

Curriculum Vitae

Education

- 2008-2011 **PhD** (Meteorology), Institute of Atmospheric Physics
Graduate University of Chinese Academy of Sciences, Beijing, China
Advisor: Professor Dr. Shouting Gao
- 2001-2003 **MPhil** (Physics), *University of the Punjab* Lahore, Pakistan
- 1995-1997 **MSc** (Physics), *University of the Punjab* Lahore, Pakistan

Teaching, Research & Administrative Experience

- April 20, 2018–present **Associate Professor (Tenured)**, Department of Meteorology,
COMSATS University Islamabad (CUI)

(* Currently **Tenured Professor** case is with HEC)
- April 7, 2021-April 6, 2024 **Chairman**, Department of Meteorology, CUI, Islamabad
- January 29, 2013–Nov.19, 2019 **Head**, Department of Meteorology, CUI, Islamabad

Date of Joining on TTS

- Sep.19, 2011-April 19, 2018 **Assistant Professor**, Department of Meteorology, CUI,
Islamabad

Date of Joining on OG

- August 28, 2006-Sep. 18, 2011 **Assistant Professor**, Department of Meteorology, CUI,
Islamabad

Date of Joining CUI

- September 12, 2005-August 29, 2006 **Lecturer**, Department of Meteorology, CUI, Islamabad

Date of Birth: January 06, 1973

Awards and Scholarships

- 2018 6th HEC Outstanding Research Awards 2015/2016
- 2015 Research Productivity Award, CUI, Islamabad, Pakistan
- 2013 Research Productivity Award, CUI, Islamabad, Pakistan
- 2012 Research Productivity Award, CUI, Islamabad, Pakistan
- 2008-2011 PhD Scholarship Award, Graduate University of Chinese Academy of
Sciences, Beijing, China.

Academic and Research Interests

Mesoscale meteorology, cloud physics, monsoon dynamics, climate change, WRF modeling,
Application of Remote Sensing Techniques in meteorology, Air pollution

MS/PhD Supervised

PhD dissertations topics are as follows:

- 1- Spatio-Temporal Distribution of Drought and its Characteristics over Pakistan (completed)
- 2- Assessment of Variations in Aridity and Climatic Extremes over Agro-diversified Region of Pakistan in Changing Climate (completed)
- 3- Variability of South Asian Summer Monsoon and its Impacts on Eastern River Floods in Pakistan (in progress)
- 4- Analysis of Impact-Based Weather Forecast for Agriculture and Health Sector in Pakistan (in progress)

MS students: more than 40 (completed)

Post-doctoral students

- a) An international postdoc student Dr. Denis Magnus Ken Amara from the Department of Soil Science, School of Agriculture, Njala Campus, Njala University, Sierra Leone, has been completed (December 02, 2017 to November 12, 2018) research work under my supervision through the CIIT-TWAS Fellowship program.

Computer skills

- Operating Systems: Windows and Linux
- Programming Languages: FORTRAN, NCL, Python
- Model: WRF

Memberships

- American Geophysical Union (AGU)
- American Meteorological Society (AMS)

Workshops/conferences participated/organized.

- Participated in the International Forum on Artificial Intelligence in Remote Sensing for the Management of Epidemics and Natural Disasters, which was organized via video conference on June 12, 2022, Sultan Qaboos University, Oman.
- Participated in an international Roundtable on “Policy Development in Lightning Hazard Mitigating Strategies in Countries with High Ground Flash Density” during 11-12 May 2021 [Virtual Mode], South Africa.
- Participated in an international Forum on Earth Observation and Geospatial Information Technology, which was organized via video conference on May 26, 2021, Sultan Qaboos University, Oman.
- On behalf of the meteorology department presented a paper in a Fifth International Workshop of Meteorological Science and Technology in Central Asia, (NUIST), Nanjing, China on October 14-16, 2019.
- Organized as PI a three-days international training workshop on “Mesoscale Modeling using WRF Model” November 5-7, 2018, at CUI, Islamabad, Pakistan

- Participated in an international Training Workshop on Extreme Weather and Climate Events: detection, monitoring, prediction and risk management for developing countries, July 13-23, 2013, Beijing, China.

