Abdullah-Al- Faisal

Environmental, Climate Change and Atmospheric Sciences Enthusiastic

✉ abdullah-al-faisal@localpathways.org |☎ (514) 441-1346 | 3455 Rue Durocher, Montreal, Quebec, H2X 2C9, Canada | sites.google.com/localpathways.org/abdullah-al-faisal |

RESEARCH INTEREST & MOTIVATION

Earth system dynamics, human earth-system, environmental sciences, remote sensing and GIS applications, topographic 3D data analysis, land cover change impacts, machine learning, computer science, land, ocean and atmospheric data analysis, water resource management, natural disasters, risk assessment, hazard vulnerability, and climate change are among my research interests.

EDUCATION

September 2022 – Present	**Doctor of Philosophy (PhD) in Earth and Planetary Sciences** – McGill University, Canada. - Awarded the Carl Reinhardt and David Stewart Memorial Fellowships for the academic year 2022/23.
September 2021 – September 2022	**Master of Science (MSc) in Applied Geographical Information Systems and Remote Sensing** – University of Southampton, United Kingdom. - Awarded Commonwealth Shared Scholarship 2021/22.
February 2020 – January 2021	**Local Pathways Fellow 2020 Cohort** – UN Sustainable Development Solutions Network - Youth Initiative (SDSN Youth) - Worked on SDG goal 11.6 and Target No 11.6.2.
January 2015 – July 2019	**Bachelor of Urban and Regional Planning** – Department of Urban and Regional Planning, Rajshahi University of Engineering and Technology (RUET), Dhaka, Bangladesh. - CGPA: 3.64/4; First Class Fifth; SGPA 4.00/4 in 8th Semester.

WORK EXPERIENCE

September 2022 – Present	**Teaching Assistant,** Natural Disasters – EPSC 185, Department of Earth and Planetary Sciences, McGill University
July 2020 – August 2021	**GIS Specialist,** GIS Centre, Operational Centre Amsterdam (OCA) at Médecins Sans Frontières (MSF) – Bangladesh - team leader of GIS team, leads primary data collection team, analyzed camp's WASH infrastructures to find out stressed zones, displaying them into operational dashboards, technical coordination etc.
May 2019 – July 2020	**Research Consultant,** Climate Change and Disaster Management Division at Center for Environmental and Geographic Information and Services (CEGIS) – a public trust under Ministry of Water Resources. - disaster risk reduction (DRR), multi-criteria analysis (MCA), multi-hazard risk assessment, catchment delineation and discharge calculation, coastal crop damage assessment due to flood, prioritized critical road identification.

PUBLICATIONS (Google Scholar; ResearchGate)

Selected Peer-Reviewed Journal Publications (13 out of 27): (Frist Quartile: 13)

1. **Faisal, A. A.,** Rahman, M. M., Haque, S. (**2021**). Retrieving spatial variation of aerosol level over urban mixed land surfaces using Landsat imageries: Degree of air pollution in Dhaka Metropolitan Area. *Physics and Chemistry of the Earth, Parts A/B/C*,103074. DOI: doi.org/10.1016/j.pce.2021.103074. **(ELSEVIER)**
2. Kafy, A. A., **Faisal, A. A.**, Rahman, M. S., Islam, M., Rakib, A. A., Islam, M. A., Khan, M. H. H., Sikdar, M. S., Sarker, M. S., Mawa, J., Sattar, M. G. (**2021**). Prediction of seasonal urban thermal field variance index using machine learning algorithms in Cumilla, Bangladesh, *Sustainable Cities and Society*, 64 (2021), 102542. DOI: https://doi.org/10.1016/j.scs.2020.102542. **(ELSEVIER)**

