

## Curriculum Vitae

### Personal Data

Name : **Pradeep Mujumdar**  
Place of Birth : Dharwad, Karnataka, India  
Date of Birth : 04 November 1958  
Sex : Male  
Nationality : Indian  
E-mail : [pradeep@civil.iisc.ernet.in](mailto:pradeep@civil.iisc.ernet.in); Phone : +91 80 2293 2323 ; Fax : 080 – 2360 0404  
Web : <http://civil.iisc.ernet.in/~pradeep.html>  
Designation: Professor  
Scale of Pay : Higher Administrative Grade (HAG), Rs. 67000-79000. w.e.f. June 2010

### Academic Degrees

Year	Name of the Degree	Name of the University /Institute	Class	Specialisation
1981	B.Tech.	KREC Surathkal (Mysore University)	First	Civil Engineering
1984	M.Tech	Indian Institute of Technology Kharagpur	---	Water Resources Engineering
1989	Ph.D.	Indian Institute of Science Bangalore	--	Water Resources Systems

### Professional Experience

Period	Position	Name of the Institute
Aug. 1989 - Nov.1990	Lecturer	Indian Institute of Technology Bombay, India
Nov. 1990 - Jun. 1992	Assistant Professor	Indian Institute of Technology Bombay, India
Jun. 1992 – Jun. 1998	Assistant Professor	Indian Institute of Science Bangalore, India
Jun. 1998 - Jun. 2004	Associate Professor	Indian Institute of Science Bangalore, India
Jun. 2004 – Date	Professor* (Chairman, Civil Engg Nov. 2006 – Dec. 2010; KSIIDC Chair Professor, Aug. 2012 – Jul. 2015; Chairman, ICWaR <sup>#</sup> , Jul. 2015-date)	Indian Institute of Science Bangalore, India

\* Also, Associate Faculty, Divecha Center for Climate Change (Aug 2008 – date) and Associate Faculty, Center for Earth Sciences (Sep 2007 – date), IISc Bangalore  
# ICWaR: Interdisciplinary Centre for Water Research, IISc

## **Memberships of Professional Bodies**

Member, American Geophysical Union (AGU) (2010 –date)  
Member, International Association for Hydrological Sciences (IAHS), UK (1996-date)  
Member, International Water Resources Association (IWRA) (1998-2004)  
Member, International Association for Hydraulic Research (IAHR) (2008-date)  
Fellow, Indian Society of Hydraulics, Pune (ISH)

## **Honors, Recognition, Editorial and Committee Work**

- Fellow, Indian Academy of Sciences (Elected in Jan. 2014).
- Alexander von Humboldt Medal of the European Geosciences Union (EGU), 2014.
- KSIIDC Chair, Energy and Mechanical Sciences, IISc (Aug. 2012-Jul. 2015).
- Distinguished Visiting Fellowship, Royal Academy of Engineering, UK , 2011. (Host: University of Exeter, UK).
- CSIR-NGRI-AHI Indian National Hydrology Lecture Award, 2015.
- Member, Editorial Board, *Advances in Water Resources* (Pub: Elsevier, Netherlands) (Aug. 2009 – date).
- Associate Editor, *Current Science*, Indian Academy of Sciences (Sep. 2013-date).
- Senior Associate Editor, *Sadhana*, Academy Proceedings in Engineering Sciences, Indian Academy of Sciences (2012-date).
- Reviewer, IPCC, Assessment Report 5 (AR5), Working Group 2. (2010-2014).
- Member, Editorial Board, *Water International*, Journal of International Water Resources Association (IWRA), USA (1998-2004).
- Prof. Satish Dhawan State Award for Engineering Sciences (2003), Govt. of Karnataka.
- CBIP Young Engineer Award (1993), for notable contribution in the field of Water Resources., Government of India.
- Chairman, Water Resources Management, International Association for Hydro-Environment Engineering and Research (IAHR), (2008-2015); Secretary, (2007-08).
- Chairman, Review Committee, Benchmarking of National Institute of Hydrology (NIH), Ministry of Water Resources, Gov. of India (2013).
- Chairman, Review Committee, Peer Review of Department of Hydrology, IIT Roorkee (Mar. 2014).
- Chairman, Technical Committee to develop “World Class Protocol for Reassessment of Water Resources Potential of India”, Ministry of Water Resources, Gov. of India (Oct. 2016 – Jan. 2017).
- Chairman, Water Sector, Global Technology Watch Group (GTWG), TIFAC – DST (Mar. 2017 – date).
- Member, Review Committee, Peer Review of Department of Civil Engg., IIT Madras (Nov. 26-27, 2013).
- Member, Review Committee, Peer Review of Department of Civil Engg., IIT Bombay (Jan. 13, 2014).

- Member, Peer Review Committee, Interdisciplinary Programme on Environmental Engineering and Management, IIT Kanpur (May 2015).
- Member, Peer Review Committee, National Institute of Technology, Meghalaya, Shillong (May 2015).
- Member, National Institute of Hydrology (NIH) Society, Ministry of Water Resources, Gov. of India (Jul. 2013 – Jun. 2016).
- Member, Management Committee, Specialist Group on Climate Change and Adaptation, International Water Association (IWA), UK (2006-2010).
- Member, Scientific Committee, SWITCH (Sustainable Water-management Improves Tomorrows Cities Health) project of the UNSECO, IHE-Delft, Netherlands (2006-2011).
- Team Member, UNESCO team, to carry out a rapid assessment of the Kosi river floods on the Nepal side (Feb. 2009).
- Member, Task Force on Water, Scientific Advisory Council to the Prime Minister, Govt. of India (Dec. 2013 - Apr.2014).
- Member, Steering Committee, National Water Mission, Government of India (Sep. 2011-date).
- Member, Research Advisory Committee (RAC), Indian Institute of Tropical Meteorology, (2012 - date).
- Member, Academic Advisory Committee for School of Infrastructure, IIT Bhubaneswar (2009 – 2010).
- Steering Committee Member, Urban Flooding, National Disaster Management Authority (NDMA), Government of India. (2007-2011).
- Member, Expert Committee, Manual on Urban Storm Water Drainage, Ministry of Urban Development, Government of India (2008-2011).
- Expert Member, Review Committee for the UN-Sponsored project on “Vulnerability Assessment of Freshwater Resources in South and Southeast Asia” Asian Institute of Technology, Bangkok, Thailand, September 2007.
- Panel Member, International Meeting on "Climate and Water" to discuss research outputs from Asian countries and future research directions in the area of "Climate Impacts on Hydrology and Water Resources", Disaster Prevention Research Institute, Kyoto University, Japan Mar. 7-10, 2004.
- Member, Environmental Clearance Committee, Govt. of Karnataka (2000-2001)
- Member, IITs-IISc Core Committee to advise the Task Force on Interlinking of Rivers, Government of India (2003-2005).
- Member, State Government Committee for Integrated Water Resource Development, Government of Karnataka (2003).
- Invited Member, Working Group on Integrated Reservoir Operations, Narmada Control Authority (NCA), Government of India, Indore (2001-2002).
- Member, Project Advisory and Management Committee (PAMC), ‘WAR for Water : Sea Water Intrusion and Sea Water Farming’ Scheme of DST (Sep. 2010 – Apr 2012).
- Member, Programmes Advisory Committee, Water Technology Initiative, DST, Govt. of India (2012 - 2014).
- Member, Project Appraisal and Monitoring Committee (PAMC), Hydrology and Cryosphere, Ministry of Earth Sciences (Jun. 2012 - date).

