

## Curriculum Vitae

**Lakshman Nandagiri, PhD**

**Professor**

**Department of Applied Mechanics and Hydraulics  
National Institute of Technology Karnataka, Surathkal  
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Scopus ID: 6603354214

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### **Professional Education**

- **PhD, Water Resources Engineering**  
Thesis title: '*Field Soil Moisture Regimes and Hydrology of Irrigated Plots*'  
Indian Institute of Science, Bangalore, India, 1994
- **Master of Engineering, Hydraulics**  
National Institute of Engineering, University of Mysore, India, 1986
- **Bachelor of Engineering, Civil**  
S. J. College of Engineering, University of Mysore, India, 1983

### **Technical Areas of Specialization**

Hydraulics, Fluid Mechanics, Water Resources Engineering, Surface Water Hydrology, Sub-surface Hydrology, Irrigation & Drainage Engineering, Water Resources Management

### **Research Interests**

- Catchment/Watershed Hydrology
- Vadose Zone Processes/Properties
- Soil Moisture Measurement/Modelling
- Evapotranspiration
- Irrigation Scheduling
- Remote Sensing/GIS applications in Hydrology
- Multivariate Statistics, Artificial Neural Network Applications

- Land-Atmosphere Interactions
- Hydrological Impacts of Climate Change

### **Work Experience**

- **12 August 2005 onwards** – Professor, Department of Applied Mechanics & Hydraulics, National Institute of Technology Karnataka (formerly Karnataka Regional Engineering College), Surathkal, India
- **1 April 2014 – 17 June 2016** – Professor in-Charge, Department of Training & Placement
- **1 February 2011 to January 31, 2014** – Dean (Planning & Development), NITK
- **12 March 2007 to 12 March 2010** – Head of the Department of Applied Mechanics & Hydraulics
- **12 August 1997 to 11 August 2005** – Assistant Professor, Department of Applied Mechanics & Hydraulics, Karnataka Regional Engineering College, Surathkal, India
- **12 August 1991 to 11 August 1997** – Senior Lecturer, Department of Applied Mechanics & Hydraulics, Karnataka Regional Engineering College, Surathkal, India
- **1 January 1990 to 1 May 1993** – Research Scholar, Department of Civil Engineering, Indian Institute of Science, Bangalore, India
- **12 August 1985 to 11 August 1991** – Lecturer, Department of Applied Mechanics & Hydraulics, Karnataka Regional Engineering College, Surathkal, India

### **Courses Taught**

- Surface Water Hydrology (Graduate, Post-Graduate)
- Irrigation & Drainage Engineering (Graduate, Post-Graduate)
- Water Resources Management (Post-Graduate)
- Project Planning & Management(Post-Graduate)
- Fluid Mechanics (Graduate)
- Water Conveyance Systems (Graduate)
- Hydraulic Machines & Water Power(Graduate, Post-Graduate)
- Groundwater Hydrology (Graduate, Post-Graduate)
- Open Channel Flow & Sediment Transport (Graduate, Post-Graduate)

### **Awards/Fellowships**

- Government of India Scholarship for M.E. studies
- Government of India Scholarship for PhD studies
- British Hydrological Society Overseas Conference Fellowship (1998, 2004)
- International Association for Hydrological Sciences Conference Fellowship

(2002)

- Research paper awarded Gold Medal for Best Paper in the National Seminar on Signals, Data & System Modeling, Simulation & Analysis, 1995, Bhatkal, India
- ‘Best Paper in Conference Theme’, International Conference on ‘Water, Environment, Energy and Society’ (ICWEES 2016), held at Bhopal during March 15-19, 2016.

### **Professional Memberships**

- Member, International Association for Hydrological Sciences
- Life Member, Indian Society for Technical Education
- Life Member, Indian Society for Geomatics

