

Ashok Mishra

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EDUCATION (Details in Annexure-I)

Ph.D. -Indian Institute of Technology, Kharagpur-India, 2005,

Watershed Management

M.Tech. -Indian Institute of Technology, Kharagpur-India, 1999,

Agricultural Engineering

B.Tech. -Allahabad University (Allahabad Agricultural Institute), Allahabad-India, 1997,

Agricultural Engineering

EXPERIENCE (Details of 'Courses Taught' in Annexure-I)

Associate Professor, Department of Agricultural and Food Engineering

IIT Kharagpur, India, 2013 -Present

Assistant Professor, Department of Agricultural and Food Engineering

IIT Kharagpur, India, 2008 -2013

Assistant Professor, Rural Development Centre

IIT Kharagpur, India, 2007 -2008

RESEARCH INTERESTS

- Hydrological modelling & Watershed management
- Crop yield modelling
- Climate change analysis & applications in water and crop management
- Climate change adaptations

AWARDS/HONORS/SCHOLARSHIPS

- Jawaharlal Nehru Award for P.G. Outstanding Doctoral (student's) Thesis, 2015
- Post-Doctoral Fellowship (Columbia University, New York, USA), 2005-07
- DAAD Fellowship (Special Env. Engg. Programme) Hannover Univ., Germany, 2002-03
- Fellow- The Institution of Engineers (India)

PUBLICATIONS (Details in Annexure-II)

44 papers in Refereed journals

45 papers in Proceedings of seminars/conferences

2 Book chapters

1 Copyright

SPONSORED RESEARCH and CONSULTANCY PROJECTS (Details in Annexure-III)

7 Ongoing and 9 completed research projects

3 completed consultancy projects

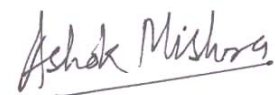
Funding agencies include European Commission, Europe; IIT Kharagpur; Ministry of Water Resources, New Delhi; MHRD, Department of Higher Education, New Delhi; Ministry of Rural Development, New Delhi; CSIR, New Delhi; Indian Space Research Organization, Bangalore; Space Application Centre, Ahmedabad; Indian Institute of Remote Sensing (IIRS) Dehradun, National Remote Sensing Agency (NRSA), IWMI, Colombo, Sri Lanka; Indian Council of Agricultural Research, New Delhi; and ITRA, Mumbai.

RESEARCH GUIDANCE (Details in Annexure-IV)

Ph. D Guidance: 6 completed; 4 in progress

M. Tech. Guidance: 22 completed; 3 in progress

B. Tech. Guidance: 12 completed and 4 in progress



(Ashok Mishra)

Annexure-I

Educational Qualifications:

Degree	Specialization	Year of Passing	Institute/University	% marks /CGPA
Ph. D.	Agricultural Engineering	2004	Indian Institute of Technology, Kharagpur	-
M. Tech.	Agricultural Engineering (Agril. Systems & Managt.)	1999	Indian Institute of Technology, Kharagpur	8.72 / 10
B. Tech.	Agricultural Engineering	1997	University of Allahabad	79.75%

Subjects Taught:

At the Undergraduate level:

Tubewells and Pumps
Irrigation & Drainage Engineering Lab

At the Postgraduate level:

Climate Change and Water Resources
Non-Point Source Pollution and Management
Surface Water Hydrology
Soil Conservation Structure Design
Soil Conservation Structure Design Lab
On-Farm Irrigation Engineering
On-Farm Irrigation Engineering Lab
Land use planning and watershed management
Integrated crop, soil and water management
Water Distribution System
Water Management Lab
Planning and Design of Water Resources Projects

E-Courses:

Developed two e-courses for B. Tech. (Agril. Engineering) under ICAR-NAIP (New Delhi)

- (i) Soil and Water Conservation Engineering 3 (2 + 1)
- (ii) Watershed Planning and Management 3 (2 + 1)

