sea Surface Temperature and River Discharge in Bay of Bengal." General Assembly of the European Geosciences Union, April 19-24, Vienna, Austria (with Jutla, A., A.S. Akanda), 2009.
- *61. "Spatial and Temporal Variability of Chlorophyll in Bay of Bengal." General Assembly of the European Geosciences Union, April 19-24, Vienna, Austria (with Jutla, A., A.S. Akanda) 2009.
- *60. "AquaPedia: An Open Access Shared Learning Platform to Build Intellectual Capacity for Resolving Water Conflicts. Proceedings of the World Water Forum 5, Session 6.1.3:" Knowledge Management and Capacity Development Tools, March 16-22, Istanbul, Turkey (with C. Lin, A.S. Akanda, A. Jutla, W. Moomaw, A. Schulz & D. Grogan) 2009
- *59. "Seasonal Forecasting in Bangladesh: Prediction and Preparation for Water Disasters."

World Water Forum 5, Session 1.3.2: Sounding the Alarm: What Water-Disaster Technologies can save lives and property? March 16-22, Istanbul, Turkey (with Akanda, A.) 2009.

- *58. "Understanding the seasonality of Cholera transmission in South Asia: Role of Hydro climatology". General Assembly of the European Geosciences Union, April 13-18, Vienna, Austria (with Akanda, A.S., A. Jutla) 2008
- *57. "Role of seasonal streamflow forecasting in the Ganges-Brahmaputra-Meghna basin" General Assembly of the European Geosciences Union, April 13-18, Vienna, Austria. (with Akanda, A.S.) 2008.
- *56. "Instantaneous Shortwave Radiation for all Sky Conditions Using MODIS." General Assembly of the European Geosciences Union, April 13-18, Vienna, Austria (with Jutla, A.S.) 2008.
- *55. "Understanding the Hydrology of Cholera in South Asia" Presented at the AGU 2007 Fall Meeting, December 2007, San Francisco, CA (with A. Akanda and A. Jutla)
- *54. "Hydrology of Cholera in South Asia: Issues of Seasonality, Scales and Remote Sensing" Presented at the Boston-India Symposium: Essential Interfaces in Public Health, October 2007, Boston, MA (with A. Akanda and A. Jutla)
- *53. "A Synoptic View of Low Frequency Variability in Fall Precipitation Across the United States" Presented at the 2007 Joint Assembly, May 2007, Acapulco, Mexico, (with D. Small)
- *52. "An algorithm for estimating evapotranspiration for all sky conditions", Presented at the 2007 Joint Assembly, May 2007, Acapulco, Mexico, (with A. Jutla).
- *51. "An Abrupt Rise of fall: Decadal Precipitation Variability in the United States after 1950", Presented at the 2006 AGU Joint Assembly, 23-26 May 2006, Baltimore, Maryland (with D. Small).
- *50. "Estimation of evaporative fraction and evapotranspiration from remotely sensed data using complementary relationship", Presented at the 20th Conference in Hydrology, American Meteorological Society Annual Meeting, February 2006, (with V. Venturini, G. Bisht, and L. Rodriguez).
- *49. "Potential of Satellite-Based Models for Land Surface Evapotranspiration Estimation", Presented at the 2004 AGU Joint Assembly, 23-26 May 2005, New Orleans (with L. Jiang, G. Bisht, V. Venturini, Carlson, W. and Tarpley)
- *48. "Can we isolate an ENSO Signal in Precipitation?", Presented at the 2004 Joint Assembly, 17-21 May 2004, Montreal, Canada. (with D. Small)
- *47. "Removing the Contribution of ENSO from Daily Precipitation Time series", Presented at the EGU General Assembly, 25-30 April 2004, Nice, France. (with D. Small)