Invited Talks

- Pattern of atmospheric moisture flux and its role in 2022 monsoon extreme rainfall over Pakistan was presented on December 7, 2022, at NUIST, Nanjing, China.
- The Mechanism and Prediction of the Torrential Rainfall over the West China and Northern Pakistan, (NUIST), Nanjing, China (October 14-16, 2019).
- Investigations into precipitation and drought climatologies in South Central Asia with special focus to Pakistan over the period of 1951-2010, Wuhan, China (November 2017).
- The Analysis of Heavy Rainfall Event over Pakistan based on WRF Model, PIEAS, Islamabad, Pakistan (November 2016).
- The Role of Geothermal Energy of Nepal Earthquake with Unusual Extreme Weather Event over Northern Pakistan, IMARC, KIU, Gilgit, Pakistan (September 17-19, 2015).
- The Role of Generalize Moist Potential Vorticity for the Convection during Pakistan Flood of July 2010, Islamabad, Pakistan (January 2014).
- Characteristics and Prediction of an Extreme Rainfall Event over Pakistan Using a WRF Model, Beijing, China (July 2013).
- The Analysis of an Extreme Rainfall Event over Pakistan based on Mesoscale Model, Xingyi, China (September 2012).
- Assessment of WRF Model Simulation of a Torrential Monsoon Rainfall Event over northern Pakistan, Islamabad-Pakistan (November 2011).
- Tornado Occurrence in the Northwest of Lahore, Punjab, Kathmandu, Nepal (March 31- April 2, 2008).

Book Chapters

- Masood N. et al., 2021: Insect Pest Management Under Climate Change. In: Jatoi W.N., Mubeen M., Ahmad A., Cheema M.A., Lin Z., Hashmi M.Z. (eds) Building Climate Resilience in Agriculture. Springer, Cham. https://doi.org/10.1007/978-3-030-79408-8_15.
- Kattel, D.B., **K. Ullah**, M.Z. Hashmi, L. Tripathee, A. Mohanty, and T. Yao, 2017: Atmospheric Pollutants and Its Transport Mechanisms in Soil Along the Himalayas, Tibetan Plateau, and Its Surroundings: A Brief Note. *Xenobiotics in the Soil Environment*, pp. 9-19.
- Shahzad, M. I, Qaiser, S., **Ullah, K.**, and Waqas, 2017: A Spatio-Temporal Analysis of Lightning Activities over Pakistan. NAM S & T Publication on "*Lightning Impacts in developing countries of Africa and Asia*". Centre for Science and Technology of the non-Aligned & other developing countries (NAM S & T Centre), India Habitat Centre, Lodhi Road, New Delhi-110003 India.

Competitively Funded Research

- PI: *Mesoscale Modeling for Improving Weather Prediction in Pakistan*. National Research Program for Universities (NRPU) HEC. 2018-2022 (PKR.9.4million)

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- PI: *The Mechanism and Prediction of the Torrential Rainfall over the West China and Northern Pakistan*. PSF/NSFC. 2016-2019 (PKR.6.6million)
- PI: *Asian Monsoon and Climate Change*. HEC. 2014 (PKR.1.0 million)
- Co-PI: *Landslide Mapping and Susceptibility Assessment in the Upper Indus Basin*. HEC. 2019-2020 (PKR. 385000/-)
- Co-PI: *Impact of Air Pollution on Performance and Attendance of School Children*. Interactive Group of Pakistan. 2015-2020 (PKR.1.2 million)