- Member, Programme Advisory Committee (PAC), Civil and Environmental Engineering, Science and Engineering Research Board (SERB), DST, (Jun. 2012 - date).
- Member, Expert Committee, DST-FIST, (Jun. 2016 - date).
- Member, Indian National Committee on Climate Change (INCCC), Ministry of Water Resources, Govt. of India (Jul. 2012 - date).
- Faculty Mentor, Dept. of Civil Engineering, NIT Silcher (2009).
- Expert Member, Performance Review of Central Water and Power Research Station, Pune (Apr. 2009).
- Guest Editor (with P. Gourbesville and T. Kojiri), Physics and Chemistry of the Earth, Special issue on “Integrated Water Resources Management in a Changing World”, Vol. 33, Issue 8, 2008.
- Guest Editor (with Young-Oh Kim), Special Section, “Climate Change and Water Resources”, Current Science, Vol. 98, 2010.
- Guest Editor (with D. Roy), Special Section, “Civil Engineering Research”, Current Science, Vol. 97, 2009.
- Guest Editor (with I. Holman, I. Pechlivanidis, W. Buytaert and A. Mijic), Special Issue on “The Changing Water Cycle of the Indogangetic plains”, Hydrology and Earth System Science (HESS), 2017.
- Panel Member, International Conference on "Web and Open Access to Learning", organized to debate the issue related to Open Access to Learning: Challenges & Perspectives. Dubai, UAE, Nov. 25-27, 2014.
- Session Member, Access to Scientific Knowledge (A2SK): Lessons learned and the way forward for SDG2030, World Summit on the Information Society (WSIS) Forum 2016, International Telecommunication Union (ITU), Geneva, Switzerland, May 5, 2016.

### **Selection Committees**

- Member, Faculty Selection Committee , NIT Trichy, March 2006
- Member, Faculty Selection Committee, NIT Trichy, August 2006
- Member, Faculty Selection Committee, NITK Surathkal, Sep. 2006
- Member, Faculty Selection Committee, University of Pondicherry June 2007
- Member, Faculty Selection Committee, IIT Chennai, Feb, 2007
- Member, Faculty Selection Committee, IIT Bombay, Mar, 2007
- Member, Faculty Selection Committee, Univ. Pondicherry, June, 2007
- Member, Faculty Selection Committee, NIT Kurukshetra, Dec. 2007
- Member, Faculty Selection Committee, IIT Roorkee, March, 2008
- Nominee, Board of Governors, Faculty Selection Committee, NIT Trichy, Apr 2008
- Member, Faculty Selection Committee, NIT Surathkal, Oct, 2008
- Nominee, Board of Governors, Faculty Selection Committee, NIT Trichy, Oct. 2008
- Member, Faculty Selection Committee, IIT Roorkee, 20 March, 2008
- Member, Faculty Selection Committee, NIT Kurukshetra, 04 December, 2008

- Member, Faculty Selection Committee, IIT Bombay, November 2008
- Member, Faculty Selection Committee, IIT Kanpur, April, 2009
- Member, Faculty Selection Committee, NIT Calicut, 15-16, March 2010
- Member, Faculty Selection Committee, IIT Kharagpur, 25 August, 2010
- Member, Selection Committees of UPSC (2006-11)
- Member, Faculty Selection Committee, IIT Kharagpur, 29 March, 2012
- Member, Scientists Selection Committees of ISRO (2007 onwards)
- Visitor's Nominee, Faculty Selection Committee, IIT Madras, Aug. 2012-Jun. 2015. (participated in selections/promotions in Sep 2012, June 2013, June 2014 and June 2015)
- Member, Faculty Selection Committee, IIT Guwahati, 22-23 December, 2014
- Member, Faculty Selection Committee, IIT Kanpur, 19 January, 2015
- Member, Faculty Selection Committee, IIT Madras, 06 June, 2015
- Member, Faculty Selection Committee, IIT Guwahati, 04 December, 2015
- Member, Faculty Selection Committee, IIT Roorkee, 27 April, 2016
- Member, Faculty Selection Committee, IIT Kanpur, 7 June, 2016
- Member, Scientists' Promotions Committee, National Institute of Hydrology, Roorkee, September 23, 2016
- Member, Faculty Selection Committee, IIT Guwahati, 16 December, 2016
- Member, Faculty Selection Committee, IIT Delhi, 13 September, 2017

## Visits Abroad

- AIT, Bangkok, Visiting Faculty, School of Civil Engineering, Sep-Dec. 1997,
- IHE, Delft, Netherlands, Visiting Faculty, Sep. 1998.
- Disaster Prevention Research Institute, Kyoto University, Kyoto, Japan, Visiting Faculty, Dec. 1999.
- Asian Institute of Technology, Bangkok - To participate in Civil and Environmental Engineering Conference, Nov. 8-12, 1999.
- Melbourne, Australia – To participate in the X<sup>th</sup> World Water Congress. Mar. 12-16, 2000.
- London, Ontario, Canada – To deliver an invited lecture at the International Workshop on Non-structural Measures for Water Management, Oct. 18-20, 2001
- Dresden, Germany - To participate in the International Conference on Water Resources and Environment Research (ICWRER 2002); Jul. 22-25, 2002.
- IRI, Columbia University, New York - On invitation, to make a presentation in the workshop on "Applicable Methods for Use of Seasonal Climate Forecasts in Water Management", Nov. 6-8, 2002.
- Gifu, Japan - on Invitation to present a country paper on, "Impact of Climate Change on Floods and Droughts in India: Operational Management of Water

- Resources" in the pre-forum "Climate Change Impact on Floods and Droughts: Effects and Responses" held in Gifu, Japan, Dec. 4, 2002.
- Kyoto, Japan - on invitation to present the same paper (as above) in the 3<sup>rd</sup> World Water Forum, Mar. 2003.
  - Disaster Prevention Research Institute, Kyoto University, Japan - On invitation, to participate in the research meeting on "Climate and Water" to discuss research outputs from Asian countries and future research directions in the area of "Climate Impacts on Hydrology and Water Resources", Mar. 7-10, 2004.
  - Singapore - To participate and present a research paper in the International Conference, "Hydroinformatics, 2004", Jun. 21-24, 2004.
  - Seoul, Korea – To participate in the Section Meeting on Water Resource Management of IAHR and the IAHR XXI Congress, Sep. 9-16, 2005.
  - Kyoto, Japan – on invitation, to participate in the International Workshop on "Integrated River Basin Management under a Changing World", Kyoto University, Japan, Mar. 28, 2006.
  - Beijing, China – To make an invited presentation on, "Climate Change: Implications for Water Resources Management in India", Meeting of the Specialist Group on Climate Change, IWA, Sep. 12, 2006.
  - Kyoto, Japan – On invitation, to participate in the "International Seminar on Water Resources Management", Kyoto University, Japan, Oct. 3-4, 2006.
  - Bangkok, Thailand – On invitation, to participate as an expert member in the "Review Workshop on Vulnerability Assessment of Freshwater Resources in South and Southeast Asia" Asian Institute of Technology, Thailand, Sep. 12-14, 2007.
  - Tel Aviv, Israel – On invitation as External Expert, Scientific Committee Meeting of the UN Sponsored project SWITCH, as External Expert, 24-28 Nov, 2007.
  - Adelaide, Australia – to participate in the Section Meeting of Water Resources Management Section, IAHR, Apr. 14, 2008.
  - Seoul, Korea – as a member of delegation from IISc to facilitate MoU towards Global Knowledge Partnership (GKP), Aug. 10-15, 2008.
  - Kyoto, Japan – As invited speaker in the International Symposium on "Hydrology, Hydraulics and Water Resources Aspects on Global Water issues", Kyoto University, Nov. 20-21, 2008.
  - Kosi Catchment Area, Nepal – As a member of the UNSECO team to carry out a rapid assessment study of Kosi river floods on the Nepal side; Feb. 7-12, 2009.
  - Xinxiang, China – as an invited speaker in the International Workshop on "Climate Change and Management of Water Resources in Arid Regions", Xinjiang Institute of Ecology and Geography, Chinese Academy of Sciences, Urumqi, Xinjiang, China May 26-28, 2009.
  - Jakarta, Indonesia, to participate in the UNESCO meeting to launch SWITCH-in-ASIA project, 2009.
  - Seoul, Korea – to Chair the meeting of the Water Resources Management Committee, IAHR, Apr. 22-24, 2010.
  - Paris, France – to participate in the meeting of the Lead Authors of the forthcoming book series on "Integrated Flood Management in Changing Climate", International Floods Initiative, UNESCO, Apr. 29-30, 2010.

