

Full Name

Prof. Manoj Kumar

Email

manoj.kumar@cuja.ac.in, msinha09@rediffmail.com

Mobile

+91 9431901969

Address

Department of Environmental Sciences



Orcid Id : <https://orcid.org/0000-0003-0621-6630>



Research Gate Id: <https://www.researchgate.net/profile/Manoj-Kumar-270>



Google Scholar Id: https://scholar.google.co.in/citations?hl=en&tzom=-330&user=qyhQ_vYAAAAJ

[IRINS:](#)

Journal Publications: 96
Sponsored Projects: 16
Book: 01
Book Chapters: 10
Doctoral Students: 09 (Awarded); 07 (Ongoing)

Brief Profile

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Present Position/Address

2017 – Present:	Professor Department of Environmental Sciences School of Natural Resource Management Central University of Jharkhand, Ranchi, Jharkhand, India
2021 – Present:	Dean Academic Affairs Central University of Jharkhand, Ranchi, Jharkhand, India

Past Experiences

January 18, 2018 to January 30, 2024 (January)	Professor & Head, Department of Environmental Sciences, Central University of Jharkhand, Ranchi, Jharkhand, India
June 19-July 30, 2023	Registrar (I/c), Central University of Jharkhand, Ranchi, Jharkhand, India
August 29, 2018 to August 28, 2021	Dean, School of Natural Resource Management, Central University of Jharkhand, Ranchi, Jharkhand, India
	Prof. In-Charge, Academic & Research Cell of CUJ
	Director, IQAC (Internal Quality Assurance Cell) of CUJ
	Coordinator, Admission Cell of CUJ
March, 2015 to May 1, 2019	Dean (I/c), School of Education, Central University of Jharkhand, Ranchi, Jharkhand, India
July, 2014 to 2017	Coordinator, Department of Education, Central University of Jharkhand, Ranchi, Jharkhand, India
2013 (July) – 2017 (December)	Associate Professor & Head, Department of Environmental Sciences, Central University of Jharkhand, Ranchi, Jharkhand, India
2010 (July) – 2013 (June)	Lecturer (Selection Grade), BIT Mesra, Ranchi, Jharkhand, India
2009 (April) – 2010 (July)	Scientific Officer-II, BIT Mesra, Ranchi, Jharkhand, India
2005 (November) – 2009 (March)	Junior Scientific Officer, BIT Mesra, Ranchi, Jharkhand, India
2003 (July) – 2005 (November)	Principal Investigator, DST's Fast Track Project for Young Scientist entitled "Hydrological modelling of land surface processes over Sabarmati river basin" funded by DST, New Delhi
2000 (April) – 2003 (June)	Research Associate, Adhoc project "Study of Land Surface Processes Experiment over wheat crop field" funded by the DST, New Delhi
1999 (June) – 2000 (April)	Research Assistant, LASPEX-97 project, preparation of Project Completion Report, data processing and analysis of LASPEX-97 data

1996 (August) – 1999 (March)	Research Associate, DST's project "LASPEX-97 over Sabarmati river basin"
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Education Qualification

2002	Ph.D. (Geophysics: Land Surface Processes) from Department of Geophysics, Banaras Hindu University, Varanasi, India
	Thesis Title: "Some Studies in Agro-meteorology"
	Supervisor:- Prof.B.R.D. Gupta
1994	M.Sc. (Geophysics) from Banaras Hindu University, Varanasi, Uttar Pradesh, India
1991	B.Sc. (Physics, Chemistry and Mathematics) from Magadh University, Bihar, India
Additional Qualifications/Awards	
<ul style="list-style-type: none"> ▪ ASRB-NET (Agricultural Meteorology) in 2004 ▪ Fast Track Fellowship under DST's SERC-Fast Track Fellowship for Young Scientists (July 2003-November 13, 2005) ▪ Research Associateship by Department of Science & Technology, Government of India (August 1996-July 2003) ▪ UGC Merit-Scholarship during M.Sc. (Tech) Program (1993-94) ▪ Special State Merit-scholarship during High School (1984-1989) 	

Research and Teaching Experience

Research Field:	Land Surface processes studies, Role of land surface processes in climate using energy balance model, Relationships between climate variability and climate change, and crop yields.	
Post Ph.D. Experience	14 Years	
Teaching Experience	25 Years	
Scholars/Students: Supervising	Ph.D.: 07	M.Sc.: 05
Scholars/Students: Supervised	Ph.D.: 09	M.Sc.: 43