### **Research & Development Activities**

#### **1. Sponsored R&D Projects**

1. **2016 – ongoing ‘Plastic waste management system’**, Technical Education Quality Improvement Program (TEQIP) (PI: Dr. Pruthvi)
2. **Proposal Pending approval** with Ministry of Water Resources, Govt of India since Jan 2013: “*Climate change impact assessment on the water resources of Cauvery basin*”. Lead institution: IIT Madras. Participating institutions: IISc, NITK, TN Agricultural University, Anna University. Funding request: Rs. 3.92 crores (Rs. 42 lakhs for NITK)
3. **December 2006 – 2009 ‘Characterization of Groundwater Flow Regime in Fractured Aquifer System’**, All India Council for Technical Education - Nationally Coordinated Project (NCP) Scheme (Principal Investigator: Dr. M. Sekhar, IISc, Bangalore)
4. **2004-2005 ‘Modernization of Remote Sensing & GIS Laboratory’**, Ministry of Human Resources Development, Government of India (Co-Coordinator: Dr. Ambha Shetty)
5. **2002-2005 ‘Integrating Remote Sensing, GIS and Hydrological Modelling for Assessment of Rural Water Supplies’**, Indian Space Research Organization (Co-Investigator: Dr. Ambha Shetty)
6. **2001-2003 ‘Watershed Characterization using Parallely-processed Remote Sensing Data’**, Ministry of Information Technology, Government of India (Co-Investigators: Prof. MC Narasimhan, Dr. Ambha Shetty)
7. **2001-2003 ‘Catchment-scale Groundwater Recharge Estimation using Remote Sensing & GIS’**, Ministry of Human Resources Development, Government of India
8. **1997-2000 ‘Studies on the development & management of water harvesting structures for lateritic soils of West Coast Region’**, Indian Council for Agricultural Research (Co-Investigator: AC Mathews, CPCRI)

## **2. Doctoral Research Supervision**

### **Awarded:**

1. *Spatial Hydrological Modelling using Remote Sensing & GIS* (Dr. Amba Shetty, Feb 2006)
2. *Modelling Impacts of Climate Change on Irrigated Agriculture in India* (Dr. Gicy Kovoov, July 2006)
3. *Planning and Management of Small Scale Irrigation Schemes in Coastal Uttara Kannada District, Karnataka, India* (Dr. Sandeep Nayak, April 2009)
4. *Hydrologic Regionalization for Flood Predictions in Ungauged Basins in Krishna Basin, India* (Dr. Manoj Mujumdar, June 2010)
5. *Measurement and Modeling of Hydrological Responses under different Land Covers in Sahayadri Mountains, India* (Dr. B. Venkatesh, July 2011)
6. *Evaluation of a Satellite-based Evapotranspiration Model in a Humid Tropical Region* (Dr. Keerthi Laxmi, April 2015)
7. *Assessment of Variable Source Area Hydrological Models in Upper Cauvery Basin, Karnataka, India* (Dr. Kumar Raju, February 2016)
8. *Assessment of hydrological impacts of land cover changes and climate variability in the Geba catchment, Ethiopia* (Dr. Gebremedhin Kiros Hailu, October 2016) Co-guide: Dr. Amba Shetty

### **Ongoing:**

1. *Regional Evapotranspiration Modeling using Remote Sensing Imagery* (Mr. Sanjay Shekar) (PT)
2. *Hydrological impacts of water withdrawals in the Malaprabha Basin* (Ms. Usha) (FT)
3. *Surface water hydrology* (Mr. Niranjana) (FT)
4. *Surface water hydrology* (Mr. Hiremath) (PT)

### **3. Master's Students Dissertation Supervision**

1. *Characterization of urban heat island and its effect on rainfall – case study of Chennai City* (Pradeep S, 2016)
2. *Identifying variable source areas in a humid tropical catchment using water spectral indices* (Destimona Borah, 2016)
3. *Modeling sediment yield in Netravathi river basin using SWAT* (Alka Abraham, 2016)
4. *Comparison of two algorithms for estimation of actual evapotranspiration using satellite data* (Jagdeesh, 2016)
5. *Performance evaluation of SWAT model in the Upper Cauvery river basin, Karnataka, India* (Anand Sagar, 2016)
6. *Calibration of modified Blaney-Criddle equation to compute reference evapotranspiration at selected locations in Karnataka state, India* (Nigee K, 2015)
7. *Hydrological modeling of Upper Cauvery river basin using the VIC model* (Shakir Shabir, 2014)
8. *Assessment of land surface temperature variability over Mangalore City using satellite data* (Rajisha C, 2014)
9. *Assessment of long term groundwater balance components of the Thippagondanahalli reservoir catchment, Karnataka* (Shilpa D N, 2014)
10. *Evaluation of economic value of Pilikula Lake using Travel Cost and Contingent Evaluation Methods* (Jala, 2013)
11. *Simulation of climatic sensitivity of hydrologic variables in Nethravathi basin using SWAT model* (Bibin H, 2013)
12. *Modeling the hydrology of a humid river basin using SWAT* (Sanjay Sekhar, 2012)
13. *Hydrologic delineation of Krishna basin by scaling of flood frequency curves* (Abha, 2012)

