Muhammad Azmat

Associate Professor

Institute of Geographical Information Systems

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About

Dr. Muhammad Azmat is working as Associate Professor in the Institute of Geographical Information Systems. Dr. Muhammad Azmat has a PhD in Water Resources and Climate Change . Dr. Muhammad Azmat has published 43 research articles & conference papers having a citation count of 684, carried out 11 projects and filed 1 intellectual property.

Qualifications

PhD in Water Resources and Climate Change Polytechnic Institute of Turin , Italy	2012 - 2015
MPhil in Water Resources Management UET Lahore , Pakistan	2008 - 2011
BE in Agricultural Engineering University of Agriculture Faisalabad , Pakistan	2004 - 2008
Experience	
Associate Professor	2025- Present
Institute of Geographical Information Systems	
Associate Professor	2021 - 2025
Institute of Geographical Information Systems	
Assistant Professor	2019 - 2021
Institute of Geographical Information Systems	
Assistant Professor	2016 - 2019
Institute of Geographical Information Systems	
Assistant Professor	2016 - 2016
Institute of Geographical Information Systems	
Assistant Professor	2015 - 2016
Institute of Geographical Information Systems	
Awards	
Post Doc scholarship	2017
Swiss Govt grant Post Doc scholarship under "Swiss Govt Excellence Scholarship"	
HEC PhD Scholarship	2012
HEC grant me fully funded PhD scholarship	
Professional Memberships	
PEC	Since 2008

Research Projects

Status: Approved_inprocess

National Projects	
Research-based Habitat Planning for a Resilient Ishkoman Valley through Modelling and Assessment of Remote Sensing and In-valley Hazards and Glacial Water Variability under Climate Change Funding Agency: Agha Khan Planning and Building Service Pakistan (AKPBS,P) Amount: PKR 7,100,000.00 Status: Approved_inprocess	2022
Impact of Climate Vulnerabilities on Crop Production and Agriculture Water Resources Management in Indus Basin, Pakistan	2019
Funding Agency: Swiss Seed Mondey Grants with South Asia and Iran Amount: PKR 2,688,000.00 Status: Completed	
Forecasting to Adaptations: An Economic Based Water-Agriculture Sector Risk Assessment to Changing Climate Funding Agency: HEC Amount: PKR 10,290,000.00 Status: Completed	2022
An autonomous IoT based approach toward monitoring and subsequently identifying invasive Dengue/Zika vectors prevalence and possible dengue outbreak areas Funding Agency: IST Amount: PKR 7,162,000.00 Status: Completed	2022
Implications of Climate Change on Snow Cover Dynamics and Hydrological Behaviour in HK-Karakorum-Himalayan Ranges Funding Agency: HEC Amount: PKR 459,400.00 Status: Completed	2017
Impacts of Climate Vulnerabilities on Crop Production and Agriculture Water Resources Management in Indus Basin, Pakistan Funding Agency: University of Applied Sciences, Zurich, Switzerland Amount: PKR 2,688,000.00 Status: Completed	2019
Urban expansion as an incursive factor for food security: An assessment of Spatio-temporal variations in Punjab Province, Pakistan Funding Agency: HEC Amount: PKR 3,050,000.00 Status: Approved_inprocess	2017
vulnerability of Climate Change on water resources and its consequences on agriculture water management in Pakistan Funding Agency: HEC Amount: PKR 5,410,000.00 Status: Completed	2017
International Projects	
HI-PATH: Pathways for Climate Resilient Development in the Hindu Kush Himalayan Region Funding Agency: International Development Research Centre: IDRC Amount: PKR 5,500,725.00	2021