Annexure-II

Publications

(A) Refereed Journals: 44

1. Biemans, H., Siderius, C., **Mishra, A.**, and Ahmad, B.(2016): Crop-specific seasonal estimates of irrigation water demand in South Asia. **Hydrol. Earth Syst. Sci.**, 20: 1971-1982.
2. Dhage, Pradnya Murlidhar, Raghuwanshi, N.S., Singh, R., **Mishra, A.**: Development of daily temperature scenarios and their impact on paddy crop evapotranspiration of Kangsabati Command Area. **Theoretical and Applied Climatology**, Springer. doi:10.1007/s00704-016-1743-8
3. Bhave, A.G., Mittal, N., **Mishra, A.**, Raghuwanshi, N.S. (2016): Integrated assessment of no-regret climate change adaptation options for reservoir catchment and command areas. **Water Resources Management**, Springer, 30(3): 1001-1018.
4. Mittal, N., Bhave, A.G., **Mishra, A.**, Singh, R. (2016): Impact of human intervention and climate change on natural flow regime. **Water Resources Management**, Springer, 30(2): 685-699.
5. Kumar, S., Raghuwanshi, N.S., **Mishra, A.**(2015): Identification and management of critical erosion watersheds for improving reservoir life using hydrological modeling. **Sustainable Water Resources Management**, Springer, 1(1): 57-70.
6. Das, S., Behera, B., **Mishra, A.** (2015): Determinants of household use of wetland resources in West Bengal, India. **Wetlands Ecology and Management**, Springer, 23(5): 803-816.
7. Kumar, S., Tiwari, M.K., Chatterjee, C., **Mishra, A.** (2015): Reservoir Inflow Forecasting Using Ensemble Models Based on Neural Networks, Wavelet Analysis and Bootstrap Method. **Water Resources Management**, Springer, 29(13): 4863-4883.
8. Kumar, S., **Mishra, A.** (2015): Critical Erosion Area Identification Based on Hydrological Response Unit Level for Effective Sedimentation Control in a River Basin. **Water Resources Management**, 29(6): 1749-1765. WARM-D-14-00786R1.
9. Kumar, A., Singh, R., Jena, P.P., Chatterjee, C., **Mishra, A.** (2015): An optimal model combination in Multi Model Ensemble for river discharge. **J. Hydrology**, 525:313-325.
10. Kumar, S., **Mishra, A.**, Raghuwanshi, N.S. (2015): Identification of critical erosion watersheds for control management in data scarce condition using SWAT model. **J. Hydrologic Engg.**, ASCE, 20(6)-C4014008.
11. Adamala, S., Raghuwanshi, N.S., **Mishra, A.**, Tiwari, M.K. (2015): Closure to "Evapotranspiration Modeling Using Second-Order Neural Networks" **J. Hydrologic Engg.**, ASCE, 20(9): 5015-1-3.

12. Adamala, S., Raghuwanshi, N.S., **Mishra, A.** (2015): "Generalized Quadratic Synaptic Neural Network based ETo Modeling". **Environmental Processes**, 2(2)-309-329.
13. Bhave, A.G., **Mishra, A.**, Raghuwanshi, N.S. (2014): A brief review of assessment approaches which support evaluation of climate change adaptation options in the water sector. **Water Policy**, 16(5): 959-972.
14. Mittal, N., **Mishra, A.**, Singh, R., Bhave, A.G., Michael van der Valk. (2014): Flow regime alteration due to anthropogenic and climatic changes. **Ecohydrology & Hydrobiology**, 14(3): 182-191. Elsevier.
15. Bhave, A.G., **Mishra, A.**, Raghuwanshi, N.S. (2014): A combined bottom-up and top-down approach for assessment of climate change adaptation options. **J. Hydrology**, 518(A): 150-161.
16. Mitra, S., **Mishra, A.** (2014): Hydrologic Response to Climatic Change in the Baitarni River Basin. **J. of Ind. War. Res. Soc.**, 34(1): 24-33.
17. Adamala, S., Raghuwanshi, N.S., **Mishra, A.**, Tiwari, M.K. (2014): Evapotranspiration Modeling Using Second-Order Neural Networks. **JHE, ASCE**, 19(6): 1131-1140.
18. Adamala, S., Raghuwanshi, N.S., **Mishra, A.**, Tiwari, M.K. (2014): Development of generalized higher-order synaptic neural based ETo models for different agro-ecological regions in India. **J. Irrigation & Drainage Engg., ASCE.**, 140(12): 04014038-1-13.
19. Siderius, C., Hellegers, P., **Mishra, A.**, van Ierland, E., Kabat, P. (2014): Sensitivity of the agro-ecosystem in the Ganges Basin to inter-annual rainfall variability and associated changes in land use. **Int. J. Climatology**, 34(10): 3066-3077.
20. Jena, P. P., Chatterjee, C., Pradhan, G., **Mishra, A.** (2014): Are recent frequent high floods in Mahanadi basin in eastern India due to increase in extreme rainfalls? **J. Hydrology**. 517 (2014) 847-862.
21. Adamala, S., Raghuwanshi, N.S., **Mishra, A.** (2014): Development of Surface Irrigation Systems Design and Evaluation Software (SIDES). **Computers and Electronics in Agriculture**, 100: 100-109.
22. Bhave, A.G., **Mishra, A.**, Raghuwanshi, N.S. (2014): Evaluation of hydrological effect of stakeholder prioritized climate change adaptation options based on multi-model regional climate projections. **Climatic Change**, 123(2): 225-239.
23. Mittal, N., **Mishra, A.**, Singh, R., Kumar, P. (2014): Assessing future changes in seasonal climatic extremes in the Ganges river basin using an ensemble of regional climate models. **Climatic Change**, 123(2): 273-286.
24. **Mishra, A.**, Singh, R., Raghuwanshi, N.S., Chatterjee, C., Froebrich, J. (2013): Spatial variability of climate change impacts on yield of rice and wheat in the Indian Ganga basin. **Sc. of the Total Environment**, 468-469: S132-S1.