- *46. "Changes in the Intraseasonal Variability of Precipitation over the United States Associated with ENSO", Presented at the 84th American Meteorological Society Annual Meeting, 11-15 January 2004, Seattle, Washington (with D. Small)
- *45. "Estimation of Net Radiation Using MODIS (Moderate Resolution Imaging Spectroradiometer) Terra Data", 2003 AGU Fall Meeting, San Francisco, December 8-12, 2003. (with G. Bisht, V. Venturini, and L. Jiang).
- *44. "Comparison of Evaporative Fractions Estimated from AVHRR and MODIS Sensors Over South Florida", 2003 AGU Fall Meeting, San Francisco, December 8-12, 2003. (with V. Venturini, G. Bisht, and L. Jiang).
- 43. "Satellite Based Daily Actual Evapotranspiration Estimation", 2003 AGU Fall Meeting, San Francisco, December 8-12, 2003. (with W. Guo, L. Jiang, S. Senerath, B. Ramsay, and E. Eltahir).
- 42. "Bridges with Engineering to Teach Authentic Inquiry-Based Mathematics and Science Courses to Middle and High School Students", 2003 Frontiers in Education Conference, November 5 - 8, 2003, Boulder, Colorado (with Kukreti, AR, Davis K, Miller RA, Prather, EN, Fowler, TW, and Soled, SW).
- *42. "Analysis of Sub-seasonal Variability in Precipitation Over the United States", 83rd Annual Meeting of the American Meteorological Society, 13 February 2003. (with D. Small).
- 41. "From Flood to Drought: Understanding the Water Dilemma in Bangladesh" Presented at the US-Bangladesh Collaborative Workshop on the Ganges-Brahmaputra-Meghna Delta of Bangladesh: Issues of Land, Water, and Environment, January 28-31, 2001, Gazipur, Dhaka, Bangladesh.
- *40. "A Diagnostic Analysis of Possible Acceleration of the Hydrologic Cycle Using Precipitation Event Based Statistics", Presented at the 4th International Scientific Conference on the Global Energy and Water Cycle Experiment", 10-14 September 2001, College de France, Paris. (with Small, D. and Eltahir, E.)
- *39. "Identification of Soil Physical Properties Using Remote Sensing and Artificial Neural Network", Presented at the 4th International Scientific Conference on the Global Energy and Water Cycle Experiment", 10-14 September 2001, College de France, Paris. (with Chang, D.)
- *38. "An event based study regarding possible acceleration of the hydrologic cycle", 7th International Conference on Precipitation, Rockport, Maine, June 30-July 3, 2001 (with Small, D. & Eltahir, E.)
- *37. "On the spatial variability of arsenic contamination in the groundwater of Bangladesh", bibl. American Geophysical Union Spring Meeting, Boston, MA, May 29 - June 02. (2001) conference presentation Published. (with Karthik, Band and Harvey, C.).
- 36. "The Arsenic Crisis in Bangladesh: A Geochemical Analysis", American Geophysical Union, Fall Annual Meeting, December, (2000). Conference Presentation Published. (with Swartz, C., N. Keon, B. Badruzzman, A. Ali, D. Brabander, W. Yu, S., M. Rahman, F. Ahmed, H. Rahman, S. Hug, M. Mustafa, M. Polz, L. Kuai, H. Hemond, C. Harvey)

- *35. "A Geochemical and Hydrological Analysis of Arsenic Mobilization at a Field Site in Bangladesh" bibl. American Geophysical Union Spring Meeting, Boston, MA, May 29 - June 02., (2001). conference presentation Published (with Harvey, C. F., Swartz, C. H., Ali, A., Badruzzman, B., Yu, W., Beckie, R., Niedan, V., Hug, S., Aeshbach-Hetig, W., Keon, N., Islam, S., Brabander, D., Rahman, M., Rahman, H., Hemond, H., and Ahmed, F.)
- *34. "Is there a minimum error for surface fluxes" AGU 2000 Spring Meeting, Washington D.C., May 30- June 02 (with Jiang, L.)
- *33. "Estimation of Soil Properties from Remotely Sensed Soil Moisture Using Artificial Neural Network". AGU 2000 Spring Meeting, Washington D.C., May 30- June 02 (with Chang, D.)
- *32. "Estimation of Evaporation Over Large Areas Using Remote Sensing Data". AGU 1999 Spring Meeting, Boston, May 26 - May 29, EOS Trans v79 S 37. (with Jiang, L.)
- *31. "Approaches for Aggregating Heterogeneous Surface Parameters and Fluxes from Mesoscale and Climate Models". AGU 1998 Fall Meeting, San Francisco, December 06-10, EOS Trans v79 F250. (with Jiang, L., and Hu, Z.)
- *30. "Estimation of Soil Properties from Remotely Sensed Soil Moisture Using Artificial Neural Network". AGU 1998 Fall Meeting, San Francisco, December 06-10, EOS Trans v79 F369 (with Chang, D.)
- *29. "A Statistical Model for the Ganges River Using ENSO and other Ancillary Information". AGU 1998 Fall Meeting, San Francisco, December 06-10, EOS Trans v79 F289. (with Whitaker, D., and Wasimi, S.)
- *28. "On the Estimation of Soil Moisture Profile by Sequential Assimilation of Remotely Sensed Soil Moisture". AGU 1998 Spring Meeting, Boston, May 26-29, EOS Trans v79 S 37. (with Li, J.)
- *27. "Effects of Surface Heterogeneity on Land-Atmosphere-Feedback: Preliminary Results from a Coupled MM5-ECMWF Model". AGU 1998 Spring Meeting, Boston, May 26 - May 29, EOS Trans v79 S 138. (with Chang, D.H., and Jiang, L.)
- *26. "Spatial Characterization of Remotely Sensed Soil Moisture Data". AGU 1998 Spring Meeting, Boston, May 26 - May 29, EOS Trans v79 S 143. (with Thattai, D.)
- *25. "Intercomparison of Co-kriging and Artificial Neural Network for the Multi-Sensor Estimation of Rainfall", Presented at the Sixth International Conference on Precipitation, Mauna Lani Bay, Hawaii, June 29 - July 01, 1998. (with Matsoukas, and Kothari, R.)
- *24. "Detrended Fluctuation Analysis of Rainfall Data", Presented at the Sixth International Conference on Precipitation, Mauna Lani Bay, Hawaii, June 29 - July 01, 1998. (with Matsoukas, C., Parra-RosalesL., and Rodriguez-Iturbe, I.)

