CV

Dr. Pankaj Kumar
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Dr. Pankaj Kumar is an Associate Professor in the Department of Geography at the University of Delhi and currently serves as Assistant Secretary General of the International Geographical Union (IGU). He served as Secretary of the IGU Commission on Biogeography and Biodiversity from 2016-2020 and the Commission on Mountain Studies from 2020-2024. He is also the liaison between IGU and CODATA and member of International Data Policy Committee (IDPC) of CODATA. Dr. Kumar also holds the responsibility of Assistant Secretary for the Indian Society of Remote Sensing, Delhi Chapter. Travels widely and frequently in India and abroad to deliver invited talks and keynotes at universities, research organizations, and conferences.

Educational Qualifications

+2014 Ph.D. from Department of Geography, Delhi School of Economics, University of Delhi on topic "Glacial Lake Outburst Floods and Associated Geo-hazards in Himachal Himalaya"

+2007 M.Phil from Department of Geography, Delhi School of Economics, University of Delhi on topic "Sustainable Mountain Tourism in Uttarkashi district"

Areas of Interest / Specialization

Mountain Environment, Hazards and Disasters and livelihoods; Earth Observation and GIS; Open Big Data, Open Platforms and GeoAI

Association with International and National Professional Bodies

+2023-2025 **Member**, International Data Policy Committee (IPDC), CODATA
+2020-2022 **Assistant Secretary General,** International Geographical Union (IGU)
+2021-2022 **IGU Liaison** to ISC Committee on Data for Science and Technology (CODATA)
+2020-2024 **Secretary**, Commission on Mountain Studies, International Geographical Union
+2020-2021 **Fellow**, Institute of Life Long Learning (ILLL), University of Delhi, India
+2020 **Life Member**, The Indian Science Congress Association (ISCA), Kolkata, India
+2018 **Treasurer**, The Association for Geographical Studies, Delhi, India
+2016-2020 **Secretary**, Commission on Biogeography and Biodiversity, IGU
+2009 **Life Member**, National Associations of Geographers, India (NAGI), Delhi, India

CV

CODATA and recent related activities

+2025 Scheduled to deliver an online talk on '**GeoAI, Geoprivacy and Academic freedom and Ethics in IGU**' in the DBAR 2025 Big Earth Data session scheduled from 8th-11th June 2025 at Chengdu, China.

Registered to attend online Conference on **'Advancing responsible research assessment for funders in the European digital space** on Monday 2nd June 2025; Royal Academy, Brussels, organized by CODATA International Data Policy Committee.

+2024 Shared my take as panelist on the topic 'Open GIS, Earth Observation (EO) and Glacial Lake Outburst Floods (GLOFs) in Himachal Himalaya, India' in the **United Nations Geospatial Knowledge and Innovation Week 2024**, Deqing, China, 21-24 October 2024.

As panelist delivered my view on '**GeoAI and Precision Agriculture/Smart Agriculture**' and '**Privacy and Ethics in GeoAI: ISC CODATA**' in the panel discussion session titled 'The United Nations Program on Global Geospatial Information Management (UN-GGIM) Geography and Artificial Intelligence in the IGU' organized during 35th International Geographical Congress 2024, Dublin, Ireland between 24th-30th August, 2024.

+2023 As liaison between International Geographical Union (IGU) and CODATA and as a member of CODATA IDPC actively participating in the **regular monthly meeting of IDPC CODATA**.

Participated and voted as IGU representative in the **CODATA General Assembly 2023** on 28 October.

+2022 Under BRICS STI FRAMEWORK PROGRAMM as India lead successfully organized online Training on '**Validation and Application of Remote Sensing Products in Ecology and Environment for BRICS Countries'** in joint collaboration of AIRCAS (Aerospace Information Research Institute, CAS) and co-organized by LASAC (Land Satellite Remote Sensing Application Center, MNR), AEROCOSMOS (Institute for Scientific Research of Aerospace Monitoring, State Scientific Institution), Geophysical Center RAS (Geophysical Center of the Russian Academy of Sciences) and AOGEO-RCCD (Regional Centre for Capacity Development under AOGEO) during May 24th - 26th, 2022.

+2021 Participated and voted as IGU representative in the online **CODATA General Assembly 2021** held between 15th and 16th November, 2021

+2018 Delivered invited talk in the International Conference of Asia-Oceania Global Earth Observation System of Systems (AOGEOSS) & attended The international training workshop on EO data access and handling, **May 16-19, 2018 Deqing, Zhejiang, China**.

