Dr. Asif Sajjad

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Profile

Dr. Asif Sajjad is currently working as an Assistant Professor in the Department of Environmental Sciences at Quaid-i-Azam University, Islamabad, Pakistan. He has completed his PhD in Geographical Information Science and Cartography with research experience in climate change impacts, environmental hazards assessment, spatio-temporal flood monitoring, flood vulnerability assessment, damages assessment, numerical flood simulation modeling, sustainable flood management, Land use planning and water resource management. During my research career, I have successfully employed advanced GIS, Remote sensing, 1-D and 2-D hydrodynamic flood modelling techniques for spatial and temporal analysis of fluvial flood hazards, probabilistic flood simulation modelling, Land use and land cover changes, climate change and water resource management. In addition, I investigated how climate change and river morphology will influence the flood regimes with different return periods in the riverine floodplains.

Objective

- To achieve the best in my field via hard work and sincere efforts.
- A vibrant and motivated individual with an intense pursuit of distinction. I strive firmly with complete devotion and dedication to improve my knowledge and performance to achieve my set goals. I have faith in the hard work, teamwork, and cooperation that synergy is the key to success.

Area of Specialization

- Climate change and water resource management
- Environmental hazards
- Land use planning
- Flood monitoring, assessment and management
- Hydrodynamic flood simulation modeling

Technical Skills

- Expertise in GIS and Remote sensing techniques for flood disaster monitoring and management.
- Application of GIS and Remote sensing in Environmental hazards assessment .
- Climate changes impacts monitoring on Physical and Human environment
- Flood disaster assessment with different flood instances such as pre-flood, during flood, and post-flood using mixed methods approaches.
- Expertise in fluvial (Riverine) flood frequency analysis and 1-D and 2-d Modelling using HEC-RAS Model
- Expertise to predict and simulate flood extent modelling with different return periods of floods in a specific floodplain region.
- Expertise in identifying flood vulnerable areas with the help of the AHP technique
- Expertise in identifying different flood zonation based on flood susceptibility analysis from high-flood risk zone to Low flood risk zone.
- Skills in obtaining optical and RADAR satellite data, performing different analysis and classification, applying different satellite-derived spectral indices and representing and maintaining data with different geospatial data software (ArcGIS, Erdas Imagine, SNAP) and statistical software [**MS Office (Excel, Powerpoint, and Ms word), and SPSS]**.
- Excellent verbal and communication skills (evident from peer-reviewed journal publications and conference presentations)
- Self-motivated, responsible, and have the ability to work independently and as a part of a team
- Experience in mentoring and supervision of both undergraduate and postgraduate students from diverse cultural ethnic backgrounds

Research Experience

Ph.D., Wuhan University, Hubei, China

- To analyze and develop the Spatio-temporal flooded area extent delineation in floodplains using remote sensing data and methodologies to understand better flood situations that can be useful for endorsing policies for future flood reduction measures.
- To assess and evaluate the flood damages and flood hazard patterns using remote sensing and GIS techniques with ground-based data
- To develop a numerical 1-D and 2-D simulation model using HEC-RAS at river catchment level to predict peak flows with different return periods of floods and flood inundation extent in real-time.
- To propose a low-cost user-friendly mixed-method approaches to assess and manage the flood hazards scenario.

MS, Government College university, Lahore, Pakistan

- Cause and damage analysis of flood 2010 in south Punjab, Pakistan.
- To evaluate the element at risk and quantify the predicted damages
- Based on observations and results, the recommendation related to a flood disaster with respect to the 2010 flood was formulated.

Education

State Key Laboratory of Information Engineering in Surveying, Mapping and Remote Sensing, Wuhan University, Hubei, China

Ph.D. in GIS and remote Sensing ***December 2021***

Dissertation: Riverine flood risk assessment using remote sensing and numerical modelling in Punjab floodplains in Pakistan.

Supervisors: Prof. Chen Xiaoling and Prof. Dr. Lu Jianzhong

Department of Geography, Government College University, Lahore, Pakistan ***June 2015***

Master of Science (MS) in Geography *CGPA 3.63/4.0) (2nd position)*

Dissertation: Flood risk Management in District Muzaffargarh using Geoinformatics.

Supervisor: Dr Shakeel Mahmood

Department of Geography, Government College University, Lahore, Pakistan ***June 2014***

BSc (Hons) in Geography *CGPA 3.21/4.0)*

Dissertation: Causes and impacts of flood 2010 in Kot Addu, Punjab, Pakistan

Supervisor: Prof. Dr. Shakeel Mahmood

Selected Scholarships, Awards, and Prizes

- Best student award for excellent academic performance and outstanding comprehensive performance in the academic year 2020-2021, Wuhan University, China (***2020 and 2021)***
- Publication award for referred articles indexed by SCI/SSCI in 2019 and 2020, LIESMARS, Wuhan University, China ***(2019 - 2021)***
- **CSC Doctoral Scholarship**, Wuhan University (***2017***)
- Best oral presentation award at "The 2018 International 2nd Graduate Workshop on Geo-Informatics" in LIESMARS- Wuhan University, China ***(2018)***
- Got Honour Code Certificate for completing the online course of "12.340x: Global Warming Science" offered by Massachusetts Institute of Technology (MIT), USA through edx. Honour code certificate was issued on May 14th, 2014. Verified authenticity of this certificate is given at https://verify.edx.org/cert/504f02b18c4f411eb90e790089ce550f ***(2014)***
- Got Honour Code Certificate for completing the online course of "DART.ENVS.01.X: Introduction to Environmental Science" offered by Dartmouth College, New Hampshire, United States through edx. Certificate

was issued on March 31st, 2015. Verified authenticity is given at https://verify.edx.org/cert/bb974df6da4542f9901fbc5762f43767 ***(2015)***