Industry Projects

National Projects A study of the IWT and implications of its violations 2020 Client: NII Amount: PKR 1.000.000.00 Status: Approved_inprocess Design for Construction of Mini Dam at Tehsil Naushera, District Khushab 2020 Client: N/A Amount: PKR 1,804,910.00 Status: Approved_inprocess International Projects **Research Articles** Channel morphology of the Indus, and the growing risk of floods related damages in the Indus River 2025 basin Raveen Fatima Salman Atif Monique Fort Muhammad Azmat Natural Hazards, Pages 1-33 Impact Factor: 3.700 | Quartile: 1 DOI: 10.1007/s11069-025-07429-3 High-resolution monthly gridded temperature dataset development and trend analysis across 2025 Afghanistan: a spatio-temporal approach Maghfoorullah SHAKIL AHMAD Muhammad Azmat Mohammad Uzair Rahil Khalil Ahmad Theoretical and Applied Climatology, Volume:156, Issue:5, Article Number 280 Impact Factor: 2.800 | Quartile: 3 DOI: https://doi.org/10.1007/s00704-025-05484-1 Growing Glacial Lake Outburst Flood Risks in Ghizer District: A Karakoram Anomaly Region 2025 Yusra Mazhar Salman Atif Muhammad Azmat Shakil Ahmad Fahim Ullah IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing, Volume 18, Pages 7811-7828 Impact Factor: 4.700 | Quartile: 1 DOI: 10.1109/JSTARS.2024.3522950 2024 Hydro-Climatic variability in the Potohar Plateau of Indus River Basin under CMIP6 climate projections Ahsan Ullah Khan SHAKIL AHMAD Khalil Ahmad Muhammad Azmat Zakir Hussain Dahri Muhammad Wasif Khan Zafar Igbal Theoretical and Applied Climatology, Volume 156, Article Number 20 Impact Factor: 2.800 | Quartile: 3 | Citations: 2 DOI: https://doi.org/10.1007/s00704-024-05274-1 An Application of Hybrid Bagging-Boosting Decision Trees Ensemble Model for Riverine Flood 2024 Susceptibility Mapping and Regional Risk Delineation Javeria Sarwar Saud Ahmed Khan Muhammad Azmat Faridoon Khan Water Resources Management, Pages 1-31 Impact Factor: 3.900 | Quartile: 1 | Citations: 4 DOI: https://doi.org/10.1007/s11269-024-03995-6 Local surface warming assessment in response to vegetation shifts over arid lands of Central Asia 2024 Sikandar Ali Akash Tariq Patient Mindje Kayumba Fanjiang Zeng Zeeshan Ahmed Muhammad Azmat Richard Mind'je Tianju Zhang Science of The Total Environment, Volume 929, Article Number 172628 Impact Factor: 8.200 | Quartile: 1 | Citations: 13 DOI: https://doi.org/10.1016/j.scitotenv.2024.172628 2024 A comparative analysis of feature selection models for spatial analysis of floods using hybrid metaheuristic and machine learning models Javeria Sarwar Saud Ahmed Khan Muhammad Azmat Faridoon Khan Environmental Science and Pollution Research, Volume 31, Pages 33495-33514 Impact Factor: 0 | Citations: 14 DOI: https://doi.org/10.1007/s11356-024-33389-5

Zain Syed Shakil Ahmad Zakir Hussain Dahri Muhammad Azmat Muhammad Shoaib Azhar Inam Muhammad Uzair Qamar Syed Zia Hussain Sarfraz Ahmad

Atmosphere, Volume 13(2), Article Number 295

Impact Factor: 2.686 | Quartile: 3 | Citations: 25 DOI: https://doi.org/10.3390/atmos13020295

Impacts of climate change on wheat phenology and yield in Indus Basin, Pakistan

2021

Muhammad Azmat Fatima Ilyas Afia Sarwar Christain Huggel Saeid Ashraf Vaghefi Tao Hui Muhammad Uzair Qamar Muhammad Bilal Zeeshan Ahmed

Science of the Total Environment, Volume 790, Article Number 148221

Impact Factor: 10.753 | Quartile: 1 | Citations: 22 DOI: https://doi.org/10.1016/j.scitotenv.2021.148221