+2017 Completed International Training Workshop on 'Scientific Big Data Sharing and Publication for Developing Countries' organized by Bureau of International Co-operation Chinese Academy of Sciences, State Key Laboratory of Resources and

Environmental Information System, Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences (IGSNRR/CAS) and Committee on Data for Science and Technology (CODATA) - Task Group on Preservation of and Access to Scientific and Technical Data in/for/with Developing Countries (PASTD) between **October 16th - November 4th, 2017, Beijing, China**. Also delivered invited talk on the topic 'Spatial Information Technology for Sustainable development Goals'.

Successfully organized The ICSU CODATA PASTD – IGU joint action the International Training workshop on 'Big Data for Science and Sustainability in Developing Countries' from **17th - 19th March, 2017 in Hyderabad, India** during IGU Thematic Conference, Hyderabad, India.

Recent Publications

Journal Articles:

+2025 Ashwani, **Kumar, P**., Janmaijaya, M., Gönençgil, B., & Li, Z. (2025). Assessing Agricultural Vulnerability to Climate Change in High-Altitude Himalayan Regions: A Composite Index Approach in Lahaul and Spiti, India. *Sustainability*, *17*(23), 10682.**https://doi.org/10.3390/su172310682**

Tomar, K. K. S., Choudhari, P., Tariq, A., Kumar, A., Mihu, S., Suresh, V. M., ... & Pingale, S. M. (2025). Climate-Resilient Groundwater Potential Zoning and Intervention Planning in the Nira River Basin Using Ensemble Machine Learning, AHP, and CMIP6 Scenarios. *Environmental and Sustainability Indicators*, 101050. https://doi.org/10.1016/j.indic.2025.101050

Sarda, R., & **Kumar, P.** (2025). Monitoring the dual-season hydrological dynamics of the Pong reservoir in Himachal Pradesh, India. *Frontiers in Remote Sensing*, *6*, 1682140. https://doi.org/10.3389/frsen.2025.1682140

Janmaijaya, M., & **Kumar, P**. (2025). Regional variations in aerosol-temperature coupling over the Indo-Gangetic Plains and Central India: A vector autoregression analysis (2005–2023). The Geographical Journal, e70040. https://doi.org/10.1111/geoj.70040

Anand, S., Kumar, H., **Kumar, P**. *et al.* Analyzing landscape changes and their relationship with land surface temperature and vegetation indices using remote sensing and AI techniques. *Geosci. Lett.* 12, 7 (2025). https://doi.org/10.1186/s40562-024-00372-4

Kumar, P., Sarda, R., Yadav, A., Ashwani, Gonencgil, B., & Rai, A. (2025). Farmer's Perception of Climate Change and Factors Determining the Adaptation Strategies to Ensure Sustainable Agriculture in the Cold Desert Region of Himachal Himalayas, India. *Sustainability*, *17*(6), 2548. https://doi.org/10.3390/su17062548

Kumar P, Deka D, Husain MA, Kumar M, Choudhari P, Singh S, Kamil A and Banerjee A (2025) Trend analysis of precipitation and temperature in Lahaul-Spiti district, Himachal Pradesh, India. *Front. Clim*. 6:1348132. doi: 10.3389/fclim.2024.1348132

+2024 Singh, S., **Kumar, P.,** Parijat, R., Gonengcil, B., & Rai, A. (2024). Establishing the

relationship between land use land cover, normalized difference vegetation index and land surface temperature: A case of Lower Son River Basin, India. *Geography and Sustainability*, *5*(2), 265-275.https://doi.org/10.1016/j.geosus.2023.11.006

Majid, S. I., Kumar, M., Sahu, N., **Kumar, P.,** & Tripathi, D. K. Application of ensemble fuzzy weights of evidence-support vector machine (Fuzzy WofE-SVM) for urban flood modeling and coupled risk (CR) index for ward prioritization in NCT Delhi, India. *Environ Dev Sustain* (2024). https://doi.org/10.1007/s10668-024-04926-6

Kumar, P., Deka, D., Yadav, A., ., A., Kumar, M., Das, J., Singh, A., & Gurjar, A. (2024). Potential and actual evapotranspiration and Landsat derived indices. *Global Journal of Environmental Science and Management*, 10(3), 1227-1248. https://doi.org/10.22034/gjesm.2024.03.18