- University of Exeter, UK as a member of a delegation to sign MoU with University of Exeter on Collaborative Research, June 29- Jul. 02, 2010.
- Moscow, Russia, as a member of the Indian Government Delegation on Earth Systems Science, Nov. 5-13, 2010.
- Brisbane, Australia, to chair the Water Resources Management Committee Meeting of the IAHR, 34<sup>th</sup> IAHR Congress, Jun. 26-30, 2011.
- Paris, France – to participate in the meeting of the Lead Authors of the forthcoming book series on “Integrated Flood Management in Changing Climate”, International Floods Initiative, UNESCO, Oct. 3-4, 2011.
- University of Exeter, UK, as a Royal Academy of Engineering Distinguished Visitor, Jan. 15-Feb. 10, 2012.
- Jeju Island, South Korea, to Chair the Leadership Team Meeting of the IAHR-WRM Committee, IAHR-APD Congress, Aug. 19 - 23, 2012.
- Langkawi, Malaysia, to deliver a keynote lecture in the Second International Conference on Water Resources, ICWR 2012, Nov. 5-7, 2012.
- Koblenz, Germany, to deliver an invited talk in the Special Session on Meeting Water Security Challenges through Scientific Cooperation, ICWRER 2013, Jun. 6, 2013.
- London, UK, to participate in the project review meeting, as PI of the project, “Hydrometeorological feedbacks and changes in water storage and fluxes in Northern Indian Basins”, Imperial College, London, Jul. 1 – 5, 2013.
- Chengdu, China, to chair the WRM committee meeting and to deliver two invited talks in the 35<sup>th</sup> IAHR World Congress, Sep. 8 - 13, 2013.
- Perugia, Italy, Research Institute for Geo-hydrological Protection, National Research Council, Apr. 28-29, 2014.
- Vienna, Austria, to deliver the Alexander von Humboldt Medal Lecture, Apr. 30 to May 2, 2014.
- Paris, France, to deliver an invited talk in the 11th Kovacs Colloquium, UNESCO/IAHS, Jun. 16-17, 2014.
- Paris, France, to participate in the review meeting of the research project, “Hydroflux India (<http://paramo.cc.ic.ac.uk/india/>)”, Sep. 8-10, 2014.
- Brussels, Belgium, to chair the leadership team meeting and to deliver an invited talk in the Symposium “Innovation, Environment and Globalisation – Latest EU-Japan Research Collaboration”, Oct. 14-16, 2014.
- Dubai, UAE, to be a panellist in the International Conference on "Web and Open Access to Learning", organized to debate the issue related to contents, processes and tools for Open Science, Nov. 25-27, 2014.
- Urbana Champaign, USA, to give a talk at 2nd iSEE Congress, Institute for Sustainability, Energy, and Environment (iSEE) on the theme “Water Planet, Water Crises?”, Sep. 14-16, 2015.
- Purdue, USA, to participate in the discussion meeting on extreme rainfall, Sep. 18, 2015.
- Geneva, Switzerland, to make invited presentation in a session, "Access to Scientific Knowledge (A2SK): Lessons learned and the way forward for SDG2030", World Summit on the Information Society (WSIS) Forum 2016, hosted by International Telecommunication Union (ITU), Geneva, Switzerland,

May 5, 2016.

- Kuala Lumpur, Malaysia, to Chair a session and to give a Talk, “Integrated urban Flood Management: Technology driven Solutions”, Conference on Flood Catastrophes in a Changing Environment (CFCCE'16), Universiti Teknologi Malaysia (UTM), Kuala Lumpur, Malaysia, Nov. 15-16, 2016.
- Exeter, UK, to give a talk in the second workshop on “Toward Resilient Water-Energy-Food Systems in India”, Mercure Exeter Rougemont Hotel, Exeter, Mar. 28-29, 2017.



No. of PhD Theses Supervised: 12 (completed) + 01 (under adjudication) + 07 (ongoing)  
No. of MSc(Engg) Theses Supervised : 07 (completed) + 01 (ongoing)

### **Major Consultancy Projects (Representative)**

1. Flood Control Measures for the ONGC Residential Complex, Bombay (ONGC, Bombay)
2. Hydraulic Studies for the Narmada Pipeline Project (Gujarat Construction, Gujarat)
3. Surge Protection for the Krishna-Koyna Lift Irrigation Scheme. (Irrigation Dept., Maharashtra)
4. Effluent Disposal Pipeline for BASF (India) Ltd. (Multidesigns, Bangalore)
5. Hydraulic Studies for Periyapatna Lift Irrigation Scheme. (Irrigation Dept., Karnataka)
6. Flood Control Measures for the IIT Guwahati Campus. (IIT Guwahati)
7. Engineering Evaluation of Pooyankutty Hydro-Electric Project (Kerala State Electricity Board)
8. Impact of iron ore mining in Kudremukh National Park (Ministry of Environment and Forests) [ In collaboration with Center for ecological Sciences, IISc]
9. Rapid Impact Assessment of Kasarsada Bauxite Mines ( M/S INDAL, Kolkata)
10. Software Development - Surge Analysis Package Version I (various govt. and private organisations)
11. Review of Hydrology for the Kalinadi Hydroelectric Project Stage II (Karnataka Power Corporation Ltd., KPCL)
12. Integrated Reservoir Operation of the Narmada Basin Reservoirs (Narmada Control Authority, Government of India)
13. Re-modeling of Stormwater Drainage System in Bangalore City – Proof Checking of Desgins (Bangalore Mahanagar Palike, BMP)
14. Technical Advise to Government of Karnataka on the Interstate Dispute for Krishna Waters (Government of Karnataka)
15. Water Yield Estimates for the Mahadayi River Basin (Government of Karnataka)
16. Documentation of Research and Data Needs – Climate Change and Water Resources, DFID, UK.
17. Statistical Downscaling of Hydro-met Variables in the Pennar Basin, APSDPS, Govt. of AP.
18. Documentation on Urban Water Resources, Climate Change and Open Knowledge, UNESCO.
19. Assessment of Climate Change Impacts on Precipitation and Streamflow in Tunga Bhadra Basin, Advanced Centre for Integrated Water Resources Management (ACIWRM), Government of Karnataka.

### Sponsored Research Projects

Project Title	Sponsoring Agency	Duration	Status
Real-time Operation of Malaprabha Reservoir	DST	Apr. 1993 - Mar. 1996	Completed
Modeling for Optimal Reservoir Operation	MoWR	Oct. 1997 - Mar. 2001	Completed
Optimal Crop Water Allocation in Canal Command Areas using Remotely Sensed Data	STC	Apr. 2001 - Mar. 2003	Completed
A Fuzzy Multi-objective Model for River Water Quality Management	DST	Jul. 2002 - Jun. 2004	Completed
Use of Climatic Inputs in Reservoir Operation Models (P.I : Prof. Nagesh Kumar)	DST	Jul. 2004 – June 2007	Completed
Simputer based Decision Support System for Water Allocation in Canal Command Areas	DST	Sep. 2004 - Aug. 2006	Completed
Assessment of Water Resources Under Climate Change Scenarios	MoWR	Mar. 2006 – Feb. 2009	Completed
Fuzzy-Stochastic Modeling for Water Quality in River Systems	MoWR	Mar. 2006- Feb. 2008	Completed
Prediction of Streamflow at River Basin Scale under Climate Change Scenarios	STC	Apr. 2008- Mar. 2010	Completed
Statistical Downscaling of GCM Simulations for Impact Assessment	SAC, Ahmedabad	Sep. 2009 – Aug. 2011	Completed
Modeling for Urban Floods	NRSC, Hyderabad	Jun. 2010 – May 2012	Completed
Hydrometeorological feedbacks and changes in water storage and fluxes in Northern Indian Basins*	NERC-MoES	Jan. 2012 – Jun. 2016	Completed
Water Security and Infrastructure Resilience Under Climate Change <sup>#</sup>	UKIERI	Sep. 2014 – Aug. 2016	Completed
Integrated Urban Flood Management in India: Technology-Driven Solutions	ITRA, MCIT	Nov. 2013– Dec. 2017	Ongoing
Upscaling Catchment Processes for Sustainable Water Management in Peninsular India <sup>\$</sup>	NERC-MoES (under the Newton-Bhabha Scheme)	Feb. 2016 – Jan. 2019	Ongoing
Design of an Expert System for Flood forecasting and management for the city of Chennai**	The Principal Scientific Adviser, Prime Minister's Office	Nov. 2016 - Oct. 2018	Ongoing
Coupled Human and Natural systems environment (CHANSE) for water management under uncertainty in the Indo-Gangetic Plain <sup>##</sup>	NERC-MoES (under the Newton-Bhabha Scheme)	Dec. 2016 - Dec. 2019	Ongoing