Indexed Journal Papers

- [1] Fatima, S. and **Ullah, K.** 2024. Spatiotemporal Analysis and Future Projections of Heatwave Trends in Pakistan Using CMIP6. *Urban Climate*, (under review).
- [2] Cheema, S.B., and **Ullah, K.**, 2024. Short-term forecasting of Daily Reference Crop Evapotranspiration Based on Calibrated Hargreaves Equation at Regional Scale. *Earth Systems and Environment*. (accepted) **IF. 7.2**
- [3] Asad, A., **Ullah, K.**, Butt, M.J., and Labban, A.H. 2023. Analysis of Urban Heat Island Effects in High Altitude Areas of Pakistan. *Remote Sensing Applications: Society and Environment*, <https://doi.org/10.1016/j.rsase.2023.101071>. **IF.4.7**
- [4] Naz, R., and **Ullah, K.**, 2023. Assessment of Waterlogging, Salinity and Urban Expansions in Rice-Wheat Zone of Rachna Doab, Punjab, Pakistan through Earth Observation Indices. *Arabian Journal of Geosciences*. (Revision submitted) **IF.2.01**
- [5] Adnan, S., Bibi, A., Latif, M., **Ullah, K.**, et al., 2023. Diagnostic Study on Extreme Precipitation over Karachi during August 2020. *Meteorology and Atmospheric Physics*, (revision submitted). **IF.2.292**
- [6] Amara, D.M.K, and **Ullah, K.**, 2023. Quantification of Precipitation Deficits on Different Time Scales in Sierra Leone Using Standard Precipitation Index. *Theoretical and Applied Climatology*, 151:1133–1150. <https://doi.org/10.1007/s00704-022-04322-y>. **IF.3.410**
- [7] Ikram, F., **Ullah, K.**, and Chen, D., 2022. Evaluation of Three Genesis Potential Indices for Tropical Cyclogenesis in the Arabian Sea: two case studies using WRF and ERA5. *Monthly Weather Review*, 150 (12), 3275-3303. <https://doi.org/10.1175/MWR-D-22-0048.1>. **IF.3.728**
- [8] **Ullah, K.**, and Ikram F., 2022. Dynamics of Unusual Extreme Rainfall Events Over Different Altitudes using Richardson Number. *Earth and Space Science*, 9(8), e2022EA002283. <https://doi.org/10.1029/2022EA002283>. **IF.3.68**
- [9] Adnan, S., and **Ullah, K.**, 2022. Long-term trends in climate parameters and multiple indices for drought monitoring over Pakistan. *Meteorology and Atmospheric Physics*, 134(4), 75.

<https://doi.org/10.1007/s00703-022-00908-3>. **IF.2.292**

- [10] Maida Ashraf, **Ullah, K.**, and Adnan, S. 2022. Satellite Based Impact Assessment of Temperature and Rainfall Variability on Drought Indices in Southern Pakistan. *International Journal of Applied Earth Observation and Geoinformation*, 108(11):102726. <https://doi.org/10.1016/j.jag.2022.102726> **IF.7.672**
- [11] Kattel, D.B., Yao, T., Salih, H.A.M., and **Ullah, K.** 2022. Near-surface Air Temperature Dependence on Elevation and Geographical Coordinates over Tropical Desert Land Surfaces. *Frontiers in Earth Science*, 9: 777381. <https://doi.org/10.3389/feart.2021.777381>. **IF.3.661**
- [12] Huang, X., Zhou, Y., Ran, L., **Ullah, K.**, and Zeng, Y. 2021: Analysis of the Environmental Field and Unstable Conditions on A Rainstorm Event in the Ili Valley of Xinjiang [J]. *Chinese Journal of Atmospheric Sciences* (in Chinese), 45(1): 148–164. **IF.0.66**
- [13] Sajjad, H., and **Ullah, K.** 2021. Historical and Projected Shift in Agro-climatic Zones and Associated Variations of Daily Temperature and Precipitation Extremes using CORDEX- SA over Pakistan. *Asia-Pacific Journal of Atmospheric Sciences*, 57:757–771. <https://doi.org/10.1007/s13143-021-00231-8>. **IF.2.3**
- [14] Adnan, S., Hanif, M., Khan, A.H., Latif, M., **Ullah, K.**, Bashir, F., Kamil, S., and Haider, S. 2021. Impact of Heat Index and Ultraviolet Index on COVID-19 in Major Cities of Pakistan. *Journal of Occupational and Environmental Medicine*, 63(2): 98–103. **IF.1.71**
- [15] Zheng, Y., Li, S., and **Ullah, K.** 2020. Increased Occurrence and Intensity of Consecutive Rainfall Events in the China's Three Gorges Reservoir Area under Global Warming. *Earth and Space Science*, 7, e2020EA001188. <https://doi.org/10.1029/2020EA001188>. **IF.3.68**
- [16] Adnan, S., and **Ullah, K.** 2020. Development of Drought Hazard Index for Vulnerability Assessment in Pakistan. *Natural Hazards*, 103:2989–3010. <https://doi.org/10.1007/s11069-020-04116-3>. **IF.3.158**
- [17] Bibi, A., **Ullah, K.**, Yushu, Z., Wang, Z., and Gao, S., 2020. Role of Westerly Jet in Torrential Rainfall during Monsoon over Northern Pakistan. *Earth and Space Science, AGU 7*, e2019EA001022. <https://doi.org/10.1029/2019EA001022>. **IF.3.68**
- [18] Ain, N.U., Latif, M., **Ullah, K.**, Adnan, S., Ahmed, R., Umar, M., and Azam, M. 2020. Investigation of seasonal droughts and related large-scale atmospheric dynamics over the Potwar Plateau of Pakistan. *Theoretical and Applied Climatology*, **140**, 69–89. <https://doi.org/10.1007/s00704-019-03064-8>. **IF.3.410**
- [19] Sajjad, H., and **Ullah, K.** 2020. Projected Crop Water Requirement over Agro-climatically Diversified Region of Pakistan. *Agricultural and Forest Meteorology*, **281**, 107824, <https://doi.org/10.1016/j.agrformet.2019.107824>. **IF.6.42**

