

Curriculum – Vitae of Dr. Krishan Kumar



PRESENT STATUS: Professor, SES, JNU, New Delhi-67

ACADEMIC QUALIFICATIONS:

Education Level	Board/ University	Year of Passing	Subjects	Division
Ph.D.	Jawaharlal Nehru University	1998	Environmental Science	
M.Phil	Jawaharlal Nehru University	1991	Environmental Science	I
M.Sc.	Jawaharlal Nehru University	1989	Environmental Science	I
B.Sc.	Delhi University	1987	Maths, Physics, Chemistry	I

- **TITLE OF Ph. D. THESIS :** *A Stochastic Model of Traffic Noise in Delhi.*
- **TITLE OF M.Phil. DISSERTATION :** *Spectral Distribution and A-Weighted Levels of Noise in Various Modes of Transport in Delhi.*

FELLOWSHIPS:

- **Visting Fellow, 2015, University of Technology, Sydney, Australia.**
- **Summer Research Fellowship**, Indian Academy of Sciences, Bangalore, 01-05-2008 to 30-06-2008
- **Senior Research Fellowship** (University Grants Commission, Govt. of India), July 1991- December 1993.
- **Junior Research Fellowship** (University Grants Commission, Govt. of India), July 1989 - July 91.

NATIONAL ELIGIBILITY TEST:

- Qualified UGC-NET (University Grants Commission – **National Eligibility Test** for Lecturership) examination in *Earth Atmospheric and Oceanic Sciences* in 1993.

SPECIAL TRAINING:

- A 10-week special course on **GIS: Technology & Applications** conducted by *Indian Institute of Remote Sensing (IIRS), Deptt. of Space, Govt. of India* from 03/01/2000 to 10/03/2000 sponsored by *National Natural Resource Management System*.

SUPERVISION OF DOCTORAL RESEARCH

Name of Students	Title of Thesis	Year of Award
Vikrant Tyagi	<i>Acoustic Signatures of Vegetation – Role in Traffic Noise Attenuation</i>	2006
Amit Prakash (under my co-supervision)	<i>Performance Evaluation of various modeling approaches for predicting concentrations of air pollutants in Delhi</i>	2008
Sandeep Gupta (under my co-supervision)	<i>A comparative study of Polycyclic Aromatic Hydrocarbons (PAHs) and Heavy Metals in indoor and outdoor environments of Delhi</i>	2008
Vandana Gupta	<i>GIS Based Study of Methane Emission Estimates From Paddy Fields of Haryana</i>	2011
Surender Kumar	<i>GIS based spatial modeling of noise pollution-A case study of Delhi</i>	2012
Puneeta Pandey	<i>Urban Heat Island Formation and its Relationship with Aerosols in the Atmospheric Environment of Delhi</i>	2012
Dinesh Kumar	<i>Thunderstorm simulation with enhanced land surface representation over north-eastern Indian coastal region</i>	2014
Monika Punia (under my co-supervision)	<i>Spatio-temporal forecast of surface temperature over Indo-Gangetic plain using neural network and GIS based approaches</i>	2015
Neetu (under my co-supervision)	<i>Abundance and source apportionment study of Volatile Organic Compounds at a high altitude urban site in Northern India</i>	2015
Bhupendra Pratap Singh (under my co-supervision)	<i>Chemical characterization and seasonal variation of gaseous and particulate phase polycyclic aromatic hydrocarbon (PAHs) in the ambient atmosphere at selected</i>	2015

Amit Kumar (under my co-supervision)	<i>residential sites in Delhi</i> <i>Identification of selected VOC's and determination of their ozone-forming potential in rural and urban ambient air of Delhi</i>	2015
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WORK EXPERIENCE: Postgraduate teaching & research experience of **more than 20 years** (since January 1994):

- **Courses taught at JNU –**

Course	Program	Number of Credits
Statistics	M.Sc.	2
Statistical Methods	M.Phil./Ph.D.	2
Noise Pollution	M.Sc.	2
Climatology	M.Sc.	2
Remedial Mathematics	M.Sc.	2
Environmental Modeling	M.Sc.	2

- **Courses taught at the place of previous employment**

- *Atmospheric Science & Climate Change*
- *Environmental Modeling*
- *Air & Noise Pollution*
- *Biometry and Computer Applications*

MAJOR RESEARCH PROJECTS:

- **Completed**

1) **Title:** *Acoustic Signatures of Vegetation – Role in Traffic Noise Attenuation*

Funding Agency : University Grants Commission

Duration of Project : 2001-2004

Capacity: PI

2) **Title:** *A study of the Urban Heat Island Formation and its Relationship with Aerosols in Delhi*

Funding Agency: Department of Environment, Govt. of NCT of Delhi.