Flood Hazard Assessment for the Tori Levee Breach of the Indus River Basin, Pakistan

2021

Babar Naeem Muhammad Azmat Hui Tao Shakil Ahmad Muhammad Umar Khattak Sajjad Haider Sajjad Ahmad Zarif Khero Christopher R. Goodell

WATER, https://www.mdpi.com/journal/water

Impact Factor: 3.530 | Quartile: 2 | Citations: 23 DOI: https://doi.org/10.3390/w13050604

Trends of Aerosol Optical Thickness Using VIIRS S-NPP During Fog Episodes in Pakistan and India

2021

Muhammad Umar Salman Atif Mark L. Hildebrandt Ali Tahir Muhammad Azmat Muhammad Zeeshan Ali Khan

Atmosphere , Volume 12(2), Article Number 242

Impact Factor: 3.110 | Quartile: 3 | Citations: 2

DOI: https://doi.org/10.3390/atmos12020242

Landfill site selection by integrating fuzzy logic, AHP, and WLC method based on multi-criteria decision analysis

2021

Riaz Zarin Muhammad Azmat Salman Raza Naqvi Qaisar Saddique Saif Ullah

Environmental Science and Pollution Research, Pages 1-16

Impact Factor: 5.190 | Quartile: 2 | Citations: 60 DOI: https://doi.org/10.1007/s11356-020-11975-7

Deficit irrigation improves maize yield and water use efficiency in a semi-arid environment

2021

Zou Yufeng Qaisar Saddique Ali Ajaz Xu Jiatun Muhammad Imran Khan Qing Mu Muhammad Azmat Huanjie Cai Kadambot H.M. Siddique

Agricultural Water Management, Volume 243, Article Number 106483

Impact Factor: 6.611 | Quartile: 1 | Citations: 96

DOI: https://doi.org/10.1016/j.agwat.2020.106483

Analyzing the Performance and Application of CERES-Wheat and APSIM in the Guanzhong Plain, China

2020

Qaisar Saddique Yufeng Zou Ali Ajaz Jianmei Ji Jiatun Xu Muhammad Azmat Muhammad Habib ur Rahman Jianqiang He Huanjie Cai

Transactions of the ASABE, Volume 63(6), Pages 1879-1893

Impact Factor: 1.188 | Quartile: 3 | Citations: 8 DOI: https://doi.org/10.13031/trans.13631

Climatic and hydrological projections to changing climate under CORDEX-South Asia experiments

2020

over the Karakoram-Hindukush-Himalayan water towers

Muhammad Azmat Abdul Waheed Aasia Wahab Christian Hugge Muhammad Uzair Qamar Ejaz Hussain Shakil Ahmad

Science of the Total Environment, Volume 703, Article Number 135010

 $\label{lem:matter:prop:matter:29} \textbf{DOI:} \ \ \text{https://doi.org/10.1016/j.scitotenv.2019.135010}$

Pitfalls in transboundary Indus Water Treaty: a perspective to prevent unattended threats to the global security

2019

Muhammad Uzair Qamar Pierluigi Claps Muhammad Uzair Qamar Muhammad Azmat Pierluigi Claps

NPJ Clean Water, Volume 2, Article number: 22

Impact Factor: 0 | Citations: 17

DOI: https://doi.org/10.1038/s41545-019-0046-x

Future climate and cryosphere impacts on the hydrology of a scarcely gauged catchment on the Jhelum river basin, Northern Pakistan

2018

Muhammad Azmat Muhammad Uzair Qamar Christian Huggel Ejaz Hussain

Science of The Total Environment, Volume 639, Pages 961-976

Impact Factor: 5.589 | Quartile: 1 | Citations: 69

DOI: 10.1016/j.scitotenv.2018.05.206

Flow duration curve regionalization with enhanced selection of donor basins

2018

Muhammad Uzair Qamar Daniele Ganora Pierluigi claps Muhammad Azmat Muhammad Adnan Shahid Rao Arsalan Khushnood Journal of Applied Water Engineering and Research, Volume: 6, Issue: 1, Pages: 70-84