Kumar, P., Thakur, S., Ashwani, Ambrish, Rai, A., & Sandylya, U. (2024). Urban waterlogging risk susceptibility within changing pattern of rainfall intensity in Delhi, India. *Acta Geophysica*, *72*(6), 4525-4543. https://doi.org/10.1007/s11600-024-01336-0

Sarda, R., Gonencgil, B., Halder, S., & **Kumar, P**. (2024). A bibliometric analysis of agricultural vulnerability in the context of climate change from 2010 to 2021. *Spatial Information Research*, *32*(3), 297-310. https://doi.org/10.1007/s41324-023-00559-5

+2023

Kumar P., Thakur S., Junawa S., Anand S. Altitudinal Appraisal Of Land Use Land Cover And Surface Temperature Change In The Satluj Basin, India. *GEOGRAPHY, ENVIRONMENT, SUSTAINABILITY*. 2023;16(4):26-38. https://doi.org/10.24057/2071-9388-2023-2958

Majid, S.I., Kumar, M., Kumar, P. et al. GIS-Based Flood Susceptibility Mapping of Srinagar District, India Using Weights-of-Evidence (WofE), Frequency Ratio (FR) and Fuzzy Gamma Operator (FGO). *J Indian Soc Remote Sens* 51, 2421–2446 (2023). https://doi.org/10.1007/s12524-023-01776-z

Kumar, P., Ashwani, Mishra, S., Thakur, S., Kumar, D., & Raman, V.A.V. (2023). Vulnerability of tribal communities to climate variability in Lahaul and Spiti, Himachal Pradesh, India. *Cografya Dergisi*. 47, 29-43. https://doi.org/10.26650/JGEOG2023-1233134

Husain, Md. Arif, Pankaj Kumar, and Barbaros Gonencgil. 2023. "Assessment of Spatio-Temporal Land Use/Cover Change and Its Effect on Land Surface Temperature in Lahaul and Spiti, India" *Land* 12, no. 7: 1294. https://doi.org/10.3390/land12071294

+2022

Husain, M. A., **Kumar, P**., Singh, A., Raman, V. A. V., Dua, R., & Thakur, S. (2023). Snow Cover and Snowline Variation in Relation to Land Surface Temperature in Spiti Valley, Himachal Pradesh, India. *International Journal of Ecology and Environmental Sciences*, *49*, 187-199. https://doi.org/10.55863/ijees.2023.2624

Rahaman, S., Jahangir, S., Chen, R., & **Kumar, P**. (2022). Restricted Anthropogenic Activities and Improved Urban Air Quality in China: Evidence from Real-Time and Remotely Sensed Datasets Using Air Quality Zonal Modeling. *Atmosphere*, *13*(6), 961. https://doi.org/10.3390/atmos13060961 (IF

3.110)

+2021 Wu, Feng; Guo, Naliang; **Kumar, Pankaj**; Niu, Lulu, Scenario-based extreme flood risk analysis of Xiong'an New Area in northern China, *Journal of Flood Risk Management*, 2021,https://doi.org/10.1111/jfr3.12707 (IF 4.005)

Saidur Rahaman, Selim Jahangir, Ruishan Chen, **Pankaj Kumar**, Swati Thakur, COVID-19's lockdown effect on air quality in Indian cities using air quality zonal Modeling, *Urban Climate*, 2021, 100802, ISSN 2212-0955, https://doi.org/10.1016/j.uclim.2021.100802 (IF 6.663)

+2020 Saini, A.; Sahu, N.; **Kumar, P**.; Nayak, S.; Duan, W.; Avtar, R.; Behera, S. Advanced Rainfall Trend Analysis of 117 Years over West Coast Plain and Hill Agro-Climatic Region of India. *Atmosphere* **2020**, *11*, 1225. https://doi.org/10.3390/atmos11111225 (IF 3.110)

Rahaman S, **Kumar P**, Chen R, Meadows ME and Singh RB (2020) Remote Sensing Assessment of the Impact of Land Use and Land Cover Change on the Environment of Barddhaman District, West Bengal, India. *Front. Environ. Sci*. 8:127, https://doi.org/10.3389/fenvs.2020.00127 (IF 5.411)