Research Projects and Consultancy

1. Title: Hydrological modelling of land surface processes over Sabarmati river basin. Funding agency- DST, Gol, New Delhi, 8.34 Lakhs (PI of the Project, Completed)
2. Development of forest fire forecasting system of Jharkhand state using statistical techniques and GIS (CI). Funding agency- NRDMS, DST, New Delhi, 29 Lakhs (Co-PI of the Project, Completed)
3. Observational study of land surface atmosphere interaction in the monsoon trough along its active eastern end (CI). Funding agency- DST, Gol, New Delhi, 66 Lakhs (Co-PI of the Project, Completed)
4. Training course on "Basic concepts on micrometeorology, land surface processes: its observational techniques and analysis". Funding agency- DST, Gol, New Delhi under CTCZ scheme, 7.35 Lakhs (Course-Coordinator. Completed)
5. Short-term oscillation study of surface boundary layer during total solar eclipse. Funding agency- ISRO (HQ). 2.0 Lakhs (PI of the Project, Completed)
6. Energy & Mass Exchange in Vegetative System (Under Collaborative mode). Funding Agency- SAC (ISRO), Ahmedabad. 11.0 Lakhs (released so far) (PI of the Project, Completed)
7. Monitoring and detection of lightening system. Funding agency- Government of Jharkhand. 75 Lakhs (Co-investigator of the project, Completed)
8. Training Program on Weather, Climate and Meteorological Hazards & Disasters over Jharkhand region. Funding agency- MoES, Gol. 3.5 Lakhs (PI of the project, Completed)
9. An ARFI network observatory at BIT, Mesra, Ranchi. Funding agency- ISRO-GBP Programme. 35.0

Lakhs+MWR(@ 1.0 Crore) (PI of the project, Completed)
10. ABLN&C Programme at BIT Ranchi. Funding Agency- SPL, VSSC Trivandrum. 60.0 Lakhs+Instruments (@ 1.0 Crore) (PI of the project, Completed)
11. Satellite Application in Land Surface Atmosphere coupled study over eastern part of the country. Funding agency-SAC, Ahmedabad. 13.0 Lakhs (PI of the project, Completed)
12. Long-term study on aerosol monitoring system (Under collaboration with IITM, Pune). Instruments @ 25.0 Lakhs
13. Surface process observational studies coupled with atmospheric transfer interaction along eastern end of monsoon trough. Funding agency- MoES, Gol, New Delhi. 53.0 Lakhs (PI of the project, Completed)
14. Establishment of PRWONAM station at BIT Mesra, Ranchi. Funding agency- ISRO HQ. Instruments are being supplied @ 60.0 Lakhs (PI of the project, Completed)
15. INSAT-3D data utilization project. Funding agency- SAC, Ahmedabad. 3.0 Lakhs released (PI of the project, Completed)
16. DST-FIST. Funded by DST, Gol. Infrastructure Project

Courses Taught

1. Post Graduate: M.Sc., Integrated M.Sc.
2. Under Graduate: Integrated UG-PG
3. Ph.D.: Course Work

Additional roles/ responsibility

1. Dean, Academic Affairs

Publications

Total Research Paper(Published/proceedings/presented): 235

1. In Referred International/National Journals	: 96
2. Popular Article	: 01
3. Proceedings in International Conf./Seminar/Symposium	: 02
4. Proceedings in National Conf./Seminar/Symposium	: 33
5. Book	: 01
6. Book Chapters	: 10
7. Scientific Report	: 02
8. Paper presented in International/National Conf./Sem./Symp.	: 90

List of Selected Papers:

- Swain, A. A., Sharma, P., Keswani, C., Minkina, T., Tukkaraja, P., Gadhamshetty, V., ... & Wong, M. H. (2024). The efficient applications of native flora for phytorestoration of mine tailings: a pan-global survey. *Environmental Science and Pollution Research*, 1-26. **Impact Factor: 5.8**
- Singh, A. K., Kumar, M., Baudhdh, K., Singh, A., Singh, P., Madhav, S., & Shukla, S. K. (2023). Environmental impacts of air pollution and its abatement by plant species: A comprehensive review. *Environmental Science and Pollution Research*, 30(33), 79587-79616. **Impact Factor: 5.8**
- Shashank Shree and Manoj Kumar (2023). Assessment of the Impact of Land Use and Land Cover Change on Hydrological Components of the Upper Watershed of Subarnarekha River Basin, Jharkhand, India Using SWAT Model, September 2023, [Water Conservation Science and Engineering](#) 8(1), DOI: [10.1007/s41101-023-00224-w](#). **Impact Factor: 2.0**
- Chakravarty, P., & Kumar, M. (2023). Observational studies on turbulent energy and its dissipation, drag, momentum and wind components during thunder and dust storm events at an Eastern Indian city, Ranchi.
- Chhabra, K., Kumar, M., & Mangai, P. Weather Forewarning Based Contingency Plan: Efficient in Crop Planning for Farmers of Baramulla. *Journal of Community Mobilization and Sustainable Development* (pp. 840-846).
- Swain, A. A., Oraon, R., Baudhdh, K., & Kumar, M. (2022). Biowaste valorization for production of bacterial

cellulose and its multifarious applications contributing to environmental sustainability. *Environmental Sustainability*, 5(1), 51-63.