- [20] Amara, D.M.K., **Ullah, K.**, and Yushu, Z. 2020. Rainfall Erosivity Estimation for Sierra Leone Using Non-Parametric Indices. *Theoretical and Applied Climatology*, **139**(1), 221-236. <https://doi.org/10.1007/s00704-019-02960-3>. **IF.3.410**
- [21] Adnan, S., **Ullah, K.**, and Ahmed, R. 2020. Variability in meteorological parameters and their impact on evapotranspiration in a humid zone of Pakistan. *Meteorological Application*, **27** (1), e1859. <https://doi.org/10.1002/met.1859>. **IF.2.41**
- [22] Kattel, D.B., Yao, T., **Ullah, K.**, and Rana, A.S. 2019. Seasonal Near-surface Air Temperature Dependence on Elevation and Geographical Coordinates for Pakistan. *Theoretical and Applied Climatology*, **138**,1591–1613.DOI:10.1007/s00704-019-02899-5. **IF.3.410**
- [23] Javed, Z., Liu, C., **Ullah, K.**, Tan, W., Xing, C. and Liu, H. 2019. Investigating the Effect of Different Meteorological Conditions on MAX-DOAS Observations of NO₂ and CHOCHO in Hefei, China. *Atmosphere*. 10(7), 353. doi:10.3390/atmos10070353. **IF.3.12**
- [24] Ahmed, K.A., Khan, S., Sultan, M., Nisar, U.B., **Ullah, K.** and Al-Hseinat, M.Y. 2019. Precise Seismic Sub-structural Model of Eocene Chorgali Limestone in Turkwal Field, Central Potwar, Pakistan. *Acta Geologica Sinica*. 93(6), 1711-1720. <https://doi.org/10.1111/1755-6724.13813>. **IF.1.25**
- [25] Wang, Z., Duan, A., Yang, S., **Ullah, K.**, and S. Liu, 2019. Tibetan Plateau heating as a driver of monsoon rainfall variability in Pakistan. *Climate Dynamics*, **52**(9-10), 6121–6130. DOI:10.1007/s00382-018-4507-6. **IF.4.901**
- [26] Adnan, S., **Ullah, K.**, Li, S., Gao, S., Khan, A.H., and Mahmood, R. 2018. Comparison of various drought indices to monitor drought status in Pakistan. *Climate Dynamics*, **51**(5-6), 1885–1899. DOI 10.1007/s00382-017-3987-0. **IF.4.901**
- [27] Adnan, S., **Ullah, K.**, Khan, A.H., and Gao, S. 2017. Meteorological impacts on evapotranspiration in different climatic zones of Pakistan. *Journal of Arid Land*, **9**(6), 938–952. <https://doi.org/10.1007/s40333-017-0107-2>. **IF.2.483**
- [28] Wang, Z., Duan, A., Yang, S., and **Ullah, K.** 2017. Atmospheric moisture budget and its regulation on the variability of summer precipitation over the Tibetan Plateau. *Journal of Geophysical Research in Atmosphere*, **122**, 614–630. DOI: 10.1002/2016JD025515. **IF.5.01**
- [29] Adnan, S., **Ullah, K.**, Gao, S., Khosa, A.H., and Wang, Z., 2017. Shifting of Agro-climatic zones, their drought vulnerability and precipitation, temperature trends in Pakistan. *International Journal of Climatology*, 37, 529 – 543. DOI:10.1002/joc.5019. **IF.3.99**
- [30] Mahmood, I., Iqbal, M. F., Mughal, M. R., Shahzad, M. I., Tariq, S., and **Ullah, K.** 2017. An Investigation of 2013 Mw 7.7 Awaran Earthquake, Pakistan. *International Letters of Natural Sciences*, **61**, 36 - 42. (Web of Science).