14. *Application of SWAT model to a humid tropical river basin* (Mohan Kumar, 2011)
15. *Estimation of regional actual evapotranspiration in Netravathi basin using MODIS data* (Kavyashree, 2011)
16. *Prediction of flow duration curves for ungauged sites in Krishna Basin* (Nruthya, 2011)
17. *Reliability analysis of steel column* (Kedar Deo, 2011)
18. *Modeling regional actual evapotranspiration in Netravathi basin using satellite data* (Kumar Raju, 2010)
19. *Reliability analysis of steel beam* (Harsha SV, 2009)
20. *Analysis of temporal and spatial variations in rainfall in coastal Karnataka* (Shreenivas K, 2008)
21. *Modeling Pedo Transfer Functions using Neural Networks and Multivariate Statistical Methods* (P Raja Sekhar Reddy, 2006)
22. *Evaluation of Reliability based design of rubble mound breakwater* (Anil Kumar, 2005)
23. *Prediction of Flow Duration Curves in Ungauged Basins of Coastal Karnataka and Kerala* (Rajaram R, 2005)
24. *Estimation of Catchment-scale irrigation water requirements using RS/GIS* (Sangeeta T, 2004)
25. *Distributed Hydrological Modelling using RS/GIS* (Rajesh M, 2004)
26. *Regionalized Rainfall Runoff Relationships for Coastal Karnataka* (Y Rama Mohana Rao, 2003)
27. *Catchment Scale flow routing* (M Venkata Sowjanya, 2002)
28. *Irrigation Scheduling model for field crops* (K Rousseau, 2002)
29. *Discharge measurement in open channels using mobile prisms* (J Krishna, 2000)
30. *Application of SWAT model to a humid river basin* (Murali Mohan, 2000)
31. *Detection of shoreline changes and island morphology using RS* (Suresh Babu, 2000)

32. *Performance evaluation of Pedotransfer Functions across soil textures* (Vijayalatha, 1999)
33. *Study of stream-aquifer interactions in Gurpur river basin* (Hari Krishna, 1999)
34. *Estimation of unsaturated soil hydraulic properties using Artificial Neural Networks* (Somanth Kori, 1998)
35. *Water Balance of Crop Root Zone-Development and Test of a Daily Simulation model* (Ramakrishna Sarma, 1997)
36. *A Simulation study on conjunctive use of surface water and ground water for irrigation* (Shashidhara Reddy, 1996)
37. *Possible impacts of landuse and climate changes on streamflow - Simulation of the Gurpur River Basin* (M Mrinalini, 1996)
38. *Application of a monthly rainfall runoff model to river basins of D.K.District* (B M Dodamani, 1995)
39. *Location Dependent variability of rainfall in D.K.District* (Thippeswamy, 1995)
40. *A study on variability of runoff in the rivers of D.K.District* (Thimmiah, 1994)
41. *Soil plant atmosphere relationships in arecanut cocoa mixed cropping system at Vittal* (VijayaKumar, 1990)
42. *Impact of salinity on growth and yield of rice crop in D.K. soils A case study* (Ramesh BR, 1989)
43. *Studies on infiltration from trickle source in cropped vs. uncropped sandy loam soils of Coastal Karnataka* (Girish MB, 1988)
44. *Agro climatological studies of Southern Dakshina Kannada District in relation to plantation crops* (A Mahesha, 1987)

#### **4. Graduate Students Dissertation Supervision**

1. *Analysis of water hammer in pipes using ENO scheme* (Udayaprakash Bhat, 1998)
2. *Spatial Analysis of rainfall using ANN and kriging* (Srirang, 1999)
3. *Runoff estimation using GIS* (Hemant Upadhya, Sushmita & Srikant, 2000)