7. Dixit, S., Tracy, P., Vishnoi, N., Swain, A. A., Bauddh, K., & Kumar, M. (2022). Phytoremediation of heavy metal contaminated soil in association with arbuscular mycorrhizal fungi. In *Advances in Microbe-assisted Phytoremediation of Polluted Sites* (pp. 207-230). Elsevier. **IF-4.6**
8. Nishi Srivastava a, Jaya Divyama, Upamanyu Ghosha, Madhu Priyaa, Nisheeth Saxenab and Manoj Kumar.2022. Statistical and spectral analysis of wind over a strategic location. *Journal of Water and Climate Change Vol 13 No 9*, 3305 doi: 10.2166/wcc.2022.113. **IF-2.8**
9. Kumar, R., Thangaraju, M. M., Kumar, M., Thul, S. T., Pandey, V. C., Yadav, S., ... & Kumar, S. (2021). Ecological restoration of coal fly ash–dumped area through bamboo plantation. *Environmental Science and Pollution Research*, 28, 33416-33432. **Impact Factor: 5.8**
10. Kumari, K., Swain, A. A., Kumar, M., & Bauddh, K. (2021). Utilization of *Eichhornia crassipes* biomass for production of biochar and its feasibility in agroecosystems: a review. *Environmental Sustainability*, 4(2), 285-297.
11. Parida, B. R., Bar, S., Roberts, G., Mandal, S. P., Pandey, A. C., Kumar, M., & Dash, J. (2021). Improvement in air quality and its impact on land surface temperature in major urban areas across India during the first lockdown of the pandemic. *Environmental research*, 199, 111280. **Impact Factor: 8.3**
12. Piyush Srivastava, Maithili Sharan, and Manoj Kumar.2021. A note on surface layer parameterizations in the weather research and forecast model. *Dynamics of Atmospheres and Oceans, Volume 96, article id. 101259*,10.1016/j.dynatmoce.2021.101259. 96, December 2021, 101259. IF-1.9
13. Bikash Ranjan Parida,Somnath Bar, Nilendu Singh, BakimchandraOinam, Arvind Chandra Pandey, Manoj Kumar. 2021. A short-term decline in anthropogenic emission of CO₂ in India due to COVID-19 confinement. *Progress in Physical Geography*. 1–17DOI: 10.1177/0309133320966741. journals.sagepub.com/home/ppg. **IF-3.8**
14. Chakravarty, Poulomi & Kumar, Manoj. 2020. Trend Analysis and ARIMA Modeling to Assess Meteorological and Surface Parameters in Ranchi, India During Pre-Monsoon Months. *GIS Business*. 15. 69-87. 10.26643/gis.v15i2.18899.
15. Chakravarty, Poulomi & Kumar, Manoj. 2020. Mann-Kendall Trend analysis of weather parameters (1901-2002) of 4 districts with different land use pattern of Jharkhand during pre-monsoon period. *Studies in Indian Place Names* 40.3 (2020): 2391-2404.
16. Shree, S., Kumar, M., & Singh, A., 2020.Exploring spatial and temporal trends of diurnal temperature range in the region of the Subarnarekha river basin India. *Spat. Inf. Res.* <https://doi.org/10.1007/s41324-020-00341-x>**Impact Factor: 2.4**
17. Aditya Kumar Dhuria, Piyush Srivastava, Maithili Sharan, Manoj Kumar.2020. On stability correction functions over the Indian region under stable conditions. *Meteorological Applications*, Royal Met. Soc., DOI: Meteorol Appl. 2020;27:e1880. <https://doi.org/10.1002/met.1880>, January, 2020. 1350-4827, IF-2.451
18. Smriti Priya and Manoj Kumar. 2020. Seasonal Variation in meteorological parameters and formation of aerosols in bird’s “Rinchi” place RANCHI. *GIS Business, Vol-15-Issue-3-March-2020. 1430-3663*
19. Poulomi Chakravarty and Manoj Kumar. 2020. Trend Analysis and ARIMA Modeling to Assess Meteorological and Surface Parameters In Ranchi, India During Pre-Monsoon Months. *GIS Business*, ISSN: 1430-3663, 15(3)
20. Poulomi Chakravarty and Manoj Kumar. 2020. Land Surface Processes and models: A Review. *Studies in Indian Place Names*, 40(3), 2394-3114.
21. Poulomi Chakravarty & Manoj Kumar. 2020. Mann-Kendall Trend analysis of weather parameters (1901-2002) of 4 districts with different land use pattern of Jharkhand during premonsoon period. *Studies in Indian Place Names*, 40(3), 2394-3114.
22. Piyush Srivastava,| Maithili Sharan, Manoj Kumar, and Aditya Kumar Dhuria. 2020. On stability correction functions over the Indian region under stable conditions. *Meteorol Appl.* 27:e1880, 1350-4827, **IF-2.451**
23. Kavita Parmar, Smriti Priya, Manoj Kumar. 2019. An Overview on Biomass Burning Emissions and Its Impact on Environment. *International Journal of Innovations in Engineering and Technology (IJJET)*. <http://dx.doi.org/10.21172/ijjet.134.15> July 2019,2319-1058 **IF-0.672**
24. Piyush Srivastava, Maithili Sharan & Manoj Kumar. 2019. Development of observation-based parameterizations of standard deviations of wind velocity fluctuations over an Indian region. *Theoretical and Applied Climatology*. <https://doi.org/10.1007/s00704-019-02999-2>, Springer Nature, September 2019, 139, 1057-1077. **IF-3.41**
25. Chandra, S., Srivastava, N., & Kumar, M., 2019. Vertical structure of atmospheric boundary layer over Ranchi during the summer monsoon season. *Meteorol Atmos Phys* 131, 765-773.