25. Mittal, N., **Mishra, A.**, Singh, R. (2013): Combining climatological and participatory approaches for assessing changes in extreme climatic indices at regional scale. **Climatic Change**, 119(3-4): 603-615.
26. **Mishra, A.**, Siderius, C., Aberson, K., van der Ploeg, M., Froebrich, J. (2013): Short-term rainfall forecasts as a soft adaptation to climate change in irrigation management in north-east India. **Agricultural Water Management**, 127: 97-106.
27. Bhave, A.G., **Mishra, A.**, Groot, A. (2013): Sub-basin scale characterization of climate change vulnerability, impacts and adaptation in an Indian River basin. **Reg. Environ. Change**, 13(5): 1087-1098.
28. **Mishra, A.**, Kar, S. (2012): Modelling hydrologic processes and NPS pollution in a small watershed in subhumid subtropics using SWAT. **J. Hydrol. Engg., ASCE**, 17(3): 445-454.
29. Patra, J.P., **Mishra, A.**, Singh, R., Raghuwanshi, N.S. (2012): Detecting rainfall trends in twentieth century (1871–2006) over Orissa State, India. **Climatic Change**, 111(3-4): 801-817.
30. Kumar, M., **Mishra, A.**, Raghuwanshi, N.S. (2011): Evapotranspiration estimation of Aloe Vera (*Aloe Barbadensis*) using field measurements. **J. of Ind. War. Res. Soc.**, 31(1-2): 56-63.
31. Pandey, A.C., **Mishra, A.**, Pandey, V.K., Kumar, S.S. (2010): BlaCri - A simplified software/DSS to ease the water management in agriculture with minimum meteorological observations. **Ecol. Env. & Cons.** 16 (2): 301-305.
32. **Mishra, A.**, Singh, R., Singh, V.P. (2010): Evaluation of Non-Point Source N and P Loads in a Small Mixed Land Use Land Cover Watershed. **J. Water Res. & Protection** (Scientific Research Publishing, USA), 2: 362-372.
33. **Mishra, A.**, Kar, S., Raghuwanshi, N.S. (2009): Modeling non-point source pollutant losses from a small watershed using HSPF model. **J. Env. Engg., ASCE**, 135(2): 92-100.
34. Hansen, J.W., **Mishra, A.**, Rao, K.P.C., Indeje, M., Ngugi R.K. (2009): Potential Value of GCM-Based Seasonal Rainfall Forecasts for Maize Management in Semi-arid Kenya. **Agricultural Systems**, 101(1-2): 80-90.
35. Pandey, A.C., **Mishra, A.**, Kumar, S.S., Singh, B.P. (2009): MCU.soft- A decision support system to estimate the monthly consumptive use with minimum meteorological observations. **Ecol. Env. & Cons.**, 15(3): 557-560.
36. **Mishra, A.**, Kar, S., Pandey, A.C. (2009): Comparison of SWAT with HSPF Model in Predicting Hydrologic Processes of a Small Multivegetated Watershed. **J. Ag. Engg.**, 45 (4): 29-35.