DST : Department of Science and Technology;  
STC : Space Technology Cell, IISc; MoWR : Ministry of Water Resources;  
SAC : Space Applications Center;  
NRSC : National Remote Sensing Center; MoES : Ministry of Earth Sciences;  
NERC : Natural Environmental Research Council, UK;  
ITRA : Information Technology Research Academy;  
MCIT : Ministry of Communications and Information Technology;  
UKIERI : United Kingdom - India Education and Research Initiative

\*International collaborative project, with Imperial College, London, UK;  
#International collaborative project, with University of Exeter, UK;  
\$International collaborative project, with Centre for Ecology and Hydrology (CEH), UK.

\*\* Lead Institute: IIT Bombay; PI: Dr. Subimal Ghosh  
## International collaborative project with Imperial College London, UK; Lead Institute: IIT Bombay;  
PI: Dr. Subimal Ghosh

### **Invited Presentations and Keynote Lectures (2007-date)**

1. Invited Presentation, “Designs for Urban Storm Water Drainage”, Short Term Course on Urban Flooding, IIT Bombay, Mumbai, 12 June 2007.
2. S N Gupta Memorial Lecture, HYDRO 2007, National Institute of Technology, Surat, 20-22, Dec. 2007.
3. Invited Presentation, “Climate Change Impacts on Hydrology”, Dept of Civil Engineering, IIT Madras, 13 March 2008.
4. Invited Talk, “Climate Change Impacts on Urban Flooding”, Short Term course on Urban Flooding, IIT Bombay , 11 July 2008
5. Invited Presentation, “Fuzzy Optimization”, Workshop on Soft Computing Techniques, IIT Bombay, 23 Sep. 2008
6. Invited Lecture, “Bayesian Stochastic Optimization for Reservoir Operation”, Workshop on Prediction in Ungauged Basins, BITS Pilani, 23-24 Oct. 2008
7. Invited Presentation, “Climate Change Impacts on Hydrology and Water Resources” National Seminar on Recent Advances in Hydrology for Water Resources Development and Management & XXVII Annual Convention of AHI, Vadodhara, Gujarat, 20-22 Jan 2009.
8. Key Note Lecture “Climate Change Impacts on Hydrology and Water Resources”, Water Summit, G B Pant University of Agriculture & Technology, Pantnagar, 18-20 Feb 2009.
9. Invited Presentation “Scale Issues in Modeling Climate Change Impacts”, Workshop on Climate Change and Water Resources, Ministry of Water Resources, New Delhi, 21 July 2009.
10. Keynote Lecture, “Hydro-Meteorological Predictions from GCM Simulation: Downscaling Techniques and Uncertainty Modeling”, 8th IAHS Scientific Assembly and 37th IAH Congress, International Association for Hydrological sciences, Hyderabad, 7-11 Sep. 2009.
11. Keynote Lecture, “Climate Change Impacts: Downscaling Techniques and Uncertainties”, National Symposium on Climate Change, National Institute of Hydrology Roorkee, 17-19 Nov. 2009.
12. Key note lecture, “Hydrologic impact of climate change: Scale Issues and Uncertainties” 9<sup>th</sup> International Conference on Hydro Science and Engineering, ICHE2010, Indian Institute of Technology Madras, Chennai, 2-5 August 2010.
13. Invited Presentation, “Research in Hydrology : Current Status and Way Forward”, “Brainstorming 2010: Indo-Russian collaborative researches in Earth and Environmental Sciences, organized by the Ministry of Earth Sciences, New Delhi, 6-7, May 2010.
14. Keynote Lecture, “Impacts of Climate Change on Hydrology”, National Conference on Sustainable Water Resources Management and Impact of Climate Change, BITS, Pilani (Hyderabad Campus), Hyderabad, 4-5 March 2010.
15. Invited Presentation, “Detection and Attribution of Water Cycle Changes”, NERC-MoES Scoping Workshop for India-UK Cooperation on Water Research, New Delhi, 16-18, February, 2010.
16. Invited Presentation, “Conjunctive Use of Surface and Ground Water and Climate Change Issues in Water Management”, NGRI, Hyderabad, August 7, 2010.

17. Invited Presentation, "Hydrologic Impacts of Climate Change: Uncertainty Modeling", Indian Institute of Tropical Meteorology, Pune, Aug 31- Sep1, 2010.
18. Invited Presentation, "Integrated Gate Operation of Multiple Barrage Systems", Latur, Maharashtra, 13 Sep. 2010.
19. Invited Presentation, "Mahanadi Streamflow: Climate Change Impacts", Indo-Italian Workshp on Climate Change, IIT Roorkee, 22 October, 2010.
20. Institute Colloquium: "Hydrologic Impacts of Climate Change", Indian Institute of Science, October 15, 2010.
21. Invited Presentation, "Hydrologic Impacts of Climate Change", Workshop on National Water Policy, Ministry of Water Resources, New Delhi, Nov. 15, 2010.
22. Invited Presentation, "Water Resources Systems Modeling", National Conference on Hydraulics, Water Resources, Coastal and Environmental Engineering (HYDRO – 2010) , M. M. University, Mullana (Ambala), 16- 17 December, 2010.
23. Keynote Lecture, "Water Resources Management under Drought : Climate Change Issues", 14th National Conference on Hydrology and Water Resources, National Institute of Technology, Jaipur, December 21-22, 2010.
24. Conference Keynote address on "Hydrologic Impacts of Climate Change", IIT Guwahati International Conference on Climate Change and Water 2011, January 3-4, 2011.
25. Invited Presentation, "Hydrologic Impacts of Climate Change : Scale Issues and Uncertainties", International Workshop on Asian Climate Change, Divecha Center for Climate Change, IISc., Bangalore, July 21, 2011.
26. Invited Presentation, "Modeling tools for Water Resources Systems Analysis", National Conference on "Water, Energy and Biodiversity-with special reference to North-East Region", Agartala, Tripura, 20-22 August, 2011.
27. Invited Talk, "Hydrologic Impacts of Climate Change", National Workshop organised by Andhra Pradesh Disaster Management Services, Hyderabad, November 10, 2011.
28. Lead Talk, "Climate Change: Impacts on Hydrology and Sustainable Water Resources Management", National Workshop on Climate Observations and Regional Modeling for Multi-disciplinary Application (CORMMA), CMMACS, Bangalore, December 9, 2011.
29. Invited Seminar, "Hydrologic Impacts of Climate Change: Scale Issues and Uncertainties", University of Exeter, UK, Jan 26, 2012.
30. Invited Seminar, "Uncertainty Modeling in Water Resources Systems", University of Exeter, UK, Feb 7, 2012.
31. Keynote Lecture, "Urban Floods: Implications of Climate Change", ENSURE 2012, IIT Guwahati, Feb. 25-26, 2012.
32. Invited Lecture, "Hydro-meteorological Impacts of Climate Change", CSSTEAP International Training Programme, Indian Institute of Remote Sensing, Dehradun, Apr. 30, 2012.
33. Invited Presentation, "Hydrologic Impacts of Climate Change: Scale Issues and Uncertainties", IAHR-APD, Jeju Island, South Korea, Aug. 21, 2012.