Impact Factor: 0 | Citations: 6

Water Pricing and Implementation Strategies for the Sustainability of an Irrigation System: A Case

Study within the Command Area of the Rakh Branch Canal

Muhammad Uzair Qamar Muhammad Azmat Azhar Abbas Muhammad Usman Muhammad Adnan Shahid Zahid Mahmood Khan

Water, Volume 10(4), Article Number 509

Impact Factor: 2.524 | Quartile: 2 | Citations: 17

DOI: 10.3390/w10040509

Ensembling Downscaling Techniques and Multiple GCMs to Improve Climate Change Predictions in

2018

Cryosphere Scarcely-Gauged Catchment

Muhammad Azmat Muhammad Uzair Qamar Shakil Ahmad Muhammad Adnan Shahid Ejaz Hussain Sajjad Ahmad Rao Arsalan Khushnood

Water Resources Management, Volume 32, Pages 3155-3174

Impact Factor: 2.987 | Quartile: 1 | Citations: 13

DOI: 10.1007/s11269-018-1982-9

Optimizing Irrigation Deficit of Multipurpose Cascade Reservoirs

2018

Muhammad Usman Rashid Abid Latif Muhammad Azmat

Water Resources Management, NULL

Impact Factor: 2.987 | Quartile: 1 | Citations: 20 DOI: https://doi.org/10.1007/s11269-017-1897-x

Regional Groundwater Quality Management through Hydrogeological Modeling in LCC, West

2017

Faisalabad, Pakistan

Aamir Shakoor Zahid Mahmood Khan Muhammad Arshad Hafiz Umar Farid Muhammad Sultan Muhammad Azmat Muhammad Adnan Shahid Zafar Hussain

Journal of Chemistry, Article Number: 2041648

Impact Factor: 1.726 | Quartile: 3 | Citations: 18

DOI: https://doi.org/10.1155/2017/2041648

Application of HEC-HMS for the event and continuous simulation in highaltitude

2017

Muhammad Azmat M.U. Qamar S. Ahmed Ejaz Hussain M. Umair

European Water, Vol.57, Pages 77-84

Impact Factor: -

DOI: NA

Rainfall Extremes: a Novel Modeling Approach for Regionalization

201

Muhammad Uzair Qamar Muhammad Azmat Muhammad Adnan Shahid Daniele Ganora Shakil Ahmad Muhammad Jehanzeb Masud Cheema Muhammad Abrar Faiz Abid Sarwar

Water Resources Management, Volume 31, Issue 6, Pages 1975-1994

Impact Factor: 2.644 | Quartile: 1 | Citations: 9

DOI: 10.1007/s11269-017-1626-5

Impacts of changing climate and snow cover on the flow regime of Jhelum River, Western Himalayas

2017

Muhammad Azmat Umar Waqas Liaqat Muhammad Uzair Qamar Usman Khalid Awan

Regional Environmental Change, Volume 17, Issue 3, Pages 813-825

Impact Factor: 3.149 | Quartile: 2 | Citations: 56

DOI: 10.1007/s10113-016-1072-6

Model swapping: A comparative performance signature for the prediction of flow duration curves in ungauged basins

2016

Muhammad UzairQamar Muhammad Azmat Muhammad Jehanzeb Masud Cheema Muhammad Adnan Shahid Rao Arsalan Khushnood Sajjad Ahmad Journal of Hydrology, Volume 541, Pages 1030-1041

Impact Factor: 3.483 | Quartile: 1 | Citations: 13 DOI: http://dx.doi.org/10.1016/j.jhydrol.2016.08.012