4. *Rainfall forecasting using neural networks* (Harsha Bhat, Jayathri, Tomson, 2001)
5. *Estimation of streamflow from rainfall- Comparison of statistical and ANN approaches* (P Sen, R Paul, P Surendra, 2002)
6. *Estimation of irrigation water requirements using RS and GIS techniques* (BK Singh, SRD Sharma, H Rastogi, Swetha Singh, 2003)
7. *Spatial interpolation of point rainfall to a grid system* (Ann Mathew, Sarah Z, Suganya, 2003)
8. *Spatial interpolation of rainfall considering orographic effects* (Vivek Desai, Ajay Venu, 2006)
9. *Design of rooftop rainwater harvesting system for tropical regions* (Bhaskar Baruah, Tanshumon Das, 2006)
10. *Flow duration curves for coastal Karnataka* (Murali J, Sudipto M, 2007)
11. *Development of regression models for prediction of evaporation* (Radhika N, Pratibha N, Babita N, 2007)
12. *Flood Prediction Models for Ungauged Basins in Krishna Catchment* (Eshita Jha, Priya M.K, 2007)
13. *Development of fuzzy regression models for prediction of evaporation* (Naganand, Julian G, 2007)
14. *Analysis of Solar Groundwater Stills and its soil properties* (Vignesh U & Prasanna Kumar R, 2009)
15. *Computation of Mannings Roughness Coefficient by Fuzzy Logic Approach* (Nayan Jyoti & Bijit Das, 2009)
16. *Flood Frequency Analysis for Krishna Basin* (Deepak Ray, 2009)
17. *Feasibility studies for vented dam across Pavanje river* (Aslam, Sourabh, Mishra, 2010)
18. *Studies on solar Groundwater Stills* (Abhishek, Nahata, Omkar, Pavan, 2010)
19. *Baseflow separation for Netravathi river* (Swastika Singh, 2016)
20. *Trend analysis of extreme climate indices for Kaveri river basin* (Arpan Chandrashekar, Mohammed Habibullah, Rajkumar Maurya, 2016)



## **Industrial Consulting**

1. **1991-92** *Reclamation of water logged areas*, Hindustan Aeronautics Limited, Bangalore (Assistance to: Prof. Rama Prasad, IISc, Bangalore)
2. **1992** *Hydrological studies for Cauvery water dispute tribunal*, Government of Karnataka (Assistance to: Prof. Rama Prasad, IISc, Bangalore)
3. **1993-94** *Rainfall runoff modelling and water resources assessment for DK district*, Danish International Development Authority (DANIDA)
4. **1997** *Design of water distribution network*, Cogentrix Power Company (Co-Investigator: Prof. Rama Murthy, NITK)
5. **1998** *Surface Drainage studies*, Mangalore Refineries & Petrochemicals Limited (Co-Investigator: Prof. Rama Murthy, NITK)
6. **1998** *Failure analysis of non-return valve*, New Mangalore Port Trust, (Co-Investigator: Prof. Rama Murthy, NITK)
7. **2000** *Reclamation of water logged areas*, Mangalore Refineries & Petrochemicals Limited (Co-Investigator: Prof. SG Mayya, NITK)
8. **2005** *Design of Vented Dam across Gurpur River*, Government of Karnataka (Co-Investigator: Prof. SG Mayya, NITK)
9. **2007** *Design of surface drainage system for Chitrapur area, Mangalore*, Asha City Builders & Developers (Co-Investigator: Dr. Amba Shetty)
10. **2007** *Technical Feasibility of Baje Mini Hydel Scheme*, Corporation Bank (Co-Investigator: Prof. Uday Kumar Y)
11. **2007** *Adequacy study of existing raw water system of MRPL*, Mangalore Refinery & Petrochemicals Ltd. (Co-Investigators: Dr. A. Mahesha, Sri K. Subrahmanya)

## **Publications**

### **Refereed Papers**

1. A.Mahesha & **L. Nandagiri**. Influence of Weather Variables on Coconut Yield. *Mausam* (formerly Indian Meteorological Journal), 44(1); 102-104.1993.
2. **L.Nandagiri** & Rama Prasad. Field Evaluation of Unsaturated Hydraulic Conductivity Models and Parameter Estimation from Retention Data. *Journal of*