37. **Mishra, A.**, Chatterjee, C. (2009): Temporal changes in rainfall occurrence and distribution in West Midnapore district of West Bengal. **J. of Ind. War. Res. Soc.**, 29(1): 38-48.
38. **Mishra, A.**, Hansen, J.W., Dingkuhn, M., Baron, C., Traoré, S.B., Ndiaye, O., Ward, M.N. (2008): Sorghum Yield Prediction from Seasonal Rainfall Forecasts in Burkina Faso. **Agricultural & Forest Meteorology**, 148(11): 1798-1814.
39. **Mishra, A.**, Kar, S., Singh, V.P. (2007): Determination of runoff and sediment yield from a small watershed in subhumid subtropics using the HSPF model. **Hydrol. Processes**, 21 (22): 3035-3045.
40. Baigorria, G.A., Jones, J.W., Shin, D-W., **Mishra, A.**, O'Brien, J.J. (2007): Assessing uncertainties of using daily data from regional numerical climate models into crop models. **Climate Research**, 34: 211-222.
41. **Mishra, A.**, Froebrich, J., Gassman, P.W. (2007): Evaluation of the SWAT Model for Assessing Sediment Control Structures in a Small Watershed in India. **Trans. ASABE**, 50(2): 469-477.
42. **Mishra, A.**, Kar, S., Singh, V.P. (2007): Prioritizing structural management by quantifying the effect of land use and land cover on watershed runoff and sediment yield. **Water Res. Managt.**, 21(11): 1899-1913.
43. Dutta, S., **Mishra, A.**, Kar, S., Panigrahy, S. (2006): Estimating spatial curve number from hydrologic response analysis of a small watershed. **Journal of Spatial Hydrology**, 6(2): 57-67.
44. **Mishra, A.**, Kar, S. (2005): Non-Point Source Pollution of Water Resources: Nature, Causative Factors and Strategic Abatement. **Environment and Ecology**, 23(1): 99-105.

(B) Proceedings of Seminars/Conferences: 45

1. Adamala, S., Raghuwanshi, N.S., **Mishra, A.** (2016): Modeling Evapotranspiration Using Bootstrap based Quadratic Synaptic Neural Networks. In the-International Conference on Emerging Technologies in Agricultural and Food Engineering (ETAE 2016), 27-30 Dec. 2016, IIT Kharagpur, India.
2. **Mishra, A.**, Bhave, A.G., Raghuwanshi, N.S. (2016): Evaluation of Climate Change Adaptation Options in a Reservoir Catchment and Command Area using WEAP Model. In the- International Conference on Climate Change, Water, Agriculture and Food Security (ICCWAFS 2016), 2-3 Nov. 2016, ICRISAT, Hyderabad, India.
3. Singh, R., Mittal, N., **Mishra, A.** (2016): Impact of Climate Change and Human Intervention on River Flow Regimes. In the- International Conference on Climate Change, Water, Agriculture and Food Security (ICCWAFS 2016), 2-3 Nov. 2016, ICRISAT, Hyderabad, India.