<https://doi.org/10.1007/s00703-018-0600-y> Impact Factor: 2.0

26. Shree, S., Kumar, M., 2018. Analysis of seasonal and annual rainfall trends for Ranchi district, Jharkhand, India. *Environ Earth Sci* 77, 693. <https://doi.org/10.1007/s12665-018-7884-6> Impact Factor: 2.8
27. Latha, R., Murthy, B. S., Lipi, K., Srivastava, M. K., & Kumar, M., 2016. Absorbing aerosols, possible implication to crop yield-a comparison between IGB stations. *Aerosol and Air Quality Research*, 17(3), 693-705. **Impact Factor: 4.0**
28. Tyagi, B., Satyanarayana, A. N. V., Kumar, M., & Mahanti, N. C. (2012). Surface energy and radiation budget over a tropical station: an observational study. *Asia-Pacific Journal of Atmospheric Sciences*, 48, 411-421. **Impact Factor: 2.3**
29. Jyotsna Singh, Bimal K Bhattacharya, Manoj Kumar and K. Mallik. 2013. Modeling Monthly Diffuse Solar Radiation Fraction and its Validity over Indian Sub-Tropic. *Int. J. of Climatology*, Wiley Publication, 2013, Volume 33, Issue 1, pages 77–86. **Impact Factor: 3.609**
30. Singh, J., Bhattacharya, B. K., & Kumar, M. (2012). Solar radiation and evaporation trend over India. *Journal of Earth Science and Engineering*, 2(3).
31. Singh, Jyotsna M. Kumar and Bimal K. Bhattacharya. 2012. Global Radiation, Transmissivity and Bright Sunshine Hour trend over Nagpur. *Atmospheric and Climate Sciences*, Scientific Research Publishing, USA. **Impact Factor: 0.68**

Editorials, Books and Book Chapters

Books

1. Name of Edited Book: Land surface and micrometeorological processes over trough
Editors: Anil Kumar, **Manoj Kumar** and N.C. Mahanti
Publisher: International publisher house
Year of Publication: 2015
ISBN: 978-3-659-50016-9

Book Chapters

1. Swain, A. A., Dwivedi, N., Baudhdh, K., & Kumar, M. (2022). Role of microorganism in phytoremediation of mine spoiled soils. In *Advances in Microbe-assisted Phytoremediation of Polluted Sites* (pp. 379-400). Elsevier. ISBN: 978-0-12-823443-3
2. Dixit, S., Tracy, P., Vishnoi, N., Swain, A. A., Baudhdh, K., & Kumar, M. (2022). Phytoremediation of heavy metal contaminated soil in association with arbuscular mycorrhizal fungi. In *Advances in Microbe-assisted Phytoremediation of Polluted Sites* (pp. 207-230). Elsevier. ISBN: 978-0-12-823443-3