Duration of Project: 2008-2011

Capacity: PI

- 3) **Title:** *A comparative study of the spectral characteristics of dawn chorus in different soundscapes in the ridge forest in Delhi*
Funding Agency: University Grants Commission
Duration of Project: 2008-2011
Capacity: PI

 - 4) **Title:** *Spatial and temporal dynamics of Urban Heat Island in Delhi and its implication for the air quality of Delhi*
Funding Agency: DST
Duration of Project: 2009-2013
Capacity: PI

 - 5) **Title:** *An investigation of the role of hydrocarbons in ozone formation in ambient atmosphere of Delhi*
Funding Agency: UGC
Duration of Project: 2011-2014
Capacity: Co-PI
- **Ongoing**
- 6) **Title:** *Impact of thermal inertia on urban climate of Delhi*
Funding Agency: UPOE-JNU
Duration of Project: 2015-2018
Financial Grant: Rs. 1100000/-
Capacity: PI

PUBLICATIONS:

Research Papers in Journals

- 1) Bauri, N., Bauri, P., Kumar, K. and Jain, V. K. (2015). Evaluation of seasonal variations in abundance of BTXE hydrocarbons and their ozone forming potential in ambient urban atmosphere of Dehradun (India). *Air Quality, Atmosphere and Health*. DOI 10.1007/s11869-015-0313-z

- 2) Kumar, A., Singh, D., Singh, B. P., Singh, M., Anandam, K., Kumar, K. and Jain, V. K. (2014). Spatial and temporal variability of surface ozone and nitrogen oxides in urban and rural ambient air of Delhi-NCR, India. *Air Quality, Atmosphere & Health*. DOI 10.1007/s11869-014-0309-0

- 3) Pandey, A. K., Kumar, D., Singh, S., Pandey, P., Prakash, A., Berwal, S., Lodhi, N., Maithani, S., Jain, V. K. and Kumar, K. (2014). Spatio - temporal variations of Urban Heat Island over Delhi. *Urban Climate*, **10**, 119-133.

- 4) Punia M., Nain, S., Kumar, A., Singh, B.P., Kumar, K. and Jain V. K. (2014). Analysis of temperature variability over Northwest Part of India for the period 1970-2000. *Natural Hazards* - DOI 10.1007/s11069-014-1352-8.
- 5) Saini, R., Singh, P., Awasthi, B. B., Kumar, K. and Taneja, A. (2014). Ozone distributions and urban air quality during summer in Agra – a world heritage site. *Atmospheric Pollution Research*, **5**, 796-804. doi: 10.5094/APR.2014.089
- 6) Singh, B.P., Kumar, A., Singh, D., Punia, M., Kumar, K. and Jain, V.K. (2014). An assessment of ozone levels, UV radiation and their occupational health hazard estimation during photocopying operation. *Journal of Hazardous Materials*, **275**, 55-62. (IF=4.144)
- 7) Kumar, A., Singh, B. P., Punia, M., Singh, D., Kumar, K. and Jain, V. K. (2014). Determination of volatile organic compounds and associated health risk assessment in residential homes and hostels within an academic institute, New Delhi. *Indoor Air*, Accepted for Publication , DOI:10.1111/ina.12096
- 8) Joon, V., Kumar, K., Bhattacharya, M., and Chandra, A. (2014). Non-Invasive Measurement of Carbon Monoxide in Rural Indian Woman Exposed to Different Cooking Fuel Smoke. *Aerosol and Air Quality Research*, Accepted for Publication, DOI: 10.4209/aaqr.2013.05.0157
- 9) Kumar, A., Singh, B. P., Punia, M., Singh, D., Kumar, K. and Jain, V. K. (2014). Assessment of indoor air concentrations of VOC's and their associated health risks in the library of Jawaharlal Nehru University, New Delhi. *Environmental Science and Pollution Research*, **21**, 2240-2248, DOI 10.1007/s11356-013-2150-7.
- 10) Tyagi, V., Kumar, K. and Jain, V. K. (2013), “Road traffic noise attenuation by vegetation belts at some sites in the Tarai region of India”, Accepted for Publication in *Archives of Acoustics*.
- 11) Lodhi, N. K., Beegum, S. N., Singh, S. and Kumar, K. (2013). Aerosol climatology at Delhi in the western Indo-Gangetic Plain: Microphysics, long-term trends, and source strengths. *Journal of Geophysical Research: Atmospheres*, **118**, 1–15, doi:10.1002/jgrd.50165, 2013.
- 12) Singh, D., Prakash, A., Srivastava, A. K., Kumar, K. and Jain, V. K. (2013). The effects of meteorological parameters in ambient noise modelling studies in Delhi. *Environmental Monitoring and Assessment*, **185**:1873–1882, DOI: 10.1007/s10661-012-2674-1.
- 13) Masih, J., Singhvi, R., Kumar, K., Jain, V. K. & Taneja, A. (2012). Seasonal Variation and sources of Polycyclic Aromatic Hydrocarbons (PAHs) in indoor and outdoor Air in a semi-arid tract of Northern India. *Aerosol and Air Quality Research*, **12**: 515–525 doi: 10.4209/aaqr.2011.11.0192s
- 14) Masih, J., Singhvi, R., Taneja, A., Kumar, K., & Masih, H. (2012). Gaseous/Particulate bound Polycyclic Aromatic Hydrocarbons (PAHs), Seasonal variation in North central part of rural India, *Sustainable Cities and Society*, **3**: 30–36 doi:10.1016/j.scs.2012.01.001