- Hydrology*, (Elsevier) 179 (1-4):197-205.1996.
3. **L.Nandagiri** & Rama Prasad. Relative Performances of Textural Models in Predicting the in-Situ Soil Moisture Characteristic. *Journal of Irrigation and Drainage Engineering* (ASCE), 123(3):211- 214.1997.
  4. **L.Nandagiri**, M.Thippeswamy & G.S.Somantha. Location Dependent Variability of Monsoon Rainfall in a Tropical Region. *ISH Journal of Hydraulic Engineering*, (Taylor & Francis), 3(1):1-10.1997.
  5. **L.Nandagiri**, Amba Shetty & Somanth Kori. Pedo Transfer Functions- An exploration using artificial neural networks. *International Groundwater Symposium 2002*, 25-28 March 2002, Berkeley, USA.
  6. **L. Nandagiri** and Jan de Leeuw. Scaling Soil Water Retention Curves using a Correlation Coefficient Maximization Approach (January 1, 2003). *Department of Statistics, Univ. of California Los Angeles. Department of Statistics Papers*. Paper 2003010103. <http://repositories.cdlib.org/uclastat/papers/2003010103>
  7. **L. Nandagiri** & Gicy Kovoov. Sensitivity of Food and Agriculture Organization Penman-Monteith Reference Evapotranspiration estimates to alternative procedures for estimation of parameters. *Journal of Irrigation and Drainage Engineering* (ASCE) 131 (3): 238-248. 2005.
  8. Amba Shetty, **L. Nandagiri**, Sangeeta T & Rajesh. Land use/Land cover mapping using satellite data for a forested watershed in Udupi District, Karnataka, India. *Journal of Indian Society for Remote Sensing*, (Springer), 33(2): 233-238. 2005.
  9. **L. Nandagiri**, Bore Gowda and Amba Shetty. In-situ characterization of Unsaturated Soil Hydraulic properties of a laterite soil profile in Coastal Karnataka. *ISH Journal of Hydraulic Engineering*, (Taylor & Francis), 12(1): 87-98. 2006.
  10. **L. Nandagiri** & Gicy Kovoov. Performance Evaluation of Reference Evapotranspiration Equations across a range of Indian Climates. *Journal of Irrigation and Drainage Engineering* (ASCE) 132(3): 238-249. 2006.
  11. Gicy Kovoov and **L. Nandagiri**. Development of Regression Models for Predicting Pan Evaporation from Climatic Data – A Comparison of Multiple Least-squares, Principal Components and Partial Least-squares Approaches. *Journal of Irrigation and Drainage Engineering* (ASCE) 133 (5), 444-454.2007.
  12. Sandeep Nayak and **L. Nandagiri**. Characterization of small-scale groundwater irrigation schemes in a humid coastal region of southern India. *Journal of Tropical Agriculture* 47 (1-2): 37-42. 2009.

13. Sandeep Nayak and **L. Nandagiri**. Climate Analysis for Regional Irrigation Planning. *ISH Journal of Hydraulic Engineering*, (Taylor & Francis), 16(1), 57-68. 2010.
14. Venkatesh B, **L. Nandagiri** and Purandara, B.K. Analysis of Observed soil moisture patterns under different land covers in Western Ghats, India. *Journal of Hydrology*, (Elsevier), 397 (3-4), 281-294, 2010.
15. Manoj Mujumdar and **L. Nandagiri**. Regional Flood Estimation at Ungauged sites in Upper Krishna Basin, India. *International Journal of Water Resources and Environmental Management*, 1 (2), 173-190, July-Dec 2010.
16. Venkatesh B, **L. Nandagiri** and Purandara, B.K. Soil water fluxes under different land covers – a case study from Western Ghats, India. *International Journal of Earth Sciences & Engineering*, 04(02), 268-278, 2011.
17. Venkatesh B, **L. Nandagiri**, Purandara, B.K, and Reddy, V.B., Modeling soil moisture under different land covers in a sub-humid environment of Western Ghats, India. *Journal of Earth System Science*, (Springer), 120, No. 3, 387–398 June 2011.
18. J.M. Vouillamoz, A. Legchenko and **L. Nandagiri**. Characterizing aquifers when using magnetic resonance sounding in a heterogeneous geomagnetic field. *Near Surface Geophysics*, 9, 135-144, 2011.
19. J.-M. Vouillamoz, J. Hoareau, M. Grammare, D. Caron, **L. Nandagiri**, and A. Legchenko. Quantifying aquifer properties and freshwater resource in coastal barriers: a hydrogeophysical approach applied at Sasihithlu (Karnataka state, India). *Hydrol. Earth Syst. Sci.*, 16, 4387–4400, 2012.
20. Manoj Mujumdar and **L. Nandagiri**. Overview of Regional Flood Frequency Analysis. *International Journal of Earth Sciences & Engineering*, 06- 5(1), October 2013.
21. Keerthi Laxmi, **L. Nandagiri**. Vegetation dynamics in a tropical river basin inferred from MODIS satellite data. *International Journal of Earth Sciences & Engineering*, 06(6), Dec. 2013.
22. Venkatesh B, **L. Nandagiri** and Purandara, B.K. Hydrological impacts of afforestation - a review of research in India. *Journal of Forestry Research*, (Springer), 25(1), 37-42, 2014.
23. Manoj Mujumdar, Thorvat A.R. and **L. Nandagiri**. Development of regional flood formulas for predictions in ungauged basins of Upper Krishna River basin, India. *International Journal of Global Initiatives*, 3(1), A78-A95, 2014.