- Got Honour Code Attestation for completing the online course of "ATOC185x: Natural Disasters" offered by McGill University, Canada through edx. Honour code certificate was issued on August 28th, 2014. Verified authenticity of this attestation is given at https://verify.edx.org/cert/897ed1da513444f189db19179080cebf ***(2014)***

Training workshops

- International Training Workshop on resource and Environment Scientific data sharing along the "Belt and Road, 4-18 Nov 2023, Beijing, China
- Training Workshop on Natural Disaster Monitoring, Prevention and Mitigation Technology along CPEC, 22-25 October 2023, Islamabad, Pakistan
- International Training Workshop on Disaster Risk Reduction Knowledge Service in China-Pakistan Economic Corridor, 9-11 Nov 2020, Beijing, China (virtual)
- Participated in a one-week HI-Target (International Surveying company) workshop in Guangzhou, China (2018)

Teaching Experience

- ***Assistant Professor "Department of Environmental Sciences, Quaid-I-Azam University, Islamabad, Pakistan***
  Carried out the Graduate and post-Graduate level teaching and research ***Sep 2022-till to date***
- ***Visiting Lecturer "Directorate of Distance Education, Department of Geography, Bahauddin Zakariya University (BZU), Multan, Pakistan*** ***Aug 2016 - Aug 2017***
  Carried out the graduate level teaching
- ***CTI (Lecturer), Government Post Graduate College Sahiwal, Punjab, Pakistan*** ***Oct. 2015 - May 2016***
  Carried out the undergraduate teaching
- ***Visiting Lecturer "Directorate of Distance Education, Department of Geography, Bahauddin Zakariya University (BZU), Multan, Pakistan (Sub-Campus Sahiwal)*** ***Sep 2013 - Mar 2015***
  Carried out the graduate level teaching

Research Supervision

- Supervised and co-supervised Master and Doctoral Students.

Administrative Responsibilities

- ***Student Affairs incharge "Department of Environmental Sciences, Quaid-I-Azam University, Islamabad, Pakistan*** ***Jan 2023-till Feb 2024***
- ***Incharge Quaidian Disaster Risk Management Society, Quaid-I-Azam University, Islamabad***
  Jan 2023-till to date
- ***Postgraduate Course Coordinator, Department of Environmental Sciences,Quaid-I-Azam University, Islamabad*** ***Feb 2024-till to date***

Reviewing Responsibilities

Reviewer of

- **Environmental Science and Pollution Research**
- **SN Applied Sciences**
- **Applied Biological Research ISSN: 0974-4517**
- **American Journal of Remote Sensing**
- **Geomatics and Environmental Engineering**
- **Sustainability**

- **Hydrology**
- **Water**
- **Land**
- **Natural Hazards Review**
- **Remote Sensing**
- **Atmosphere**

Scholarly Publications

1. Lingye1, T,; Saleem, N,; Aslam, RW,; **Sajjad, A*,;**Naz, I,; Tariq, A,; Alzahrani,H. "Assessment of Urban Environmental Quality by Socio-Economic and Environmental Variables Using Open Sources Datasets". **Transactions in GIS,** 2024, https://doi.org/10.1111/tgis.13250.

2. Naz, I,; Fan, H.; Aslam, RW,; Tariq, A,; Quddoos, A,; **Sajjad, A*,;** Soufan, W,; Almutairi, KF,; Ali, F. "Integrated Geospatial and Geostatistical Multi-Criteria Evaluation of Urban Groundwater Quality Using Water Quality Indices". **Water**, 2024, 16, 2549.

3. **Sajjad, A*.;** Lu, J.; Chen, X,; *Yousaf, Y,; Mazhar, N,; Shuja, S.* "Flood hazard assessment in Chenab River basin using hydraulic simulation modeling and remote sensing". ***Nat Hazards,* 2024**, 120, 7679–7700.

4. Aslam, R.W.; Shu, H.; Yaseen, A; **Sajjad, A.;** Zain ul Abidin, S. **"**Identification of time-varying wetlands neglected in Pakistan through remote sensing techniques". ***E*nviron Sci Pollut Res**. **2023,** https://doi.org/10.1007/s11356-023-27554-5

5. **Sajjad, A***.; Lu, J.; Aslam, R.W.; Ahmad, M. "Flood Disaster Mapping Using Geospatial Techniques: A Case Study of the 2022 Pakistan Floods"**. *Environ. Sci. Proc.* 2023, *25*, 78**

6. **Sajjad, A***,; Lu, J.; Chen, X. **"**Rapid assessment of riverine flood inundation in Chenab floodplains using remote sensing data" **Geoenvironment Disasters, 2023,10,9.**

7. **Sajjad, A.;** Lu, J.; Chen, X.; Chisenga, C.; Mazhar, N.; Nadeem, B. "Riverine Flood mapping and impact assessment using remote sensing technique: A case study of Chenab flood-2014 in Multan district, Punjab, Pakistan". ***Nat Hazards, 2021,*** 110, 2207–2226.