3. Kafy, A.-A., **Faisal, A. A.**, Al Rakib, A., Fattah, M. A., Rahaman, Z. A. and Sattar, G. S. (2021). Impact of vegetation cover loss on surface temperature and carbon emission in a fastest-growing city, Cumilla, Bangladesh, *Building and Environment*, 108573. DOI: https://doi.org/10.1016/j.buildenv.2021.108573**.**
4. **Faisal, A. A.,** Kafy, A. A., Rakib A. A., Akter, K. S., Raikwar, V., Jahir, D. M. A., Ferdousi J., Kona, M. A. (**2021**). Assessment and prediction of seasonal land surface temperature change using multi-temporal Landsat images and their impacts on agricultural yields in Rajshahi, Bangladesh. *Environmental Challenges*, 4(2021), 100147. DOI: https://doi.org/10.1016/j.envc.2021.100147. **(ELSEVIER)**
5. **Faisal, A. A.,** Kafy, A. A., Rahman, A. N. M. F., Rakib A. A., Akter, K. S., Jahir, D. M. A., Sikdar, M. S., Ashrafi, T. H., Malik, S., Rahman, M. M. (**2021**). Assessing and predicting land use/land cover, land surface temperature and urban thermal field variance index using Landsat imagery for Dhaka Metropolitan area. *Environmental Challenges*, 4(2021), 100192. DOI: doi.org/10.1016/j.envc.2021.100192. **(ELSEVIER)**
6. Kafy, A. A., **Faisal, A. A.,** Raikward, V., Rakib A. A., Kona, M. A., Ferdousi J. (**2021**). Geospatial approach for developing an integrated water resource management plan in Rajshahi, Bangladesh. *Environmental Challenges*, 4(2021), 100139. DOI: https://doi.org/10.1016/j.envc.2021.100139. **(ELSEVIER)**
7. Kafy, A. A., **Faisal A. A.**, Rakib, A. A, S. Roy, S., Ferdousi, J., Raikwar, V., M.A. Kona, M.A., Al-Fatin, S.M.A. (2021). Predicting changes in land use land cover and seasonal land surface temperature using multi-temporal Landsat images in the northwest region of Bangladesh, *Heliyon*, DOI: https://doi.org/10.1016/j.heliyon.2021.e07623. **(ELSEVIER)**
8. Kafy, A. A., **Faisal. A. A.,** Shuvo, R. M., Huda Naim, M. N., Sikdar, M. S., Chowdhury, R. R., Kona, M. A. (**2021**). Remote sensing approach to simulate the land use/land cover and seasonal land surface temperature change using machine learning algorithms in a fastest-growing megacity of Bangladesh. *Remote Sensing Applications: Society and Environment*, 21(2021), 100463. DOI: doi.org/10.1016/j.rsase.2020.100463. **(ELSEVIER)**
9. Kafy, A. A., Naim, M. N. H., Subramanyam, G., **Faisal, A. A.**, Ahmed, N. U., Al Rakib, A., Sattar, G. S. (2021). Cellular Automata approach in dynamic modeling of land cover changes using RapidEye images in Dhaka, Bangladesh. Environmental Challenges, 4(2021), 100084. DOI: https://doi.org/10.1016/j.envc.2021.100084. **(ELSEVIER)**
10. **Faisal, A. A.**, Kafy, A. A., Fattah, M. A., Jahir, D. M. A., Rakib, A. A., Rahaman, Z., A., Ferdousi, J., Huang, X. (**2021**). Assessment of temporal shifting of PM2.5, lockdown effect, and influences of seasonal meteorological factors over the fastest-growing megacity, Dhaka. *Spatial Information Research*. 1-13. DOI: https://doi.org/10.1007/s41324-022-00441-w . **(SPRINGER)**
11. Kafy, A.-A., Saha, M., **Faisal, A. A.**, Rahaman, Z. A., Liu, D., Rahman, M. T., Fattah, M. A., Al Rakib, A., Rahaman, S. N., Hasan, M. Z., Ahasan, A. K. (**2022**). Predicting the impacts of land use/land cover changes on seasonal urban thermal characteristics using machine learning algorithms. *Building and Environment*. 217(109066): 1-19. DOI: https://doi.org/10.1016/j.buildenv.2022.109066. **(ELSEVIER)**
12. Saha, M., Kafy, A. A., Bakshi, **Faisal, A. A.**, Almulhim, A. I., Rahaman, Z. A., Al Rakib, A., ... & Rathi, R. (**2022**). Modelling microscale impacts assessment of urban expansion on seasonal surface urban heat island intensity using neural network algorithms. *Energy and Buildings*, 275, 112452. DOI: https://doi.org/10.1016/j.enbuild.2022.112452. **(ELSEVIER)**
13. Kafy, A. A., Rahman, M. S., **Faisal, A. A.,** Hasan, M. M., Islam, M., (**2020**). Modelling Future Land Use Land Cover Changes and Their Impacts on Land Surface Temperatures in Rajshahi, Bangladesh. *Remote Sensing Applications: Society and Environment*. 20 (2020). 1-18. DOI: https://doi.org/10.1016/j.rsase.2020.100314. **(ELSEVIER)**

Selected Conference Proceedings (3 out of 14)