Abhijeet Ghadge, Sjoerd van der Werf, Merve Er Kara, Mohit Goswami, **Pankaj Kumar**, Michael Bourlakis, Modelling the impact of climate change risk on bioethanol supply chains, *Technological Forecasting and Social Change*, Volume 160, 2020, 120227, ISSN 0040-1625, https://doi.org/10.1016/j.techfore.2020.120227 (IF 10.884)

Rahaman, S., Jahangir, S., Haque, M.S. et al. Spatio-temporal changes of green spaces and their impact on urban environment of Mumbai, India. *Environ Dev Sustain* (2020). https://doi.org/10.1007/s10668-020-00882-z (IF 4.080)

Edited Springer Volume:

+2025 **Pankaj Kumar**, Manish Kumar, Subhash Anand, Dinesh Kumar Tripathi, Naresh Kumar Verma (2025) Humanities and Sustainability from Glocal Perspectives Towards Future Earth, Proceedings of IGU Thematic Conference 2022, India, Springer series Advances in Geographical and Environmental Sciences, Springer Singapore, Series ISSN 2198-3542, https://doi.org/10.1007/978-981-96-0381-7

+2024 Manish Kumar, **Pankaj Kumar,** Subhash Anand, Naresh Kumar Verma and Dinesh Kumar Tripathi (2024) Geographical Dimensions of Environmental Sustainability, Proceedings of IGU Thematic Conference 2022, India, Springer series Advances in Geographical and Environmental Sciences, Springer Singapore, Series ISSN 2198-3542, https://doi.org/10.1007/978-981-96-0605-4

+2022 **Kumar, P**; Nigam, G; Sinha, M.K; Singh, Anju (2022) Water Resources Management and Sustainability, Springer series Advances in Geographical and Environmental Sciences, Springer Singapore, Series ISSN 2198-3542, https://doi.org/10.1007/978-981-16-6573-8

Chapters in Edited Books:

+2025 Rai, A., Bhardwaj, A., Ahmed, A., Mir, R. A., Varade, D., & **Kumar, P**. (2026).

Unlocking hydrological insights: Spatial data analysis for modeling and management. In *Advances in Hydrology* (pp. 79-94). Elsevier.

Kumar, P., Ashwani (2025). Assessment of Livelihood Vulnerability and Climate Change Perception in Lahaul and Spiti District, Himachal Pradesh, India. In: Banu, N., Fazal, S. (eds) *Livelihoods and Well-Being in the Era of Climate Change*. Springer, Cham. https://doi.org/10.1007/978-3-031-81132-6_4

+2024 **Kumar, P.** (2024). Highlands, Midlands, Lowlands: Spatial Explicit Models to Study Vertically Differentiated Areas. In: Sarmiento, F.O., Gunya, A. (eds) *Mountain Lexicon. Montology*, vol 2. Springer, Cham. https://doi.org/10.1007/978-3-031-64884-7_24

+2022 Kumar, S., **Kumar, P**., Singh, A., Ashwani, Kumar, M. (2022). Socio Economic Livelihood Vulnerability to Mountain Hazards: A Case of Uttarakhand Himalaya, India. In: Singh, R.B., Kumar, M., Tripathi, D.K. (eds) *Remote Sensing and Geographic Information Systems for Policy Decision Support*. Advances in Geographical and Environmental Sciences. Springer, Singapore. https://doi.org/10.1007/978-981-16-7731-1_8

Kapur, A.S., **Kumar, P**., Areendran, G., Raj, K. (2022). The Magnitude of Transformation in Land Use Land Cover of Kalyan-Dombivli, Smart City. In: Singh, R.B., Kumar, M., Tripathi, D.K. (eds) *Remote Sensing and Geographic Information Systems for Policy Decision Support*. Advances in Geographical and Environmental Sciences. Springer, Singapore. https://doi.org/10.1007/978-981-16-7731-1_14

Kumar, P., Ojha, S., Nigam, G.K., Singh, A., Sinha, M.K. (2022). Water Resources, Livelihood Vulnerability and Management in Rural Desert Communities of Jaisalmer, India. In: Kumar, P., Nigam, G.K., Sinha, M.K., Singh, A. (eds) *Water Resources Management and Sustainability*. Advances in Geographical and Environmental Sciences. Springer, Singapore. https://doi.org/10.1007/978-981-16-6573-8_1