Performance Evaluation of Hose-Reel Sprinkler Irrigation System

2016

Sarfraz Hashim Sajid Mahmood Muhammad Afzal Muhammad Azmat Hafiz Abdur Rehman Arabian Journal for Science and Engineering, Volume: 41, Issue: 10, Pages: 3923-3930

Impact Factor: 0.865 | Quartile: 3 | Citations: 12

DOI: 10.1007/s13369-015-1953-x

Precipitation variability assessment of northeast China: Songhua River basin

2016

Muhammad Imran Khan Dong Liu Qiang Fu Muhammad Azmat Mingjie Luo Yuxiang Hu Yongjia Zhang Faiz M Abrar

Journal of Earth System Science, Volume 125, Issue 5, Pages 957-968

Impact Factor: $0.955 \mid$ Quartile: $4 \mid$ Citations: 14

2018

DOI: 10.1007/s12040-016-0715-9 Hydrological modeling to simulate streamflow under changing climate in a scarcely gauged 2016 cryosphere catchment Muhammad Azmat Minha Choi Tae-Woong Kim Umar Waqas Liaqat Environmental Earth Sciences, Volume: 75, Issue: 3 Impact Factor: 1.569 | Quartile: 3 | Citations: 44 DOI: 10.1007/s12665-015-5059-2 Estimation of Water Resources Availability and Mini-Hydro Productivity in High-Altitude Scarcely-2015 **Gauged Watershed** Muhammad Azmat Francesco Laio Davide Poggi Water Resources Management, Volume: 29, Issue: 14, Pages: 5037-5054 Impact Factor: 2.437 | Quartile: 1 | Citations: 19 DOI: https://doi.org/10.1007/s11269-015-1102-z **Conference Proceedings** Genetic algorithm based optimization of multipurpose cascade reservoirs for sustainable economic 2019 growth Muhammad Usman Rashid Muhammad Azmat F. Raees 11th World Congress on Water Resources and Environment (EWRA 2019), res.country(68,) Citations: N/A DOI: N/A Application of HEC-HMS for the event and continuous simulation in highaltitude scarcely-gauged 2017 catchment under changing climate Muhammad Azmat M.U. Qamar Shakil Ahmad Ejaz Hussain Muhmmad Umair 10th World Congress of EWRA, res.country(88,) Citations: N/A DOI: Nil Application of HEC-HMS for the event and continuous simulation in high-altitude scarcely-gauged 2017 catchment under changing climate M. Azmat M.U. Qamar S. Ahmed E. Hussain M. Umair 10th World Congress of EWRA 'Panta Rhei', res.country(88,) Citations: N/A DOI: N/A The Integrated Modeling Approach for Urban Flooding in the Context of Changing Climate (Case of Lai 2016 Nullah, Pakistan)

Dr. Shakil Ahmad Engr. Hammayun Zulifqar Rana Dr. Muhammad Azmat

Water and Environment for Sustainable Development in Changing Climate, res.country(177,)

Citations: N/A

DOI: http://waterenvironmentforum.pk/detail/proceedingsreport.pdf

Editorial Activities

Reviewed Papers for Journals	2021
Impact Factor: 6.551 Reviewed Papers for Journals	2021
Impact Factor: 6.551	2021
Reviewed Papers for Journals Impact Factor: 3.645	2019
Reviewed Papers for Journals Impact Factor: 5.58	2019
Edited Journal Issue / Proceeding / Book Impact Factor: -	
Reviewed Papers for Journals Impact Factor: 0.529	2019
Reviewed Papers for Journals Impact Factor: 2.767	2019
Reviewed Papers for Journals Impact Factor: 5.589	2018
Reviewed Papers for Journals Impact Factor: 1.76	2018
Reviewed Papers for Journals Impact Factor: 1.871	2018
Reviewed Papers for Journals Impact Factor: 1.76	2018
Intellectual Property	
Copyrights	
Patents	
Industrial Designs	
loT connected water throw monitor Status: Granted Filed	2020
Trademarks	