- 15) Pandey, P., Kumar, D., Prakash, A., Masih, J., Singh, M., Kumar, S., Jain V. K. and Kumar, K. (2012). A study of urban heat island and its association with particulate matter during winter months over Delhi. *Science of the Total Environment*, **414**: 494-507 , DOI 10.1016/j.scitotenv.2011.10.043
- 16) Prakash A., Kumar U., Kumar K. and Jain V. K. (2011). A Wavelet-based Neural Network Model to Predict Ambient Air Pollutants' Concentration. *Environ Model Assess*,16:503–517.
- 17) Gupta, S. , Kumar, K., Srivastava, A., and Jain, V.K. (2011). Size distribution and source apportionment of polycyclic aromatic hydrocarbons (PAHs) in aerosol particle samples from the atmospheric environment of Delhi, India. *Science of the Total Environment*, doi:10.1016/j.scitotenv.2011.08.008
- 18) Pandey, P., Khillare, P. S. and Kumar, K. (2011). Assessment of Organochlorine Pesticide Residues in the Surface Sediments of River Yamuna in Delhi, India. *Journal of Environmental Protection*, 2, 511-524.
- 19) Verma Sanyogita, Kumar, K. and Jain, V.K. (2007), “Community annoyance from aircraft induced noise in Delhi”, *Archives of Acoustics*, **32**(2), p.279-287.
- 20) Gupta, V., Sharma, P., Pradhan, V., Bhat, S., Sharma, C., Johri, P., Kumar, K. and Gupta, P. K. (2007), “Seasonal Emissions of Methane and Nitrous Oxide from Rice-Wheat Cropping System during 2002 & 2003”, *Indian Journal of Radio and Space Physics* (ISSN: 0367-8393), **36**: 582-585.
- 21) Tyagi, V., Kumar, K. and Jain, V. K. (2006), “A study of the spectral characteristics of traffic noise attenuation by vegetation belts in Delhi”, *Applied Acoustics*, **67**, p.926-935.
- 22) Kumar, K., Yadav, A. K., Hassan, H., Singh, M. P. and Jain, V. K. (2004), “Forecasting Daily Maximum Surface Ozone Concentrations in Brunei Darussalam - an ARIMA Modeling Approach”, *Journal of Air & Waste Management Association* (ISSN: 1047-3289), **54**, p.809-814.
- 23) Yadav, A.K., Kumar, K., Kasim, A.M. B. H. A., Singh, M. P., Parida, S.K., and Sharan, M. (2003), “Visibility and Incidence of Respiratory Diseases during the 1998 Haze Episode in Brunei Darussalam”, *Pure and Applied Geophysics* (ISSN: 0033-4553), **160**, p. 265-277.
- 24) Kumar, K. and Jain, V. K. (1999), “ARIMA Modelling of a Traffic Noise Time Series”, *Applied Acoustics* (ISSN: 0003-682X), **58**, p. 283-294.
- 25) Kumar, K., Rao, D. N. and Jain, V. K. (1998), “ A Predictive Model for Noise Levels in Delhi”, *Journal of Acoustical Society of America* (ISSN: 0001-4966), **103**, p. 1677-1679.

- 26) Kumar, K. and Jain, V. K. (1994), "A Study of Noise in Various Modes of Transport in Delhi", *Applied Acoustics* (ISSN: 0003-682X), **43**, p. 57-65.
- 27) Kumar, K. and Jain, V. K. (1993), "A- Weighted Noise Levels and Spectral Characteristics at Some Traffic Sites in Delhi", *Journal of Acoustical Society of India* (ISSN: 0253-7257), **Vol. XIX**, No. 3, p. 1-5.
- 28) Kumar, K. and Jain, V. K. (1993), "Noise and its Spectral Characteristics in Buses and Auto-Rickshaws in Delhi", *Journal of Acoustical Society of India* (ISSN: 0253-7257), **Vol. XIX**, No. 3, p.6-8.