Bhadwal, S., Verma, N. K., Kumar, S., Kumar, M., & **Kumar, P**. (2022). Morphometric Analysis and Geohydrological Inference of Bhilangna Drainage Basin, Uttarakhand (India) Using Remote Sensing and GIS Techniques. In *Water Resources Management and Sustainability* (pp. 403-422). Singapore: Springer Nature Singapore https://doi.org/10.1007/978-981-16-6573-8_19

+2021 Husain, A., & **Kumar, P**. (2021). Remote Sensing and GIS-Based Morphometric Analysis of Spiti River Basin. *Water Science and Sustainability*, 213-223. https://doi.org/10.1007/978-3-030-57488-8_16

+2016 Kumar, M., & Kumar, P. (2016). Snow cover dynamics and timberline change detection of Yamunotri watershed using multi-temporal satellite imagery. *Climate Change, Glacier Response, and Vegetation Dynamics in the Himalaya: Contributions Toward Future Earth Initiatives*, 391-399. https://doi.org/10.1007/978-3-319-28977-9_20

Kumar, P., & Singh, R. B. (2014). Climate Change, Glacier Lakes, and Livelihoods. In *Livelihood Security in Northwestern Himalaya* (pp. 27-40). Springer, Tokyo. https://doi.org/10.1007/978-4-431-54868-3_3

Singh, R. B., & **Kumar, P**. (2014). Geographic and socio-economic realities of

Himachal Pradesh, Northwestern Himalaya. In *Livelihood Security in Northwestern Himalaya* (pp. 11-26). Springer, Tokyo. https://doi.org/10.1007/978-4-431-54868-3_2

Singh, R. B., & **Kumar, P**. (2014). Climate change and glacial lake outburst floods in Himachal Himalaya, India. In *Climate change and biodiversity* (pp. 3-14). Springer, Tokyo. https://doi.org/10.1007/978-4-431-54838-6_1

Research Projects Ongoing/Completed:

+2025 Project Director (PD) of Research Project "Assessing Snow and Glacier Dynamics to Ecosystem Sustainability in the Parvati Valley, Kullu District, Himachal Pradesh" funded by Institute of Eminence, University of Delhi, India (Ongoing) Sanctioned Amount: 400000 (4 lakh)

Indian lead of the European Research Council project Climate and Contemporary Transformations of Vernacular Architecture - Interaction, Effects and Perspectives (CLIMATE-Arch), based at the Austrian Academy of Sciences' Institute for Social Anthropology. (Ongoing)

+ 2024 Project Director (PD) of Research Project "Assessing the interplay of Ecosystem Services and Sustainable Development Goals (SDGs) in the Himachal Himalaya" funded by Institute of Eminence, University of Delhi, India (Completed)

+2022-2024 Project Director (PD) of Major Research Project titled "Evolving adaptive Feed-forward Agricultural Practices (FFAP) for climate vulnerable Tribal Households of Cold Desert region, Lahaul and Spiti District" funded by ICSSR, New Delhi (Completed)

+2021 Principal Investigator (PI) of Institute of Eminence (IoE), University of Delhi Faculty Research Programme Grant titled "Water logging, Vulnerability Assessment and Mitigation Measures: A case study of North Delhi" (Completed)

+2020-2022 Principal Investigator (PI) of Department of Science and Technology (DST)-BRICS Project titled "Joint Validation of Multi-Source Remote Sensing Information and Sharing in BRICS Countries" (Completed)

+2015-2016 Project Title "Assessment of Glacial Lake Outburst Flood (GLOF) of Samudratapu Glacial Lake, Himachal Pradesh" (Completed)

+2014-2015 Project Title "Snow cover dynamics and its impact on livelihoods: A case study of Spiti river, Lahaul and Spiti district, Himachal Pradesh" (Completed)

+2013-2014 Project Title "Monitoring and modeling socio economic impact of Land use/cover and Pollution along Yamuna River, Delhi" (Completed)

Guest Editor: Special Issue

+2024 Sustainable and Regenerative Ecologies for the Management of Mountain Forestscapes, A special issue of *Sustainability* (ISSN 2071-1050) belongs to the section "Environmental Sustainability and Applications" guest edited by

Prof. Dr. Fausto Sarmiento, Prof. Dr. Barbaros Gönençgil and Dr. Pankaj Kumar.

National Award & Recognition

+2024 **'National Geospatial Faculty Fellow Award 2024**' from IIT Bombay, FOSSEE (GIS) under the aegis of the National Mission on Education through ICT (NMEICT), Ministry of Education, Government of India**.**

Dr. Pankaj Kumar