34. Invited Presentation, “Impacts of Climate Change on Water Resources at River Basin Scales: Understanding Uncertainties”, Fourth National Conference on Climate Change: Indian Ocean and Monsoon, NIOT, Chennai, Sep. 7, 2012.
35. Invited Presentation, “Understanding Hydrological Impacts and Uncertainties on River Basin Scale” 3rd National Research Conference on Climate Change, CAOS, IISc Bangalore, Nov. 3-4, 2012.
36. Keynote Lecture, “Hydrologic Impacts of Climate Change: Scale Issues and Uncertainties”, Second International Conference on Water Resources, ICWR 2012, Malaysia, Nov. 5-7, 2012.
37. Invited Presentation, “Climate Change Impacts: Summary of Recent Work at IISc”, HYDRO 2012, IIT Bombay, Dec. 6-7, 2012.
38. Invited Presentation, "Hydrologic Modeling: A Basic Tool for Decision Making", Symposium on Water, Anniversary Meeting of the Indian National Academy of Sciences (INSA), IITM Pune, Dec. 28, 2012.
39. Invited Presentation, “Climate Change and Water Resources of India”, Training on Glacier studies, Climate Change and Remote Sensing, Divecha Center for Climate Change, Indian Institute of Science (IISc), Bangalore, Mar. 04-15, 2013.
40. Invited Presentation, “Hydrologic Impacts of Climate Change: Scale Issues and Uncertainties”, Sustainable Water Resources Planning and Management (SWRM-2013), BITS Pilani, Hyderabad Campus, Hyderabad, Apr. 05-06, 2013.
41. Invited Presentation, “Hydrologic Systems Modeling: A Compelling Tool for Decision Making for Water Security”, Special Session on Meeting Water Security Challenges through Scientific Cooperation, ICWRER 2013, Koblenz, Germany, Jun. 06, 2013.
42. Keynote Lecture, “Hydrologic Systems Modeling: A Compelling Tool for Engineering Decisions”, International Conference on Computational and Data Intensive Science, CSIR-Fourth Paradigm Institute (formerly CMMACS), Bangalore, Aug. 27, 2013.
43. Invited Presentation, “Detection and Attribution of Hydrologic Change: An Overview”, 35th IAHR World Congress, Chengdu, China, Sep. 8-13, 2013.
44. Invited Presentation, “Modeling GCM and Scenario Uncertainty using Entropy Weighting Approach: Application to the Bhadra River, India”, 35th IAHR World Congress, Chengdu, China, Sep. 8-13, 2013.
45. Invited Presentation, “Hydrologic Change Under External Forcings”, Symposium on Outstanding Issues for Hydrological Research In India, NITK Surathkal, Oct. 21, 2013.
46. Invited Presentation, “Hydrologic Systems Modeling: A Compelling Tool for Water Management”, Meeting of the Prime Minister’s - Scientific Advisory Council (PM-SAC), Nov. 9, 2013.
47. Keynote Lecture, “Modeling Climate Change Impacts on Regional Water Resources”, International Conference on Climate Change and Implications for Water Resources and Nutrition Security, ILSI-India, Bangalore, Nov. 15, 2013.
48. Keynote Lecture, “Modeling Climate Change Impacts on Regional Water Resources”, National Seminar on Climate Change Impacts on Water Resources Systems, Baroda, Nov. 29, 2013.

49. Keynote Lecture, “Hydrologic Projections under Climate Change”, HYDRO 2013, IIT Madras, Chennai, Dec. 29, 2013.
50. Invited Presentation, “Hydrologic Impacts of Climate Change”, Research Institute for Geo-hydrological Protection, Perugia, National Research Council, Italy, Apr. 29, 2014
51. Invited Presentation, “Uncertainty Modeling of Water Resources Systems”, Research Institute for Geo-hydrological Protection, Perugia, National Research Council, Italy, Apr. 29, 2014.
52. Alexander von Humboldt Medal Lecture, “Hydrologic Impacts of Climate Change”: Quantification of Uncertainties, European Geosciences Union (EGU), Vienna, May 2, 2014.
53. Invited Presentation, “Hydrologic Impacts of Climate Change”, National Geophysical Research Institute (NGRI), Hyderabad, May 9, 2014.
54. Invited Presentation, “Impacts of Climate Change on Regional Hydrology”, ASCE India Chapter, Dept. of Civil Engg. IISc, May 26, 2014.
55. Invited Presentation, “India’s Water Resources and Climate Change Impacts, Training on Glacier Climate Change and Remote Sensing”, Divecha Center for Climate Change, May 29, 2014.
56. Invited Presentation, “Uncertainty in Regional Impacts of Climate Change: A Growing Challenge for Water Management in the Developing World”, 11th Kovacs Colloquium, IAHS, Paris, France, Jun. 16, 2014.
57. Invited Presentation, “Hydrologic Impacts of Climate Change: Quantification of Uncertainties”, Innovation, Environment and Globalisation – Latest EU-Japan Research Collaboration, IAHR, Brussels, Belgium, Oct. 14, 2014.
58. Invited Presentation, “Hydrologic Impacts of Climate Change: Quantification of Uncertainties”, 80th Annual Meeting of the Indian Academy of Sciences, IIT Madras, Chennai, Nov. 6, 2014.
59. Invited Talk, "Climate Change Impact Assessment", Short Term Training Program on Water Resources Management, IIT Guwahati, Dec. 24, 2014.
60. Expert Lecture, "Climate Change: Science and IPCC Projections", "Lecture Workshop on Climate Change" sponsored by Academies of Science, Pantnagar, Uttarakhand, Dec 26, 2014.
61. Expert Lecture, "Hydrologic Impacts of Climate Change", "Lecture Workshop on Climate Change" sponsored by Academies of Science. Pantnagar, Uttarakhand, Dec 27, 2014.
62. Invited Talk, “Climate Change Impacts and Uncertainties”, Climate Modelling Workshop, Interdisciplinary Programme in Climate Studies, IIT Bombay, Mumbai, 20 Mar. 2015.
63. Invited Talk, “Hydrologic Change under External Forcings”, Research opportunities on Hydrology and Water Resources under Climatic Change, IIT Guwahati, 03 Apr. 2015.
64. NGRI-AHI National Hydrology Lecture, “Hydrologic Change under External Forcings”, Andhra University, Visakhapatnam, 11 Jul. 2015.
65. Invited Presentation, “Water resource conservation in India”, Seventh National Workshop on Science of Climate Change and Sustainable Development, National Centre for Earth Science Studies (NCESS), Thiruvananthapuram, 19 Aug. 2015.

66. Invited Presentation, “Basics of Urban Storm water Drainage Network Design- Introduction to SWMM”, IL&FS Advanced Training on Designing Climate Responsive Urban Infrastructure Mumbai, 3 Sep. 2015.
67. Invited Talk, “Climate Change Impacts on Water Resources at River Basin Scales”, Bangalore Water Supply and Sewage Board, Bangalore, 7 Sep. 2015.
68. Invited Presentation, “Regional Impacts of Climate Change: Implications for Water Management in India”, Water Planet, Water Crises? Meeting the World’s Water-Food-Energy Needs Sustainability, iSEE CONGRESS 2015, University of Illinois, Urbana-Champaign, Sept. 14-16, 2015.
69. Invited Lecture, “Modeling Aspects for Urban Flooding: Case Study of Bangalore”, Information Technology Research Academy (ITRA) Workshop, Birla Institute of Technology & Science (BITS) Hyderabad, Nov. 20-21, 2015.
70. Invited Lecture, “Introduction to Urban Hydrology”, Information Technology Research Academy (ITRA) Workshop, National Institute of Technology (NIT) Warangal, Dec. 10-12, 2015.
71. Invited Talk, “Hydrologic change due to external forcings”, Central University of Jharkhand, 27 Jan. 2016
72. Invited Presentation, “New R&D Initiatives in Managing Urban Flood”, Workshop on Urban Flood Management: Lessons and Learnings from ‘Operation Anantha’ - A Kerala State Initiative, Trivandrum, 19 Feb. 2016.
73. Keynote Lecture, “Hydrologic Change Due to External Forcings: Implications for Sustainable Water Resources”, Indo-German Conference on Sustainability, Exploring planetary boundaries and their challenges and opportunities Indo-German Centre for Sustainability (IGCS), IIT Madras, Chennai, 27 Feb. 2016.
74. Invited Talk, “Science Issues in Hydrometeorology”, Discussion on Hydrometeorology, International Institute of Tropical Meteorology (IITM), Pune, 30 Apr. 2016.
75. Invited Lectures (four number), “Climate Change, Hydrologic Modeling and Urban Flooding”, Refresher's Course on Mountain Hydrology and Climate Change, National Institute of Hydrology (NIH), Roorkee, 6-8 Apr. 2016.
76. Invited Presentation, “A suggested Framework for Water Resource Assessment”, Workshop on Methodology of Reassessment of Water Resources of River Basins in India, Central Water Commission (CWC), New Delhi, 21 Oct. 2016.
77. Invited Talk, “Integrated urban Flood Management: Technology driven Solutions”, Conference on Flood Catastrophes in a Changing Environment (CFCCE'16), Universiti Teknologi Malaysia (UTM), Kuala Lumpur, Malaysia, 15 Nov. 2016.
78. Invited Presentation, “Hydromet forecasts and projections: Some recent applications”, Indo-UK Water Centre Workshop on ‘Developing Hydro-climatic Services for Water Security’, Indian Institute of Tropical Meteorology (IITM) Pune, 29 Nov. 2016.
79. Keynote Lecture, “Sustainable Water Management”, XIII Triennial Conference of the Indian Women Scientists’ Association (IWSA) on ‘Sustainable Development in India: Role of Science & Technology’, IWSA Campus, Mumbai, 3 Dec. 2016.