Research Papers Presented in International Conferences

- 29) Pandey, A. K., Berwal, S. and Kumar, K. (2015). "A directional analyses of UHI intensity over Delhi with respect to variations in vegetation cover in the National Capital Region of India"- Presented at the 9th International Conference on Urban Climates, 20-24th June, 2015, Toulouse, France.
- 30) Singh, M., Kumar, D., Kumar, K. (2015). "Spectral characteristics of avian communal roosting in urban habitat of Delhi, India". Poster presentation in International Conference on Conservation Biology – ECCB, 2nd to 6th August 2015, Montpellier, France.
- 31) Pandey, A. K., Kumar, R. P., Kumar, K. (2015). "Satellite and ground-based seasonal variability of NO₂ and SO₂ over New Delhi, India". Oral Presentation in Remote Sensing of Clouds and the Atmosphere Conference, 21-24 September 2015, Toulouse, France.
- 32) Pandey, A. K., Kumar, R. P., Kumar, K. (2015). Satellite Based AOD, NO₂, SO₂ and HCHO Seasonal Variation over the Indo Gangetic Plain, India. Oral Presentation in International conference on the Atmospheric Sciences and Application to Air Quality (ASAAQ), November 11 to 13, 2015, Kobe, Japan.
- 33) Pandey, P., Kumar, D., Prakash, A., Lodhi, N., Singh, M., Singh, S., Jain V. K. and Kumar, K. (2012). "Temporal Dynamics of Urban Heat Island Formation Over Delhi"- Presented in 8th International Conference on Urban Climates, 6th-10th August, 2012, UCD, Dublin, Ireland.
- 34) Pandey, P., Kumar, D., Prakash, P., Kumar, K. and Jain, V. K. (2009), "A Study of the Summer-time Urban Heat Island over Delhi" – Presented in the *International Conference on Sustainability, Human Geography and Environmental Studies*, 2009 to be held in Imperia, Italian Riviera, Italy from November 6-9, 2009.
- 35) Kumar, K., Tyagi, V. and Jain, V. K. (2007), "Attenuation of Road Traffic Noise by a Vegetation Belt of *Lantana Camara* in Dehradun, India" in the 14th *International Conference on Noise Control*, Elblag, Poland, 3-6 June 2007.

- 36) Rani, C. and Kumar, K. (1999), “A Model for the Prediction of Traffic Noise in Hisar, India”, in the Fifth Technical Session of the Madras-India Regional Chapter of the Acoustical Society of America, held at IIT-Chennai in August 1999.

Administrative Experience

- Warden, Periyar Hostel, JNU, New Delhi from April 2005 till date
- Chairperson, University Sports Committee, JNU, 2014
- **Chief Proctor**, JNU, New Delhi from January 14, 2015 to February 29, 2016.

Reviewer of International Journals

- Atmospheric Environment
- Urban Climate
- Applied Acoustics
- Aerosol And Air Quality Research
- Noise Control Engineering Journal
- Science Of Total Environment
- Journal of Geophysical Research

Membership of various Academic Bodies

- Member, International Association for Urban Climate
- Member, Doctoral Research Committee, Deptt. Of Env. Sc., MDU, Rohtak

Chapters in Books

- 1) Kumar, K. “ **Diffusion and transport of pollutants**” e-book on Environmental Physics being prepared by UNESCO, 2005.
- 2) Kumar, K. (2001), “Environment And Its Components - I” in Fundamentals of Environment (PGDEM-01), Unit-I, p 1-24, published by the Directorate of Distance Education, Guru Jambheshwar University, Hisar.
- 3) Kumar, K. (2001), “Environment And Its Components - II” in Fundamentals of Environment (PGDEM-01), Unit-I, p 25-42, published by the Directorate of Distance Education, Guru Jambheshwar University, Hisar.
- 4) Kumar, K. (2001), “Noise Pollution” in Environmental Pollution (PGDEM-03), Unit-III, p 81-94, published by the Directorate of Distance Education, Guru Jambheshwar University, Hisar.
- 5) Kumar, K. (2001), “Noise And Air Pollution Control” in Pollution Control And Management (PGDEM-04), Unit-IV, p 146-162, published by the Directorate of Distance Education, Guru Jambheshwar University, Hisar.