14. **Faisal, A. A.**, Hossain, A., Shajibul, H., Shaunak, M. F., Kafy, A. A. (**2019**). Remote Sensing Approach in Wetland and Land Degradation Assessment: A Scenario of Modhumoti Model Town, Savar, Bangladesh, Proceeding of 1st International Conference on Urban and Regional Planning, (pp 247-256). Dhaka, Bangladesh: Bangladesh Institutes of Planners. [pdf]
15. Kafy, A. A., Ferdous, L., **Faisal, A. A.**, Khan H.A.H., Sheel, P. K. (**2018**). Exploring the Association of Surface Water Body Change and Rapid Urbanization in Rajshahi City Corporation (RCC) Area Using RS and GIS, Proceeding of 1st National Conference on Water Resources Engineering (NCWRE 2018). [pdf]
16. **Faisal A. A.**, & Khan H. A. H., (**2017**). Application of GIS and Remote Sensing in Disaster Management: A Critical Review of Flood Management. Proceeding of International Conference on Disaster Risk Mitigation (ICDRM) BUET-JIDPUS. Dhaka, Bangladesh. [pdf]

Selected Taylor and Francis Book Chapter (2 out of 3)

17. **Faisal, A. A.,** Rahman, M. S., Kafy, A. A., Roy, S., Rafi, R., Rahman, M. M. (**2021**). Impact on Land Surface Temperature and Urban Heat Island Due to Land Use Land Cover Change in Dhaka Metropolitan Area Using Remote Sensing and GIS Techniques. Singh, R (Ed.). *Urbanization, Disaster Management and Planning Papers*. Boca Raton, Taylor & Francis (CRC Press).
18. Kafy A.A., Naim N.H., Khan M.H., Islam M.A., Rakib A.A., **Faisal A.A.,** Sarker M.H. (**2020**). Prediction of urban expansion and identifying its impacts on the degradation of agricultural land: a machine learning-based remote-sensing approach in Rajshahi, Bangladesh. Singh, R (Ed.). *Urbanization, Disaster Management and Planning Papers*. Boca Raton, Taylor & Francis (CRC Press).

Selected Under Review Article (2 out of 3)

19. "Dasymetric population exposure estimation in the largest city corporations of Bangladesh: An analytical tool for identifying city development" - **Springer** Journal " Population and Environment".
    Faisal A. A., Kafy A. A., Jahir D. M. A., Rakib A. A., Mallik S.
20. "Exploring and forecasting spatial and temporal patterns of fire hazard risk in Nepal's tiger conservation zones" - Elsevier Journal “Ecological Modeling”.
    Faisal, A. A.

HONORS AND AWARDS

1. **Founder** of a **Research Organization**: **Dynamic Institute of Geospatial Observation Network - DIGON** (digonresearch.org)
2. **Article Peer Reviewed (4)** – 2 in Elsevier, 1 in Springer and another 1 in Register.
3. Former **Vice President** of URP Students’ Association of RUET (USAR).
4. Former **Joint Secretary** of Innovation Society of RUET (ISR).
5. **Champion** on Innovative Idea Competition on Solid Waste Management. The poster title was “**WASTE IS NOT WASTE UNTIL WASTED**”.

TECHNICAL SKILLS

1. Python, Google Earth Engine, Model Builder, ENVI IDL, RStudio.
2. Geo-Spatial and Geo-Statistical Analysis.
3. Remote Sensing; GIS; Web GIS; Climate Change; Disaster Risk Reduction (DRR); Land, Air, Forest and Hydrological Analysis; Machine Learning Algorithms, Photogrammetry, LiDAR, Laser Scanning, Topographic Data Analysis.
4. ArcGIS, ArcGIS Pro, QGIS, ERDAS Imagine, ENVI, AutoCAD, SPSS, AMOS, SketchUP, Lumion, After Effect, Survey Tools (ArcGIS Survey123, Collector, Kobo Toolbox).

TRAININGS/WORKSHOPS/SEMINARS ATTENDED

2021	United Nations/Mongolia Workshop on the applications of global navigation satellite systems, 25 - 29 October 2021, Ulaanbaatar
2021	Commonwealth Scholarship Climate Action Webinar Series
2020	Training on “SAR for Disasters and Hydrological Applications” by NASA’s Applied Remote Sensing Training Program (ARSET).
2020	Training on “21 days Online GIS Training Program using QGIS” conducted by the Department of Geography, School of Earth Sciences, Central University of Karnataka, India, jointly with State Institute of Urban Development, Karnataka, India.

PROFESSIONAL AFFILIATION

Associate Member (ID – 1807), Bangladesh Institute of Planners (BIP)