80. Plenary Lecture, “Hydrologic Modeling: A Compelling Tool for Sustainable Water Resource Management”, 2<sup>nd</sup> India International Science Festival (IISF) 2016, CSIR-National Physical Laboratory, New Delhi, 9 Dec. 2016.
81. Invited Presentation, “Effect of Climate Change on Urban Infrastructure”, One Day National Level Seminar On Climate Change Adaption - Issues And Challenges (CCAIC) 2016, M.S. University of Baroda, Vadodara, 12 Dec. 2016.
82. Invited Presentation, “Modeling Aspects for Urban Flooding: Case Study of Bangalore”, Workshop cum Training program on Urban Flood Management: Technology driven Solutions, BITS Pilani Hyderabad Campus, Hyderabad , 3 Mar. 2017
83. Invited Presentation, “Use of CORDEX Downscaled Data for Hydrologic Impact Assessment”, Indo-US Workshop on Development and Applications of Downscaling Climate Projections, IITM Pune, 7 Mar. 2017.
84. Dr. R. Pitchai Endowment Lecture, “Uncertainty Quantification in River Water Quality Management Models”, IIT Madras, 10 Mar. 2017.
85. Invited Presentation, “India's Water Resources and Management Strategies”, NIAS-DST Training Programme on “Science, Technology and Innovation Policy”, NIAS, Bangalore, 17 Mar. 2017.
86. Invited Presentation, “Climate Change and Irrigated Culture in India”, Workshop on “Toward Resilient Water-Energy-Food Systems in India”, Mercure Exeter Rougemont Hotel, Exeter, 28 Mar. 2017.

## **Training Programmes Conducted**

(Coordinated jointly with other colleagues)

<b>Course Title</b>	<b>Sponsors</b>	<b>Duration</b>	<b>Participants</b>
Training Program on 'Hydrologic Impacts of Climate Change in Tungabhadra River Basin'	ACIWRM, Bangalore	24 – 29 Jul. 2017	13
Monsoon School on Urban Floods	ITRA, Delhi	03 – 08 Jul. 2017	39
Monsoon School on Urban Floods	ITRA, Delhi	22 – 27 Aug. 2016	37
Monsoon School on Urban Floods	ITRA, Delhi	24 – 29 Aug. 2015	47
Monsoon School on Urban Floods	ITRA, Delhi	04 – 09 Aug. 2014	34
Statistical Downscaling For Assessment Of Hydrologic Impacts Of Climate Change	APSDPS, Hyderabad	25 – 29 Mar. 2013	8
Flood Hydrology, Flood Control and Management*	UNESCO, Delhi	11-23 Jul. 2011	20
Integrated Water Resources Management	IMTI, Trichy	15-26 Dec.2009	25
Optimal Reservoir Operation	BBMB, Chandigarh	15-16 May 2007	25
Open Channel Hydraulics	IMTI, Tiruchy	02-06 May, 2005	20
Open Channel Hydraulics	IMTI, Tiruchy	16-27 Jun, 2003	15
Statistical Methods in Hydrologic Data Processing	IMTI, Tiruchy	17Feb-Mar01, 2003	15
Streamflow Generation, Forecasting, & Data Extension	IMTI, Tiruchy	11-23, Nov. 2002	15
Open Channel Hydraulics	IMTI, Tiruchy	21-26 Oct., 2002	15
Open Channel Hydraulics	IMTI, Tiruchy	25 Feb-Mar 09, 2002	15
Systems Modeling for Reservoir Operations	IMTI, Tiruchy	07-19 May 2001	15
Systems Approach to Irrigation Planning & Management	IMTI, Tiruchy	12-24 Feb. 2001	14
Surface Water Modeling	IMTI, Tiruchy	07-19 Aug. 2000	14
Water Resources Systems Engg.	IMTI, Tiruchy	05-16 Jun. 2000	15
Stochastic Methods in Hydrosiences	IMTI, Tiruchy	15-26 May, 2000	15
Water Resources Systems Modelling	GSDA, Pune	04-29 Oct, 1999	16
Water Resources Systems Modelling	GSDA, Pune	05-30 Jul. 1999	16

\*Programme conducted for field engineers from Sri Lanka

APSDPS: Andhra Pradesh State Development Planning Society

BBMB : Bhakra-Beas Management Board

GSDA : Ground Water Surveys and Development Agency

IMTI : Irrigation Management Training Institute

ITRA : Information Technology Research Academy

ACIWRM : Advanced Center for Integrated Water Resources Management

## Video Courses

National Program on Technology Enhanced Learning (NPTEL) Video Course on Stochastic Hydrology (<http://nptel.ac.in/courses/105108079/>)

NPTEL Video Course on Water Resources Systems: Modelling Techniques and Analysis (<http://nptel.ac.in/courses/105108130/>)

## Service Provided to the Department/Institute

- **Chairman, Dept. of Civil Engineering (Nov. 2006 – Dec. 2010)** : (a) Initiated several academic activities in the department : faculty seminar series, student seminar series, Centenary Research Seminar Series, Annual Student Symposia and the WINTER (Winter IISc National Training for Entry to Research) programme designed for UG/PG students of engineering institutes in the country. (b) Initiated an independent, comprehensive review of the department. The review was conducted in April 2010. (c) Played a key role in establishing the Center for Earth Science and the Center for Infrastructure, Sustainable Transportation and Urban Planning (CiSTUP), both of which were started from the Department of Civil Engineering.
- **Chairman, Water Committee** (February 2007 – Nov. 2013) : (a) Prepared a report, in co-authorship with the other six members of the committee, on water management in campus. The recommendations of the committee include implementation of a membrane based waste water recycling plant, rain water harvesting measures and ground water recharge projects in the campus. (b) Along with other members of the committee, coordinated the implementation of these projects in the campus. One wastewater recycling plant has been commissioned already. The recycled water is being used in the campus for gardening and other non-potable purposes. The second one will be commissioned within a year. A total of 10 lakh liters per day of recycled water will be available for use from the two recycling plants.
- **Chairman, Faculty Grievance Committee** ( Sep. 2010 – date)
- **Member, Management Committee, Space Technology Cell (STC)** (2010 - 2015)
- **Chairman, Interdisciplinary Centre for Water Research** (Apr. 2015 - date)
- **Chairman, Environmental Clearance Committee** (Jun. 2015 - date)