- [31] Mughal, M. R., Iqbal, M. F., Mahmood, I., Butt, F. M., and **Ullah, K.** 2017. Predicting Potential Zones of Hydrocarbon through Seismic Stratigraphy within the Western Barents Sea, Norway. *International Letters of Natural Sciences*, **62**, 52-60. (Web of Science).
- [32] Hashmi, M. Z., Li, B., Zhang, J., Su, X., Aziz, R., Tariq, M., Chen, C., **Ullah, K.**, and Shen, C. 2017. Effects of Structurally Different Non-Coplanar and Coplanar PCBs to HELF Cells Proliferation, Cell cycle and their Potential Molecular Mechanisms. *Environmental Toxicology*, **32**(4), 1183-1190. DOI: 10.1002/tox.22315. **IF.4.23**
- [33] Kattel, D.B., Yao, T., **Ullah, K.**, and Tarek ul Islam, G.M. 2016. *Forcing Mechanisms for the Variations of Near-surface Temperature Lapse Rates along the Himalayas, Tibetan Plateau (HTP) and Their Surroundings*. Conference: AGU Fall Meeting, At San Francisco, California, USA, December 12 -16, 2016. (conference paper)
- [34] Mahmood I., Shahzad, M.I., Iqbal, M.F., **Ullah, K.**, Waqas, A., and Kidwai, A.A., 2016. Satellite based detection of Volcanic SO₂ over Pakistan. *Global NEST Journal*, **18**(3), 591-598. **IF.1.12**
- [35] Nazeer, S., Hashmi, M.Z., Malik, R.N., Qadir, A., Ahmed, A., and **Ullah, K.**, 2016. Integrative assessment of Western Himalayas streams using multimeric index. *Ecological Indicators*, **63**, 386–397. **IF.6.25**
- [36] Adnan, S., **Ullah, K.**, and Gao, S. 2016. Investigations into precipitation and drought climatologies in South Central Asia with special focus to Pakistan over the period of 1951-2010. *Journal of Climate, American Meteorological Society*. **29**, 6019 - 6034. **IF.5.07**
- [37] Jatoi, W.N., Belhouchette, H., Ahmad, A., Habib-ur-Rahman, M., Jabran, K., **Ullah, K.**, Fahad, S., Shakeel, M., Hoogenboom, G. 2016. Modelling climate change impacts and adaptation strategies for sunflower in Pakistan. *Outlook on Agriculture*, **45**(1), 39 - 45. **IF.3.69**
- [38] Adnan, S., **Ullah, K.**, and Gao, S. 2015. Characterization of Drought and its Assessment over Sindh-Pakistan during 1951-2010. *Journal of Meteorological Research*, **29**(5), 837-857. **IF.2.64**
- [39] Qureshi, I.Z., Kashif, Z., Hashmi, M.Z., Su, X., Malik, R.N., **Ullah, K.**, Hu, J., and Dawood, M. 2015. Assessment of Heavy metals and metalloids in tissues of two frog species: *Rana tigrina* and *Euphlyctis cyanophlyctis* from industrial city Sialkot, Pakistan. *Environmental Science and Pollution Research*, **22**, 14157-14168. **IF.5.03**
- [40] Naqvi, M.R., Khan, M.A., Latif, M., **Ullah, K.**, Khan, R.D., Wali, R., and Leitgeb, E., 2013. *Optical attenuation estimation from measured visibility data in Islamabad, Pakistan*. Proceedings of the 2013 18th European Conference on Network and Optical Communications, Pp 203-208.
- [41] **Ullah, K.**, and Gao, S. 2013. A diagnostic study of convective environment leading to heavy rainfall during the summer monsoon 2010 over Pakistan. *Atmospheric Research*, **120-121**, 226-239. **IF. 5.87**

- [42] **Ullah, K.**, and Gao, S. 2012. Moisture transport over the Arabian Sea associated with summer rainfall over Pakistan in 1994 and 2002. *Advances in Atmospheric Sciences*, **29(3)**, 501-508. **IF.3.62**
- [43] Hassan, M.A., Haider, S., and **Ullah, K.** 2010. Diagnostic Study of Heavy Downpour in the central part of Pakistan. *Pakistan Journal of Meteorology*, **7 (13)**, 53-61. (web of science)