4. Kumari, N., Paul, P.K., Singh, R., Panigrahy, N., **Mishra, A.**, Gupta, P.K., Singh, R.P. (2016): The Satellite Based Hydrological Model (SHM): Routing Scheme and its Evaluation. EGU General Assembly 2016, Geophysical Research Abstracts, Vol. 18, EGU2016-11253, April-2016.
5. **Mishra, A.**, Dey, P., Paul, P.K. (2016): Separating Climate Change and Human Impacts on Annual Stream Flow. In the- 8th International Perspective on Water Resources and Environment (IPWE), ASCE conference, Colombo, Sri Lanka. (January 04-06, 2016).
6. Paul, P.K., **Mishra, A.**, Singh, R., Panigrahy, N.: (2016). Development of database for a conceptual hydrological model for the Indian Territory. In the- 8th International Perspective on Water Resources and Environment (IPWE), ASCE conference, Colombo, Sri Lanka. (January 04-06, 2016).
7. Debnath, S., **Mishra, A.**, Mailapalli, D.R., Raghuwanshi, N.S. (2016): Quantifying Yield Gaps in Rainfed Cropping Systems: A Case Study of Rice in India. In the- 50th Annual Convention of ISAE and International Symposium on “Agricultural Engineering in Nation Building: Contributions & Challenges”, Bhubaneswar, Odisha (India). (January 19-21, 2016).
8. Dube, M., **Mishra, A.** (2016): Assessing the Impact of Climate Change on Rice Yield Using Global Climate Models. In the- International Conference on Water Environment, Energy & Society-2016 (ICWEES-2016), Bhopal, India. (March 15-18, 2016).
9. Kumar, S., **Mishra, A.** (2016): Impact of Historical Land Use/Land Cover and Climate Change on Reservoir Inflow in Damodar Catchment. In the- International Conference on Water Environment, Energy & Society-2016 (ICWEES-2016), Bhopal, India. (March 15-18, 2016).
10. Adamala, S., Raghuwanshi, N.S., **Mishra, A.** (2016): Development of Generalized Higher-Order Neural Network Based Models for Estimating Pan Evaporation. In the- International Conference on Water Environment, Energy & Society-2016 (ICWEES-2016), Bhopal, India. (March 15-18, 2016).
11. Kumar, A., Singh, R., **Mishra, A.**, Chatterjee, C. (2015). Assessment of Climate Change Impact on River Discharge using Reduced Uncertainty Ensemble Modeling Framework. In the- fall meeting of American Geophysical Union (AGU), San Francisco, USA. (December 14-18, 2015).
12. Debnath, S., **Mishra, A.**, Mailapalli, D.R., Raghuwanshi, N.S. (2015): Effect of Irrigation and Nitrogen Managements on Rice Productivity. 49th Annual Convention and Symposium of the Indian Society of Agricultural Engineers, PAU, Ludhiana, Punjab, India. (February 23-25, 2015).
13. Adamala, S., Raghuwanshi, N.S., **Mishra, A.** (2014): Development of generalized quadratic synaptic neural network based ETo models from limited climatic data in India. Accepted for oral presentation at the 2014 ASABE International Symposium

“Evapotranspiration: Challenges in Measurement and Modeling from Leaf to the Landscape Scale and Beyond”. North Carolina, USA. (April 7-11, 2014)

14. Adamala, S., Raghuwanshi, N.S., **Mishra, A.** (2014): Development of generalized neural network based ETo models from limited climatic data for different agro-ecological regions. Accepted for oral presentation at the 48th Annual Convention of Indian Society of Agricultural Engineers (ISAE) and Symposium on Engineering Interventions in Conservation Agriculture. MPUAT, Udaipur (Rajastjan), India. (February 21-23, 2014)
15. Crawford, T., Salahuddin, A., Curtis, S., Ahmed, A., Allen, T., Bradley, D., Miah, G., **Mishra, A.**, Mukherji, A., Premalal, K. (2013): Scoping Workshop: Human Responses to Catastrophic Monsoon Events in South Asia: Designing a Spatially Explicit Model in Low-Lying Coastal Areas. APN Science Bulletin, Issue 3, March 2013, 125-127. ISSN 2185-761x. (Project Award No.: ARCP2012-23NSG-CRAWFORD) (APN: Asia-Pacific Network for Global Change Research).
16. Bhave, A. G., **Mishra, A.**, Raghuwanshi, N.S. (2013): Multiple scenarios based hydrological analysis of adaptation strategies for better decision making, 6th International Conference on Water Resources and Environment Research, Koblenz, Germany,. (June 3-7, 2013)
17. Mittal, N., **Mishra, A.**, Singh, R. (2013): Future predictions of changes in seasonal streamflow characteristics as a consequence of changing climatic extremes, 6th International Conference on Water Resources and Environment Research, Koblenz, Germany. (June 3-7, 2013)
18. **Mishra, A.**, Mitra, S. (2013): Effect of Climate Change on the Stream Flow Components in a Small River Watershed in India. Asia-Pacific International Congress on Engineering & Natural Sciences 2013 (APICENS-2013), Bangkok, Thailand. (April 16-18, 2013).
19. Bhave, A.G., **Mishra, A.**, Raghuwanshi, N.S. (2012): Integrated assessment of climate change adaptation options for water resources management using participatory and hydrological modelling approaches, 2012 Berlin Conference on Evidence for Sustainable Development, Berlin, Germany. (October 2-8, 2012).
20. **Mishra, A.**, Gupta, P.K., Singh, R., Raghuwanshi, N.S., Chatterjee, C., Panigrahy, S. (2012): Sediment and Nutrient Assessment of Mangrove Swamps Using ArcSWAT: Case Study for Bhitarkanika Area. 2012 International SWAT Conference, New Delhi, India. (July 18-20, 2012).
21. Kumar, S., **Mishra, A.**, Raghuwanshi, N.S. (2012): Estimating catchment sediment yield, reservoir sedimentation and reservoir effective life using SWAT model. 2012 International SWAT Conference, New Delhi, India. (July 18-20, 2012).
22. Raju, C.K., **Mishra, A.**, Bhadoria, P.B.S. (2012): Synthesis of sustainability and secureness of software in public applications using deductive-nomological model. Proceedings in- International Conference on Advances in Computing, Communications and Informatics (ICACCI-2012), Chennai, Tamil Nadu, India. (August 3-5, 2012).