### Research Guidance (Completed)

Name of the Candidate	Title of the Thesis	Date of Submission	Degree
Sasikumar K	Fuzzy Multi Objective Models for Water Quality Management of River Systems	Mar 1998	Ph.D.
Chandra Sekhar G	Conjunctive Use Modelling for Multicrop Irrigation	Jul 1998	Ph.D.
Suresh KR	Modeling for Irrigation Reservoir Operation	Nov 2002	Ph.D.
Binoy Alias M	Integration of Water Quality and Quantity Control in A Reservoir System	Jan. 2005	Ph.D.
Subhankar Karmakar.	Grey Optimization for Uncertainty Modeling in Water Resources Systems	Jun 2006	Ph.D.
Subimal Ghosh	Hydrologic Impacts of Climate Change : Uncertainty Modeling	Jul 2007	Ph.D.
Gopakumar R	Fuzzy Dynamic Wave Models for Flow Routing and Flow Control in Open Channels	Jun 2009	Ph.D.
Deepashree Rajee	Hydrologic Impacts of Climate Change : Quantification of Uncertainties	Dec. 2009	Ph.D.
Shaik Rehana	Regional Hydrologic Impacts of Climate Change	Nov. 2012	Ph.D.
Arpita Mondal	Hydrologic Impacts of Climate Change : Detection and Attribution	Jul. 2014	Ph.D.
Ujjwal Saha	Impacts of Climate Change on IDF Relationships for Design of Urban Stormwater Systems	Sep. 2014	Ph.D.
Sangeeta Kumari	Fuzzy State Reservoir Operation Models for Irrigation	Jul. 2016	Ph.D
Chandra Rupa R	Quantification of Uncertainties in Urban Precipitation Extremes*	Jun. 2017	Ph.D.
Ramesh TSV	Real-time Reservoir Operation for Irrigation	Jan. 1995	MSc (Engg)
Suresh HR	A Fuzzy Optimisation Model for Waste Load Allocation in Streams	Nov. 1999	MSc (Engg)
Subba Rao Vemula VR	Fuzzy Waste Load Allocation Model for River Systems: Simulation - Optimisation Approach	Dec. 2001	MSc (Engg)
Pavan Saxena	A Stochastic-Fuzzy Seasonal Water Quality Control Model for River Systems	Feb. 2003	MSc (Engg)
Nirmala B	A Bayesian Stochastic Optimization Model for a Multi-Reservoir Hydropower System	Dec. 2004	MSc (Engg)
Shaik Rehana	Uncertainty Modeling For River Water Quality Control	Dec. 2008	MSc (Engg)
Ila Chawla	Hydrologic Response of Upper Ganga Basin to Changing Land Use and Climate	Sep. 2013	MSc (Engg)

\* Thesis under adjudication

### Research Guidance (Ongoing)

Name of the Candidate	Topic of Research	Date of Joining	Degree Registered
Ila Chawla	Detection of Hydrologic Change: Attribution to Landuse and Climate Change	Sep. 2013	Ph.D.
Shailza Sharma	Concurrent Extremes	Aug. 2014	Ph.D
Jeenu Mathai	Multi-site Stream Flow Generation	Aug. 2014	Ph.D
Gowri R	Scale Issues in Hydrology	Aug. 2015	Ph.D
Pankaj Dey	Scale Issues in Hydrology	Aug. 2015	Ph.D
Neha Gupta	Hydrologic Modelling in Gandak Basin	Aug. 2016	M.Tech (Res)
Sridevi Priya	Overland Flow Modelling in Urban Catchments	Aug. 2016	Ph.D
Sneha Santy*	Systems Approach for Water Quality Modelling in the Ganga Basin with Climatic Inputs	Aug. 2016	Ph.D

\* Jointly with Prof. Govindasamy Bala, Centre for Atmospheric and Oceanic Sciences (CAOS)

### Ph. D Thesis Examination (selected list, post-2007)

Sl No	Institute/University	Date of oral Examination
01	IIT, Bombay	12 <sup>th</sup> April 2007
02	IIT, Roorkee	29 <sup>th</sup> June 2007
03	IIT, Madras	10 <sup>th</sup> January 2008
04	IIT, Madras	21 <sup>st</sup> January 2008
05	IIT, Bombay	8 <sup>th</sup> April 2007
06	NIT, Warangal	24 <sup>th</sup> May 2008
07	Anna Univ. Chennai	31 <sup>st</sup> July 2012
08	IIT, Bombay	27 <sup>th</sup> July 2010
09	NIT, Silchar	25 <sup>th</sup> Nov., 2010
10	IIT, Guwahati	7 <sup>th</sup> April, 2011
11	IIT, Roorkee	7 <sup>th</sup> December 2011
12	IIT, Guwahati	23 <sup>rd</sup> April 2012
13	IIT, Roorkee	20 <sup>th</sup> October 2012
14	IIT, Bombay	22 <sup>nd</sup> July 2013
15	IIT, Guwahati	25 <sup>th</sup> October 2013
16	IIT, Bombay	8 <sup>th</sup> March 2014
17	IIT Guwahati	24 <sup>th</sup> December 2014
18	IIT Bombay	13 <sup>th</sup> January 2017
19	IIT Karaghpur	16 <sup>th</sup> January 2017
20	IIT, Guwahati	13 <sup>th</sup> July 2017

## **Review of Research Papers Submitted to Journals (representative)**

Reviewer of research papers for the following Journals

- Nature Scientific Reports (Nature Group)
- Water Resources Research (AGU)
- Advances in Water Resources (Elsevier)
- Hydrological Sciences Journal (IAHS)
- Journal of Hydroinformatics (IWA)
- Journal of Irrigation and Drainage (ASCE)
- Journal of Hydrologic Engineering (ASCE)
- Advances in Water Resources (Elsevier)
- Journal of Water Resources Planning and Management (ASCE)
- Journal of Computing in Civil Engineering (ASCE)
- Journal of Hydrology (Elsevier)
- Journal of Environmental Management (Elsevier)
- Water Resources Management (Springer)
- Environmental Modeling and Software (Elsevier)
- Current Science (Indian Academy of Sciences)
- Journal of Hydraulic Engineering (ISH)

AGU : American Geophysical Union; ASCE : American Society of Civil Engineers; IWA : International Water Association; IAHS : International Association for Hydrological Sciences; ISH : Indian Society for Hydraulics.

## List of Publications

### Books

1. Vedula, S. and Mujumdar, P. P. (2005), "Water Resources Systems: Modelling Techniques and Analysis", Originally Published by Tata-McGraw Hill, New Delhi, Now Copyright with Authors, Open Source.
2. P. P. Mujumdar and D. Nagesh Kumar (2012), "Floods in a Changing Climate: Hydrologic Modeling", Cambridge University Press, UK.

### Book Chapters

3. Mujumdar, P. P. (2002), "Uncertainty Concepts in Stream Water Quality Management Models", Research Perspectives in Hydraulics and Water Resources Engg., (Eds) Rama Prasad and S. Vedula, 169-192. (Pub : World Scientific, Singapore).
4. Mujumdar, P. P. and Subhankar Karmakar (2008), "Grey Fuzzy Multi-objective Optimization", Fuzzy Multi-Criteria Decision-Making Theory and Applications with Recent Developments, Edited by C. Kahraman, 453-482 (Pub: Springer).
5. Mujumdar, P. P. and S. Ghosh (2008), "Fuzzy Logic Based Approaches in Water Resources Systems Modeling", Practical Hydroinformatics, (Eds) R.J. Abrahart, Linda See and D. P. Solomatine, Water Science and Technology Library (Pub : Springer) ISBN : 978-3-540-79980-4, 165-176.
6. Mujumdar, P. P. (2011), "Implications of Climate Change for Water Resources Management", Chapter 2, India Infrastructure Report, Water: Policy and Performance for Sustainable Development, 18-28, Oxford University Press, New Delhi.
7. Raje, D., S. Ghosh and P.P. Mujumdar (2013), "Hydrologic Impacts of Climate Change: Quantification of Uncertainties", Climate Change Modeling Mitigation and Adaptation, (Eds) Rao Y. Surampalli, Tian C. Zhang, C. S. P. Ojha, B. Gurjar, R.D.Tyagi and C.M.Kao, (Pub : American Soc. Civil Engrs (ASCE)) (<http://ascelibrary.org/doi/abs/10.1061/9780784412718>).
8. Mondal, A. and P. P. Mujumdar (2014), "Regional Hydrologic Impacts of Climate Change: Implications for Water Management in India", Proc. of the 11th Kovacs Colloquium, Paris, France, June, 2014, Ed. Gordon Young, IAHS Publ. 366 (<http://www.proc-iahs.net/366/34/2015/piahs-366-34-2015.pdf>).
9. Mondal, A. and P. P. Mujumdar (2016), "Hydrologic Extremes under Climate Change: Non-stationarity and Uncertainty", In. Sustainable Water Resources Planning and Management under Climate Change, Eds. Ramesh S V Teegavarapu, Elpida Kolokytha and Oishi Satoru, Springer. ([http://link.springer.com/chapter/10.1007/978-981-10-2051-3\\_2](http://link.springer.com/chapter/10.1007/978-981-10-2051-3_2)).
10. Mondal, A. and P. P. Mujumdar (2016), "Extreme Value Analysis for Modelling Non-stationary Hydrologic Change", In. Contingent Complexity and Prospects for Water Diplomacy: Understanding and Managing Risks and Opportunities for an Uncertain Water Future, Eds. Shafiqul Islam and Kaveh Madani, Anthem Water Diplomacy Series, ISBN 9781783084906.