24. Keerthi Laxmi and **L. Nandagiri**. Latent heat flux estimation using trapezoidal relationship between MODIS land surface temperature and fraction of vegetation – Application and validation in a humid tropical region. *Remote Sensing Letters*, 5(11), 982-991, 2014.
25. Kumar Raju B. C. and **L. Nandagiri**. Identification of hydrologically active areas in a watershed using satellite data. *Aquatic Procedia* (Elsevier), 4 (2015), 1339-1344, 2015.
26. Jala and **L. Nandagiri**. Evaluation of economic value of Pilikula Lake using travel cost and contingent valuation methods. *Aquatic Procedia* (Elsevier), 4 (2015), 1315-1321, 2015.
27. Venkatesh B., **L. Nandagiri** and Purandara B. K. Analysis of temporal stability of observed soil moisture under plantation forest in Western Ghats of India. *Aquatic Procedia* (Elsevier), 4 (2015), 601-608, 2015.
28. Kumar Raju B.C. and **L. Nandagiri**. Evaluating uncertainty of Soil and Water Assessment Tool (SWAT) model in the Upper Cauvery Basin, Karnataka, India. *International Journal of Earth Sciences & Engineering*, 08(4), 1675-1681. Aug. 2015.
29. Kiros G, Amba Shetty and **L. Nandagiri**. Performance Evaluation of SWAT Model for Land Use and Land Cover Changes in Semi-Arid Climatic Conditions: A Review. *Hydrology Current Research*, 6 (3), 2015, doi:10.4172/2157-7587.1000216
30. Kiros, G., Shetty, A. & **Nandagiri, L.** Analysis of variability and trends in rainfall over northern Ethiopia. *Arabian Journal of Geosciences*, (Springer) 9: 451. doi:10.1007/s12517-016-2471-1, 2016.
31. Kumar Raju B. C. and **Nandagiri, L.** Analysis of Historical Trends in Hydrometeorological Variables in the Upper Cauvery Basin, Karnataka, India. *Current Science*, 112(3), 577-587, February 2017.
32. Kumar Raju B.C. and **L. Nandagiri**. Application of Variable Source Area Hydrological models in humid tropical watersheds located in Upper Cauvery Basin, India. *International Journal of River Basin Management*, [Under Review] Dec 2016.
33. Kiros, G., Shetty, A. & **Nandagiri, L.** Extreme Rainfall Signatures under Changing Climate in Semi-arid Northern Highlands of Ethiopia. *Cogent Geoscience*, [Under Review], March 2017.

## **Books**

1. Kumar Raju and **L. Nandagiri** . *Modeling Regional Actual Evapotranspiration using Satellite Data over Netravathi Basin*. LAP Lambert Academic Publishing, ISBN 978-3-8454-0973-3, Paperback, 68 Pages, July 2011
2. B. L. McGlynn\*, G. Blöschl, M. Borga,, H. Bormann, R. Hurkmans, J. Komma, **L. Nandagiri**, R.Uijlenhoet, T. Wagener: Contributing authors to Chapter 3 A data acquisition framework for prediction of runoff in ungauged basins in the book Run-off Prediction in Ungauged Basins: A Synthesis Eds. Günter Blöschl, Murugesu Sivapalan, Hubert Savenije and Thorsten Wagener, Cambridge Press, UK (May 2013)