- *23. "The Multisensor Fusion of Precipitation Measurements." AMS 1997 Annual Meeting, Long Beach, California, February 2-7, 1997 (with Matsoukas, C., and Kothari, R.)
- *22. "On the Spatial Structure of Remotely Sensed Soil Moisture Images." AMS 1997 Annual Meeting, Long Beach, California, February 2-7, 1997. (with Hu, Z., and Cheng, Y.)
- *21. "Fusion of Rain gage and Radar Measurements for an Accurate Estimation of Rainfall." AGU 1996 Spring Meeting, Baltimore, May 20 - May 24, EOS Trans v77 S 118. (with Matsoukas, C., and Kothari, R)
- *20. "Analysis of Effects of Nonlinearity and Subgrid Heterogeneity on Grid Scale Latent Heat Flux." AGU 1996 Spring Meeting, Baltimore, May 20 - May 24, EOS Trans v77 S 118. (with Hu, Z.)
- *19. "On the Relationship Between Spin-Up Processes and Time Scale of Forcing for Land Surface Models." AGU 1995 Fall Meeting, San Francisco, California, December 11-15. (with Matsoukas C., and Hu, Z.)
- *18. "Prediction of Surface Temperature and Soil Moisture Using the Force-Restore Method." AGU 1995 Fall Meeting, San Francisco, California, December 11-15. (with Hu, Z.)
- *17. "Effects of Heterogeneity on the Performance of Land Surface Parameterizations". AGU 1995 Fall Meeting, San Francisco, California, December 11-15. (with Hu, Z.)
- *16. "Evaluation of Force-Restore Methods for the Prediction of Ground Surface Temperature." First International Conference on Water Resources Engineering, San Antonio, Texas, August 14-18, 1995. (with Hu, Z).
- *15. "Linearity, Nonlinearity, and Noise in Streamflow Dynamics." AGU 1995 Spring Meeting, Baltimore, May 30 - June 02, EOS Trans v76 n17 p124. (with Liu Q., and Rodriguez-Iturbe,I).
- *14. "Analysis of the Influence of Surface Heterogeneity on the Remote Sensing Algorithms" AGU 1995 Spring Meeting, Baltimore, May 30 - June 02, EOS Trans v76 n17 p116. (with Hu, Z.)
- *13. "Quantifying feedbacks between the land surface and the atmosphere" AGU 1994 Spring Meeting, Baltimore, May 23-27, EOS Trans v75 n16. (with Hu, Z.)
- *12. "Disaggregation of daily rainfall using a stochastic rainfall model." AGU 1994 Spring Meeting, Baltimore, May 23-27, EOS Trans v75 n16. (with Bo, Z., and Eltahir, E)
- *11. "Estimation of Monthly evapotranspiration. AGU 1993 Fall Meeting, San Francisco, December 6-10, EOS Trans. v74 n43 p316. (with Liu Q., and Hu Z.)
- *10. "Sensitivity of surface fluxes to land surface characteristics: Significance of land surface-atmosphere interactions." AGU 1993 Fall Meeting, San Francisco, December 6-10, EOS Trans. v74 n43 p164. (with Hu Z.)

- *9 "A factorial assessment of two commonly used land surface hydrology parameterizations." AGU 1993 Fall Meeting, San Francisco, December 6-10, EOS Trans. v74 n43 p140. (with Arendt R., and Hu Z.)
- *8. "Effects of local heat advection on evaporation within an organized set of dry-warm and wet-cool surfaces." AGU 1993 Fall Meeting, San Francisco, December 6-10, EOS Trans v74 n43 p177. (with Bo Z.)
- *7. "Interactions between land surface variability, atmospheric moisture and mesoscale circulations." AGU 1993 Fall Meeting, San Francisco, December 6-10, EOS Trans. v74 n43 p142. (with Le Y.)
- 6. "Effects of flow pattern in mesoscale predictability" Presented at the Fourth Int'l Conference on Precipitation, University of Iowa, Iowa City, April 26-28, 1993. (with Li Q., and Bras R.L.)
- 5. "Growth and decay of initial perturbations in a numerical cloud model" EOS Trans., AGU, 73(43), Fall Meeting Suppl. 1992. (with Li Q., and Bras R.L.)
- 4. "Effects of initial error characteristics on the predictability of rainfall." EOS Trans., AGU, 73(14), Spring Meeting Suppl., 1992 (with Bras R.L.)
- 3. "Differences in 2-D and 3-D Simulations of rainfall: Effect of Dimensionality on Aggregation/Disaggregation Properties of Simulated Rainfall" EOS Trans., AGU, 72(44), Fall Meeting Suppl., 1991. (with Bras R.L.;
- 2. "An explanation for Low Dimensional Chaos in Natural Systems". Spring Meeting of American Geophysical Union, Baltimore, Maryland, May 1991. (with Bras R.L., Rodriguez-Iturbe I.)
- 1. "A Distributed-parameter Real-Time Short-Term Prediction of Precipitation", Spring Meeting of the American Geophysical Union, Baltimore, Maryland, 1989; No: H41B-07. (with McLaughlin D., and Bras R.L.)