8. **Sajjad, A.;** Mahmood, S.; Rahman, A. U. "Cause and damage analysis of 2010 flood disaster in district Muzaffar Garh, Pakistan". ***Natural Hazards*, 2021,** *107*, 1681-1692. https://doi.org/10.1007/s11069-021-04652-6

9. Mazhar, N.; Shirazi, S. A.; Javid, K.; **Sajjad, A**. "Application of unmanned aerial vehicles (UAVs) for precision agriculture, in selected wheat fields of Rajanpur". ***Pakistan Geographical Review, 2021,*** 76, 213-223.

10. Waqas, H.; Lu, L. Xing, J.; **Sajjad, A.** "Flash Flood Susceptibility Assessment and Zonation Using an Integrating Analytic Hierarchy Process and Frequency Ratio Model for the Chitral District, Khyber Pakhtunkhwa, Pakistan". ***Water, 2021,*** 13,1650. DOI: https://doi.org/10.3390/w13121650

11. **Sajjad, A.;** Lu, J.; Chen, X.; Chisenga, C.; "Operational monitoring and damage assessment of riverine flood-2014 in the lower Chenab plain, Punjab, Pakistan, using remote sensing and GIS techniques". ***Remote Sensing, 2020***, *12*, 714. https://doi.org/10.3390/rs12040714

12. **Sajjad, A.;** Lu, J.; Chen.; Saleem, N. "Rapid riverine flood mapping with different water indexes using flood instances Landsat-8 images". ***5th International Electronic Conference on Water Sciences,2020***. https://doi.org/10.3390/ECWS-5-08049

13. Basit, M.; **Sajjad, A.;** Mahmood, Z.; Sohail, M. "Spatial assessment of transgender population: The deprived community on Pakistan". ***Arts and Social Science, 2020,*** 1, 1–12. https://doi.org/10.34154/2020-ASSJ-0202-01-12/euraass

14. **Sajjad, A.;** Lu, J.; Chen, X.; Chisenga, C.; Mahmood, S. "The riverine flood catastrophe in August 2010 in South Punjab, Pakistan: potential causes, extent and damage assessment. ***Appl. Ecol. Environ. Res., 2019***, 17, 14121-14142.http://dx.doi.org/10.15666/aeer/1706_1412114142

15. Mahmood, S.; Rahman, A. U.; **Sajjad, A.** Assessment of 2010 flood disaster causes and damages in district Muzaffargarh, Central Indus Basin, Pakistan. ***Environmental Earth Sciences*, 2019**. *78*, 63. https://doi.org/10.1007/s12665-019-8084-8

16. Saleem, N.; Huq, M.; Twumasi, N. Y. D.; Javed, A.; **Sajjad, A.** "Parameters derived from and/or used with digital elevation models (DEMs) for landslide susceptibility mapping and landslide risk assessment: a review". ***ISPRS International Journal of Geo-Information*, 2019**, *8*, 545. https://doi.org/10.3390/ijgi8120545

17. Basit, M.**; Sajjad, A.** "Female Deficit: Trends and Patterns of Sex Ratio in Pakistan, Directing Census- 2017" ***Asian Journal of Multidisciplinary Studies, 2019***, 7(1).

Conferences Presentations

1. Organized and chaired International Conference on waste business and management, from 12-13 September 2023 in Quaid-I-Azam University Islamabad
2. Published paper in the 7th International Electronic Conference on Water Sciences from March 15–30 2023 https://doi.org/10.3390/ECWS-7-14312
3. Organized and chaired 2nd International Conference on Climate Change and Environment, from 11-13 January 2023 in Quaid-I-Azam University Islamabad
4. Published and presented 2 papers in international conference on Geography and Global sustainability (ICGSS) organized by Department of Geography, University of Colombo, Sri Lanka from December 9-10,2021.
5. Presented paper in 16th All Pakistan Geographical Conference-APGC 2021, March, Department of Geography, University of the Punjab.
6. Published paper in 5th International Electronic Conference on Water Sciences from Nov 16–30 2020 https://doi.org/10.3390/ECWS-5-08049
7. Presented paper in second International Workshop on Artificial Intelligence and Big Data Analysis AIABDA2018 in Macao from April 23-25, 2018
8. Published abstract and presented in 2nd LIESMARS International Graduate Workshop on GEOINFORMATICS in Wuhan University, Wuhan, Hubei Province, China from July 8-11, 2018
9. Published abstract and presented in 3rd LIESMARS International Graduate Workshop on Geoinformatics in Wuhan University, Wuhan, Hubei Province, China from June 25-28, 2019