## **Book Chapters**

1. **L.Nandagiri** & M. Mrinalini. Climatic Sensitivity of streamflow in a humid Indian catchment. In 'Hydrology in a Changing Environment', Wheater & Kirby (Eds.), Vol. I, John Wiley & Sons;163-168.1998
2. **L.Nandagiri** & M.Mrinalini. Impacts of landuse changes on streamflow- Application of a water balance model using satellite data. In 'Remote Sensing Applications', MG Srinivas (Ed), Narosa Publishing House, New Delhi;161-166.2001.
3. **L. Nandagiri** (2003). Traditional to Digital Libraries: Problems and Challenges. In 'Challenges in Delivering Quality Services in Management and Technical Libraries', Manjunatha K et. al (Eds.), Allied Publishers Pvt. Ltd., 219-224.
4. **L. Nandagiri** & Amba Shetty. (2003). Streamflow Estimation from Rainfall- A Comparison of Statistical and Artificial Neural Network Approaches. In 'Advances in Hydrology', Singh VP & RN Yadava (Eds.), Allied Publishers Pvt. Ltd., 253-257.
5. **L. Nandagiri** & Amba Shetty (2004). Estimation of Catchment-Scale Irrigation Water Requirements using Remote Sensing and GIS Techniques. In 'Integrated Water Resources Planning and Management', Raju KS et. al (Eds.), Jain Brothers, 137-144.
6. **L. Nandagiri**, Ambha Shetty & MVS Rajesh. (2006). A Hydrologic Model with Identifiable Parameters for Predictions in Ungauged Basins. In 'Predictions in Ungauged Basins for Sustainable Water Resources Planning and Management', Raju K S (Ed.), Jain Brothers, 53-61.

7. **L.Nandagiri**. Calibrating hydrological models in ungauged basins: Possible use of areal ET instead of streamflows. Predictions in Ungauged Basins: PUB Kick-off (Proceedings of the PUB Kick-off meeting held in Brasilia, 20–22 November 2002). *IAHS Publ. 309*, 2007.
8. **L.Nandagiri**. (2007). Simulating contributions of forests to catchment runoff using a semi-distributed hydrologic model. In '*Forest Hydrology*', B. Venkatesh et. al (Eds.), Capital Publishing Company, 111-117.
9. Amba Shetty, **L. Nandagiri**, T. Sangeetha & MVS Rajesh. (2007). Land use-land cover mapping through digital image processing of satellite data: A case study. In '*Forest Hydrology*', B. Venkatesh et. al (Eds.), Capital Publishing Company, 3-15.

### **Conference Proceedings**

1. **L.Nandagiri** & BM Dodamani. Development and Testing of a Catchment Rainfall-Runoff Model. Proc. of the National Seminar on Signals, Data and System Modeling, Simulation and Analysis, 28-30 Nov.1995, Bhatkal, India. Paper awarded **GOLD MEDAL** for Best Paper.
2. K.Ramamurthy, Shashidhara Reddy & **L.Nandagiri**. A Simulation model for design and management of water resource for plantations. Proc. of the National Conference on Emerging Trends in the Development of sustainable Groundwater sources, JNTU, Hyderabad, 27-28 August 1997.
3. **L.Nandagiri**. Areal Evapotranspiration Estimation Using Several Alternative Formulations of the CRAE Hypothesis. Proceedings of the 27th IAHR Congress, San Francisco, 10-15 August, 1997.
4. **L.Nandagiri**. Estimation of aquifer specific yield using a water balance model. Proceedings of the Workshop on 'Groundwater Monitoring Development & Management in Karnataka' organised by Central Groundwater Board at Bangalore on 11th Feb. 2000.
5. **L.Nandagiri** & Y Harikrishna. Analysis of baseflow recession in a humid river basin. Proceedings of the Regional Workshop on Watershed Evaluation, Development & Management in Western Ghats region of India, CWRDM, Calicut, 28-29 Feb. 2000.
6. Amba Shetty, **L.Nandagiri** & Venkatakrishna J. Experimental studies on the use of trapezoidal mobile prisms for discharge measurements in open channels. Proceedings of Conference on Recent advances in Hydraulics & Water Resources Engineering, HYDRO2000, REC, Allahabad Feb. 2001.
7. Amba Shetty, **L.Nandagiri** & T Suresh Kumar. Evolution of geomorphology in the Seetha-Swarna estuary identified using remote sensing data. Proceedings of Conference on Recent advances in Hydraulics & Water Resources Engineering,

HYDRO2000, REC, Allahabad Feb.2001.