23. Raju, C.K., **Mishra, A.** (2011): Enhancing Sustainability of Software - A Case-Study with Monitoring Software for MGNREGS in India. Proceedings Part II in - Advances in Computing and Communications, edited by Abraham et al., Communications in Computer and Information Science, Vol. 191, Springer. pp. 223-233.
24. **Mishra, A.** (2011): Hydro-Meteorological Impacts of Climate Change Over Brahmani-Baitarni River Basin in Eastern India. 4th ASCE-EWRI International Conferences on - International Perspective on Water Resources and the Environment (IPWE) 2011, Singapore. (January 4-6, 2011).
25. **Mishra, A.** (2011): Hydrologic Response to Climatic Variability in the Eastern India. International Conference on Agricultural Engineering, Pattaya, Thailand. (March 31-April 1, 2011).
26. **Mishra, A.** (2010): Global warming induced climate change consequences and agricultural management to alleviate losses. 3rd international conference on – Current and Future State of Water Resources and the Environment-EWRI of ASCE, IIT Madras, India. (January 5-7, 2010).
27. **Mishra, A.**, Kashyap, P.S., Pandey, A.C. (2010): Applicability of aggregate rainfall information to estimate runoff from small watershed”. 44th Annual Convention and Symposium of the Indian Society of Agricultural Engineers, IARI, New Delhi, India. (January 28-30, 2010).
28. Pandey A.C., **Mishra, A.** (2009): MCU.ease - A simplified decision support system to estimate the monthly consumptive use with minimum meteorological observations. 43rd Annual Convention and Symposium of the Indian Society of Agricultural Engineers, BAU Ranchi, India. (February 15-17, 2009).
29. Patra, J.P., **Mishra, A.** (2009): Long term rainfall trends in Orissa over last century (1871-2006). International conference on- Food Security and Environmental Sustainability (FSES-2009). AgFE Department, IIT Kharagpur, India. (December 17-19, 2009).
30. **Mishra, A.** (2009): Seasonal climate forecast applications to optimize crop management on individual farm level. 43rd Annual Convention and Symposium of the Indian Society of Agricultural Engineers, BAU Ranchi, India. (February 15-17, 2009).
31. Dey, R., **Mishra, A.** (2009): Climate Change Variability of Rainfall and Drought Analysis over Indian Subcontinent. International conference on- Food Security and Environmental Sustainability (FSES-2009). AgFE Department, IIT Kharagpur, India. (December 17-19, 2009).
32. **Mishra, A.**, Singh, V.P. (2009): Seasonal Climate Variations and Watershed Hydrology and Water Quality Response. International Conference on- Water, Environment, Energy And Society (WEES)-2009, New Delhi, India. (January, 12-16, 2009).