## **General Articles**

11. Mujumdar, P. P. (2015), Share Data on Water Resources, Comment : Priorities for Science in India, *Nature*, Vol. 521, 14 May 2015, 151-152.
12. Mujumdar, P. P.(2015), Impetus to Hydrology, Guest Editorial, *Current Science*, Vol.109, No.2, 25 Jul. 2015, 235-236.
13. Mujumdar, P. P. (2013), Climate Change and Water, National Science Seminar 2013, *National Council of Science Museums*.
14. Mujumdar, P.P. (2013) Climate Change: A Growing Challenge for Water Management in Developing Countries, *Water Resources Management*, Vol. 27, Issue 4, 953-954.
15. Mujumdar, P. P. (2001), Flood Wave Propagation - The Saint Venant Equations, *Resonance*, 6(5), 66-73 (Pub: Indian Academy of Sciences).

## **Research Papers in Refereed Journals**

16. Chandra Rupa, R., and Mujumdar, P.P. (2017) “Quantification of Uncertainty in Spatial Return Levels of Urban Precipitation Extremes”, *ASCE Journal of Hydrologic Engineering*, (in print, MS No.HEENG-3516).
17. Sangeeta Kumari and Mujumdar P.P. (2017) “Fuzzy-Set based System Performance Evaluation of an Irrigation Reservoir System”, *ASCE Journal of Irrigation and Drainage Engineering*, 10.1061/(ASCE)IR.1943-4774.0001155, 04017002.
18. Arpita Mondal, Balaji Narasimhan, Muddu Sekhar and Mujumdar, P.P. (2016) “Hydrologic Modelling”, *Proc. Indian National Science Academy*, 82, 3, 817-832. DOI:10.16943/ptinsa/2016/48487.
19. Arpita Mondal and Mujumdar P.P. (2016) “Detection of Change in Flood Return Levels under Global Warming”, *ASCE Journal of Hydrologic Engineering*, 10.1061/(ASCE)HE.1943-5584.0001326, 04016021.
20. Arpita Mondal and Mujumdar P.P. (2015) “On the Detection of Human Influence in Extreme Precipitation over India”, *Journal of Hydrology*, 529, 1161-1172.
21. Sangeeta Kumari and Mujumdar, P.P. (2015) “A Fuzzy State Real-Time Reservoir Operation Model for Irrigation with Gridded Rainfall Forecasts”, *ASCE Journal of Irrigation and Drainage Engineering*, Vol. 142, Issue 2, 10.1061/(ASCE)IR.1943-4774.0000956, 04015042.
22. Chandra Rupa, R., Ujjwal Saha and Mujumdar, P.P. (2015) “Model and Parameter Uncertainty in IDF Relationships under Climate Change”, *Advances in Water Resources*, Vol. 79, 127-139.
23. Ila Chawla, Mujumdar, P.P. (2015) “Isolating the Impacts of land Use and Climate Change on Streamflow”, *Hydrology and Earth System Sciences*, 19, 3633-3651, doi:10.5194/hess-19-3633-2015.
24. Sangeeta Kumari and Mujumdar, P.P. (2015) “Reservoir Operation with Fuzzy State Variables for Irrigation of Multiple Crops”, *ASCE Journal of Irrigation and Drainage Engineering*, 04015015, 1-13, DOI: 10.1061/(ASCE)IR.1943-4774.0000893
25. Arpita Mondal and Mujumdar, P.P. (2015) “Modeling non-stationarity in



- intensity, duration and frequency of extreme rainfall over India”, *Journal of Hydrology*, Vol 521,217-231.
26. Arpita Mondal and Mujumdar, P.P. (2015) “Return levels of Hydrologic Droughts under Climate Change”, *Advances in Water Resources*, Vol. (75), 67-75.
  27. Rehana, S. and Mujumdar, P.P. (2014) "Basin Scale Water Resources Systems Modeling under Cascading Uncertainties", *Water Resources Management*, Vol.28, Issue 10, pp.3127-3142, DOI: 10.1007/s11269-014-0659-2.
  28. Rehana, S. and Mujumdar, P.P. (2013) “Impacts of Climate Change on Regional Water Resources”, *Journal of the Indian Institute of Science*, 93 (2), 227-242.
  29. Rehana, S and Mujumdar, P. P. (2013) “Regional Impacts of Climate Change on Irrigation Water Demands”, *Hydrological Processes*, 27 (20), 2918-2933
  30. Meenu, R., Rehana, S., and Mujumdar, P. P. (2013) “Assessment of Hydrologic Impacts of Climate Change in Tunga-Bhadra River Basin, India with HEC-HMS and SDSM”, *Hydrological Processes*, 27(11), 1572-1589
  31. Arpita Mondal and Mujumdar, P. P. (2012) “On the Basin-scale Detection and Attribution of Human Induced Climate Change in Monsoon Precipitation and Streamflow”, *Water Resources Research*, Vol. 48, W10520, doi:10.1029/2011WR011468, 2012.
  32. Rehana, S. and Mujumdar, P. P. (2012) “Climate change induced risk in water quality control problems”, *Journal of Hydrology*, 444 - 445, 63-77.
  33. Raje D., and Mujumdar, P. P., (2011) "A comparison of three methods for downscaling daily precipitation in the Punjab region", *Hydrological Processes*, 25 (23), 3575-3589.
  34. Rehana, S. and Mujumdar, P. P. (2011) "River water quality response under hypothetical climate change scenarios in Tunga-Bhadra river, India" *Hydrological Processes*, 25 (22), 3373-3386.
  35. Raje D., and Mujumdar, P. P. (2010) “Hydrologic drought prediction under climate change: Uncertainty modeling with Dempster-Shafer and Bayesian approaches”, *Advances in Water Resources* DOI: 10.1016/j.advwaters.2010.08.001 (Pub: Elsevier, Netherlands).
  36. Raje, D., and Mujumdar, P. P. (2010) "Constraining uncertainty in regional hydrologic impacts of climate change: nonstationarity in downscaling", *Water Resources Research*, Vol. 46, W07543, doi:10.1029/2009WR008425, 2010
  37. Ghosh, S., Raje, D., and Mujumdar, P. P. (2010) "Mahanadi Streamflow: Climate Change Impact Assessment and Adaptive Strategies", *Current Science*, Vol. 98, No. 8, pp. 1084-1091. (Pub : Indian Academy of Sciences, Bangalore)
  38. Subimal Ghosh and P. P. Mujumdar (2010) “Fuzzy Waste Load Allocation Model: A Multiobjective Approach”, *Journal of Hydroinformatics*, 12.1, 96-109.
  39. Raje, D and Mujumdar, P.P. (2010) “Reservoir Performance under Uncertainty in Hydrologic Impacts of Climate Change”, *Advances in Water Resources*, 33(3), 312-326. doi:10.1016/j.advwatres.2009.12.008 (Pub: Elsevier, Netherlands).
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### **Technical Reports**

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