8. Amba Shetty, **L.Nandagiri** & Rahim Khan. An algorithm for designing a precipitation network- A case study. Proceedings of HYDRO 2001, 6-7 Dec. 2001, Pune.
9. **L.Nandagiri**. Artificial recharge of groundwater. Proceedings of National Seminar on Groundwater management and rural development, 9-10 Oct. 2002, Bhatkal.
10. Sandeep Nayak & **L.Nandagiri**. Status of irrigated agriculture and groundwater potential in Uttara Kannada District, Karnataka. Proceedings of National Seminar on Groundwater management and rural development, 9-10 Oct. 2002, Bhatkal.
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33. Mujumdar, M.M. and **Nandagiri, L.**, “ Regional Flood Frequency Analysis Using PWM based EV-1 Method” *Proceedings of National Conference on – Emerging Technologies in Civil Engineering-NCETCE 08* at PDVVP College of Engineering, Ahmadnagar, India, 28-29 Feb. 2008.
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40. Kumar Raju B.C., **L. Nandagiri**, and Keerthi Laxmi, “Modeling Regional Actual Evapotranspiration over Netravathi Basin using Satellite Data.” *National Conference on Hydraulics, Water Resources, Coastal and Environmental Engineering (HYDRO – 2010)*, organized by Department of Civil Engineering, M. M. University, Mullana (Ambala)
41. Keerthi Laxmi and **L. Nandagiri**, “Using a Trapezoidal Ts-VI Space to Estimate Regional Actual Evapotranspiration in a Humid River Basin.” *National Seminar on Coastal Environments & their Management (2013)*, organised by Department of Marine Geology, Mangalore University. (Awarded 2<sup>nd</sup> prize for Best Presentation)
42. Kumar Raju B C and **L. Nandagiri**, “Application and Test of the SWAT Model in the Upper Cauvery River Basin, Karnataka, India”, *4<sup>th</sup> International Engineering Symposium – IES 2015, Kumamoto University, Japan, 2015*.
43. Kiros G, Amba Shetty and **L. Nandagiri**, “Trend Analysis of Temperature Time Series in Geba River Basin, Northern Ethiopia”, *HYDRO 2015 INTERNATIONAL 20th International Conference on Hydraulics, Water Resources and River Engineering IIT Roorkee, India, 17-19 December, 2015*.
44. Borah, Destimona and **L. Nandagiri**, “Inter-comparison of satellite-derived water indices to map runoff source areas in a humid tropical catchment”, *International Conference on Climate Change Mitigation and Technologies for adaptation (IC3MTA2016)*, Synod College, Shillong, 20-21 June 2016.
45. Kumar Raju B C and **L. Nandagiri**, “Assessing Uncertainty of Variable Source Area Hydrological Model in Harangi watershed”, Accepted for presentation in *37<sup>th</sup> IAHR World Congress, 13-18 August 2017, Kuala Lumpur, Malaysia*.
46. Niyanth Kumar and **L. Nandagiri**, “Baseflow Recession Characteristics of a Tropical River in India”, Accepted for oral presentation in *International Conference on Hydroecology (HydroEco 2017)*, 18-23 June 2017, University of Birmingham, UK.

## **Courses/Events Organized**

- 1.Coordinator for refresher course on 'Hydrology' for Karnataka State PWD Engineers in 1997.
- 2.Coordinator of AICTE-ISTE sponsored 2 week refresher course on 'Hydrological modelling for water resources assessment and management' during 8-20 Jan.2001.
- 3.Organizing Secretary of National Workshop on 'Downsizing Technologies for Rural and Coastal Area Development', 28-29 April 2004
- 4.Vice Chairman, Organizing Committee, National Conference on 'Sustainable Water Resources Management SWaRM 2010', held during January 7-9, 2010 at NITK, Surathkal.
- 5.Convener, Organizing Committee for NITK Golden Jubilee Celebrations (2009-10).

## **Other Professional Activities**

- Associate Editor – ISH Journal of Hydraulic Engineering (Taylor & Francis)
- Reviewer for international journals, '*Hydrological Processes*' (Wiley), '*Agricultural Water Management*' (Elsevier), '*Hydrology Research (Nordic Hydrology)*', '*Journal of Hydrology*' (Elsevier), '*Journal of Irrigation and Drainage Engineering*' (ASCE), '*Current Science*', '*Journal of Hydrologic Engineering*' (ASCE), '*ISH Journal of Hydraulic Engineering*' (Taylor & Francis)
- Member Regional Coordination Committee of National Institute of Hydrology, Belgaum
- Visits Abroad: United States of America (1997, 2002); United Kingdom (1998, 2004); Brazil (2002); The Netherlands (2012), Australia (2016)
- Member Academic Council : Karunya University, Coimbatore
- Member Board of Studies: SJCE, Karunya University
- Talks on 'Water Pollution-Causes and Control' and 'Water Crisis' have been broadcast over All India Radio, Mangalore.
- Delivered over 75 invited lectures
- Former Member-Secretary, NITK Research Advisory Board
- Former Editor, NITK Newsletter 'Waves'

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