33. **Mishra, A.**, Kar, S. (2008): Comparison of SWAT with HSPF Model in Predicting Hydrologic Processes of a Small Multivegetated Watershed. 42nd Annual Convention and Symposium of the Indian Society of Agricultural Engineers, CIAE, Bhopal, India. (February 1-3, 2008).
34. Osgood, D.E, McLaurin, M., Carriquiry, M., **Mishra, A.**, Fiondella, F., Hansen, J.W., Peterson, N., Ward, M.N. (2007): Designing weather insurance contracts for farmers in Malawi, Tanzania, and Kenya. Final Report to the Commodity Risk Management Group, ARD, World Bank. IRI Technical Report 07-02.
35. Baigorria, G.A., Jones, J.W., Shin, D.-W., **Mishra, A.**, O'Brien, J.J. (2006): Assessing uncertainties of using daily data outputs from regional numerical climate models as inputs into crop simulation models. Publication of the Southeast Climate Consortium Technical Report Series: SECC-06-007, Gainesville, FL.
36. Ward, N., Hansen, J.W., Arumugam, S., Osgood, D., Zubair, L., Brown, C., Mishra, A. (2006): Examples of decision systems research and tool development for climate risk management. Global Environmental Change: Regional Challenges. An Earth System Science Partnership Global Environmental Change Open Science Conference, Beijing, China. (November 9 -12, 2006).
37. Hansen, J.W., Challinor, A., Ines, A., **Mishra, A.**, Chee-Kiat, T. (2006): Predicting Crop Response to Drought Using Advance Climate Information: An International Perspective. 36th Biological Systems Simulation Conference 2006, Fort Collins, Colorado, USA. (April 11-13, 2006).
38. Hansen, J.W., **Mishra, A.** (2006): Methods for predicting rainfall impacts on crops at a long lead time. Pp. 565-566 in: Genau, I., Marsh, S., McQuaid, J., Redelsperger, J.-L., Thorncroft C., and van den Akker, E. (Eds.), African Monsoon Multidisciplinary Analysis 1st International Conference, Dakar, Senegal. Extended Abstracts- AMMA International Project Office, Paris. (November 28-December 4, 2005).
39. **Mishra, A.**, Hansen, J.W., Rao, K.P.C., Nanja, D., Mukhala, E. (2005): Linking Seasonal Climate Forecasts with Crop Simulation to Optimize Maize Management. The U.S. Climate Change Science Program (CCSP) workshop, Washington DC, USA. (November 14 -16, 2005).
40. Ward, M. N., Hansen, J.W., Arumugam, S., Osgood, D., Zubair, L., Brown, C., **Mishra, A.** (2005): Decision Systems Research and Tool Development at the IRI. The U.S. Climate Change Science Program (CCSP) workshop, Washington DC, USA. (November 14 -16, 2005).
41. **Mishra, A.**, Kar, S. (2004): Application of remote sensing and GIS in watershed management. Symposium on Geoinformatics Applications for Sustainable Development, WTC, IARI, New Delhi, India. (March 17-19, 2004).

42. **Mishra, A.**, Fröbrich, J., Kar, S. (2003): Potentials and Applicability of the SWAT Model in Check Dam Management in Small Watershed. Proceedings of the 2nd International SWAT Conference, Bari, Italy. (June, 2003).
43. **Mishra, A.**, Kar, S. (2002): Modelling Hydrological Processes and NPS Pollution in a Small-Mixed Type Watershed. Proceedings of the 3rd International Conference on Water Resources and Environmental Research (ICWRER 2002), Dresden, Germany.
44. **Mishra, A.**, Kar, S. (2002): Simulation of Runoff, Sediment Transport and Nitrate -N in a Small Watershed Using SWAT. 36th Annual Convention and Symposium of the Indian Society of Agricultural Engineer's, IIT, Kharagpur, India. (January 28-30, 2002).
45. **Mishra, A.**, Kar, S. (2001): Simulation of Water and Fertilizer-N Transport in Variably Saturated Rice Fields. 66th Annual Convention of the Indian Society of Soil Science, Udaipur (Rajasthan), India. (October 30-November 2, 2001).

(C) Book Chapters: 1

1. **Mishra, A.**, Singh, V.P. (2008): Impacts of land use land cover on hydrology and aquatic ecosystem". In V.P. Singh Edt.- Hydrology and Hydraulics. Water Resources Publications, LLC, Colarado, USA, pp 479-499.