Conferences and Seminars

In India

1. INTROPMET – International Conference on Tropical Meteorology held at New Delhi during Dec 2-5, 1997.
2. National seminar on "Advance Physical.... Sustainable Crop Production" March 23-25, 1998, IARI, Delhi, India.
3. National Seminar on Ground Water Resources (GWR-98), July 23-24, 1998, BHU, Varanasi, India.
4. National Seminar on "Agrometeorological research for sustainable agricultural production" at GAU, Anand held at September 27-28 2001.
5. National Seminar on "Emerging trends in Agricultural Physics" at IARI, New Delhi during April 22-24, 2003.
6. National Seminar on "Agrometeorology in the new millennium-Prospectives and challenges" during October 29-31, 2003 at PAU, Ludhiana
7. National Seminar on "Water Resources Management & people's participation" at Water Resources Engg. & Management Instt., Samiala, December 10-11, 2004.
8. National Seminar on "Monsoon-2005: Ancient & Modern Techniques" organized by AAU, Anand & Govt. of Gujarat held at MGPI, Ahmedabad on June 20-21, 2005.
9. *Brainstorming Seminar on CTCZ*-organized by DST, Govt. of India, at Ranchi, India, June 28-30, 2005.
10. National Seminar on "Current trends in mathematics and computations" organized by BIT, Noida, December

1, 2005.

11. International Conference on “Mesoscale processes in atmosphere, ocean and environmental systems (IMPA)” at IIT Delhi from February 14-17, 2006.
12. National Conference on New and Renewable Energy-Prospects and Challenges held at BIT Mesra on December 17-18, 2007.
13. 2nd NDIMC conducted by NIDM, New Delhi MoES, GOI, 4-6 November, 2009
14. National Conference on Recent trends in Mathematics and their applications, Dec 21-22, 2012, Vinoba Bhave University Hazaribagh
15. National Conference on “Environmental Challenges and Solutions (NC-ECS 2015)” during 5-6 November 2015 at CSIR-NML, Jamshedpur

In Abroad

16. International Conference on Water and Flood Management (ICWFM), at BUET Dhaka, Bangladesh from March 12-14, 2007.
17. Attended and presented paper in SAARC-STORM Workshop at Kathmandu, Nepal from December 23-25, 2011.

Workshops and Trainings

1. BHU Varanasi- June 25-30, 2012. Training on Application of Crop Simulation Model and Decision Support System in Yield Forecasting.
2. SAARC-STORM Workshop at Kathmandu, Nepal conducted by the SAARC-STORM, Bangladesh from 21-23 Dec 2011.
3. STORM Workshop at IIT Kharagpur conducted by the MoES, GOI on 15th May 2011.
4. National Workshop on NOWROSE (TSE) at VSSC, Trivandrum on 27-28 January 2011.
5. VSSC (ISRO), Trivandrum-December 25-30, 2010. Training for the operation and working of Dr. Pishoroty Radio Sonde System
6. One-week training on Aerosol at University of Helsinki, Hytialla, Finland-22-27 May 2004 (With 5 European Credits)
7. Workshop on CTCZ-PILOT: Initial Results, conducted by Dept. of Science & Technology, GoI in IITM Pune from April 28-30, 2010.
8. CAOS, Indian Institute of Science, Bangalore- April 5-9, 2010 for CTCZ data analysis and sensor calibration
9. SAC (ISRO) Ahmedabad in June 2008 for LSM Model and data utilization of Radiation Model
10. National workshop on “LASPEX-97” at GAU, Anand during 18-20 November 1999.
11. Seven days training for the observation, analysis and interpretation of upper air observation from pilot balloon and radio-sonde observation at IMD, New Delhi, Sep.17-25, 1996
12. Seven days training for the instrumentation, analysis of data, and interpretation at NGRI, Hyderabad, IITM, India as a part of the M.Sc. (Tech) program in 1992

Awards and Honors

International/ National/State

1. Fast Track Fellowship under DST's SERC-Fast Track Fellowship for Young Scientists (July 2003 to November 13, 2005)
2. Research Associateship by Department of Science & Technology, Government of India (August 1996-July 2003)
3. UGC Merit-scholarship during M.Sc. (Tech) program (1993-94)
4. Special State Merit-scholarship during High School (1984-89)

Any Other Information

Membership of Professional Bodies/Societies, etc.

1. Life member and member of Executive Council of “Association of Agrometeorologists”
2. Life member of “India Meteorological Society, New Delhi (Ranchi Chapter)”