(D) Patent/Copyright: 15

1. Adamala, S., Raghuwanshi, N.S., **Mishra, A.** (2012): Surface Irrigation Design and Evaluation Software (SIDES). Copyright No.: SW-6839/2013.

Annexure-III
(Sponsored Research and Consultancy Projects)

(A) Sponsored Research Projects:

S. No.	PI/Co-PI	Project Title	Sponsoring Agency	Duration
On-going: 08 Projects				
1.	PI	Optimum Water & Fertilizer-N Management Strategies for Rice Crop	ICAR (NRM Division), New Delhi	15 Months w.e.f. 13.01.2016
2.	PI	Climate change adaptations to improve agricultural production in Eastern India.	MHRD, Department of Higher Education, New Delhi	01.04.14 to 31.03.17
3.	Co-PI	Development of Optimal Crop Planning Model Based on Flood Risk (OMB)	ICAR (NRM Division), New Delhi	15 Months w.e.f. 13.01.2016
4.	Co-PI	Development of a conceptual water balance model for various ecosystems of India.	Department of Space, SAC Ahmedabad	01.01.14 to 31.03. 2017
5.	Co-PI	Measurement to management (M2M): Improved water use efficiency and agricultural productivity through experimental sensor network	MoIT, Information Technology Research Academy (ITRA)	21.10.2013- 31.03.2017
6.	Co-PI	Ensemble modeling of rainfall-runoff transformation process	MoWR, INCOH, ND	06.03. 2012- 31.12. 2016
7.	Co-PI	Design of drainage system and multi-purpose detention pond for storm water management of IIT Kharagpur campus	IIT Kharagpur	24.12.13 to 23.12.2016
Completed: 09 Projects				
8.	PI	HighNoon: Adaptation to changing water resources availability in northern India with Himalayan glacier retreat and changing monsoon pattern.	European Commission.	01.05.09 to 30.04.12.
9.	PI	Analysis of Climate Change and its Impact on Flood and Drought in a River Basin.	SRIC, IIT Kharagpur (ISIRD)	18.02.09 to 17.02.12
10.	Co-PI	Development of a GIS based decision support system for irrigation system management	MoWR, Indian National Committee on Irrigation and Drainage (INCID), New Delhi	05.03. 2012 - 3 1.12.2015
11.	Co-PI	Flood inundation zoning for different return periods in Mahanadi River basin	MoWR, INCOH, New Delhi	24.12. 2010 - 3 Years
12.	Co-PI	Climate change and rice-based crop production system of eastern and south eastern India: Impact assessment and risk management through simulation study	CSIR, Centre for Mathematical Modelling and Computer Simulation	May 2010- 3 Years
13.	Co-PI	Impact assessment of MGNREGA in one district of madhya pradesh (Mandla) & West Bengal (Paschim Midnapore)	MoRD, UNDP, New Delhi	07.03.11 to 31.03.12

14.	Co-PI	National Vegetation Carbon Pool Assessment	Indian Institute of Remote Sensing (IIRS) Dehradun	from 26.05.2008 to 1 yr
15.	Co-PI	Biodiversity characterization at landscape level using satellite remote sensing and GIS for state of U.P. (except Vindhyan districts).	National Remote Sensing Agency (NRSA)	from 01.11.2007 to 2 yrs & 5 months
16.	Co-PI	Biodiversity characterization at landscape level using satellite remote sensing and GIS for state of J & K (Kargil district and part of Leh (Ladakh))	National Remote Sensing Agency (NRSA)	from 01.11.2007 to 2 yrs & 5 months

(B) Consultancy Projects:

S. No.	PI/Co-PI	Project Title	Sponsoring Agency	Duration
Completed: 03 Projects				
1.	Co-PI	Intervention analysis of the IGB basin focal project	IWMI, Colombo, Sri Lanka	01.08.08 to 31.07.09
2.	Co-PI	Impact Assessment of NREGA in 2-Districts of West Bengal	MoRD, UNDP, New Delhi	15.12.08 to 15.06.12
3.	Co-PI	Documentation and recommendation on adaptation of coping strategies for climate variability in Bolangir, Nuapada, Kalahandi and Bargarh districts of Orissa	Western Orissa Rural Livelihoods Project, Watershed Development Mission, Sripur, Bhubaneswar-751 003	18.08.07 to 10.08.08