Dr. Salman Tariq

Personal Information

Nationality: Pakistani
Email: salmantariq_pu@yahoo.com
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No. of impact factor publications: 53
No. of book chapters: 2
HEC Approved PhD Supervisor
Young Productive Scientist since 2015 (Pakistan Council for Science and Technology)

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Scopus Author ID: 55914512600
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Education

- **PhD Space Science (Major in Atmospheric Science)**, **(Course wok CGPA 3.87/4)** University of the Punjab – Lahore 2013-2017
  Thesis title: A study on the spatio-temporal distribution, properties and transport of atmospheric aerosols over Pakistan using remote sensing
- **M.Phil Space Science (Major in Atmospheric Science) (CGPA 3.91/4, with distinction)** University of the Punjab – Lahore 2010-2012
- **B.S. Space Science (Major in Atmospheric Science) (CGPA 3.81/4, with distinction)** University of the Punjab – Lahore 2005-2009

Research Interests

- Atmospheric pollution & air quality monitoring
- Meteorology & Climate Change
- Remote Sensing & GIS

Professional Experience

- **May 2022 to Present:**
  Assistant Professor in the Centre for Remote Sensing, University of the Punjab, Lahore

- **November 2017 to May 2022:**
  Assistant Professor in the Department of Space Science, University of the Punjab, Lahore

- **June 2013 to October 2017:**
  Lecturer in the Department of Space Science, University of the Punjab, Lahore

- **December 2010 to May 2013:**
  Research Scholar in the Department of Space Science, University of the Punjab, Lahore

Teaching experience

Taught the following courses at University of the Punjab

1. Analytical Analysis (M.Phil.)
2. Atmospheric Science (B.S)
3. Meteorology (B.S)
4. Climatology (B.S)
5. Weather Forecasting and Analysis (B.S)
6. Remote Sensing (B.S)
7. Remote Sensing Lab (B.S)
8. Geographic Information System (B.S)
9. Geographic Information System Lab (B.S)
10. Space Science Lab (B.S)

Thesis supervised

Sr. No.	Degree	Session	Title of Research
1.	Ph.D Geography	2017-2022	Assessment of Aerosols over South Asia by using Geo-Spatial Techniques
2.	M.Phil Space Science	2020-2022	Variability of carbonaceous aerosols over Pakistan using MERRA-2 reanalysis data
3.	M.Phil Physics	2020-2022	A study on Physical and optical properties of volcanic aerosols using remote sensing

4.	M.Phil Statistics	2020-2022	Prediction of Aerosol optical depth over Pakistan using novel hybrid machine learning model
5.	M.Phil Space Science	2020-2022	Variability of absorbing aerosols over South Asia using remote sensing
6.	M.Phil Space Science	2020-2022	Assessment of aerosol index and single scattering albedo over Pakistan using satellite remote sensing
7.	M.Phil Space Science	2020-2022	Monsoon seasonal variation of aerosol physical properties and characterization of aerosols over Lahore and Karachi using remote sensing
8.	M.Phil Space Science	2020-2022	The association of meteorological parameters with Covid-19 in Pakistan
9.	M.Phil Space Science	2020-2022	Synergies between the Urban Heat Island (UHI) and Heat waves (HWs) and their impact on Urban environment
10.	M.Phil Space Science	2020-2022	Impact of meteorological parameters on aerosol optical depth and particulate matter in Lahore
11.	M.Phil Space Science	2020-2022	Investigating the relationship of aerosol and cloud parameters over Pakistan using remote sensing
12.	B.S Space Science	2018-2022	Analysis of Relationship between O_3 and NO_2 Lahore, Pakistan

13.	B.S Space Science	2018-2022	Maritime Aerosol Optical and Microphysical properties over Arabian Sea
14.	B.S Space Science	2018-2022	Spatio-Temporal Distribution of Aerosols and Carbon Monoxide over Pakistan using Remote Sensing
15.	B.S Space Science	2018-2022	A study of variability of Aerosols index and SO2 over Pakistan using remote sensing.
16.	.BS Space Science	2018-2022	On the relationship of aerosol and NO2 over South Asia using sentinel data
17.	M.Phil Space Science	2020-2022	Space borne Observations of Air pollution trends over Pakistan
18.	M.Phil Space Science	2020-2022	A study of optical and physical properties of dust aerosols over Pakistan using remote sensing
19.	M.Sc. Space Science	2020-2022	Can Geomagnetic storms affect stratospheric O3 and NOx in the South Atlantic Anomaly Zone?
20.	B.S Space Science	2018-2022	Study of Methane climatology over Pakistan using RS and GIS techniques
21.	MS Environmental Policy	2020-2022	Seasonal variability of aerosol optical properties and assessment of associated health risk in Pakistan using remote sensing

22.	B.S Space Science	2020-2022	A study on the modification in aerosol loading over Karachi using remote sensing
23.	M.Phil Chemistry	2020-2022	Analysis of spatiotemporal distribution of formaldehyde in organic aerosols in Lahore region using remote sensing data
24.	MS Applied Statistics	2019-2021	An Empirical Study of the Association between CO2 Emissions, Urbanization, Industrialization, Trade and Economic Growth based on ARDL Approach
25.	MS ENGG	2019-2021	Study of seasonal variation of SO2, NO2, and AOD over South Asia using Remote Sensing
26.	MS Environmental Sciences	2019-2021	Modelling and assessment of particulate matter 2.5 as major cause of smog in Pakistan
27.	BS Space Science	2017-2021	Study of physical and optical properties of polar aerosols.
28.	BS Space Science	2017-2021	CCD Photometry and Light curve analysis of star Geminorum.
29.	BS Space Science	2017-2021	A study of seasonal variation planetary boundary layer and its impact on air pollution over Lahore.
30.	BS Space Science	2017-2021	Aerosol climate interaction over Arabian sea.

31.	BS Space Science	2017-2021	Assessment of air quality during smog episodes over Lahore region.
32.	M.Phil Space Science	2019-2021	Variability of Aerosols and its relation with ENSO using satellite measurement
33.	BS Space Science	2017-2021	Variability of Aerosol Parameters Over Lahore and Karachi
34.	MSc Space Science	2018-2020	A Study of Aerosol Properties and their Relationship with Meteorological Parameter Over Lahore.
35.	BS Space Science	2016-2020	An Assessment of Particulate Matter ($PM_{2.5}$) over Lahore using Remote Sensing, GIS and its effects on Human Health.
36.	M.Phil Space Science	2018-2020	Effect of Increased Urbanization on Surface Temperature and Air Pollution in Lahore Using Remote Sensing and GIS.
37.	M.Phil Space Science	2018-2020	Spatial patterns and temporal trend of remotely sensed fine particulate matter concentration from 1998 to 2016 in Pakistan.
38.	M.Phil Space Science	2018-2020	Assessment of Drought Hazards A Study of Multan District.
39.	BS Space Science	2016-2020	A Study of Variability of Aerosol Radiative Forcing over Lahore using Remote Sensing.

40.	M.Phil Space Science	2017-2019	Study of Aerosol Variability Over India and Pakistan Using Remote Sensing.
41.	M.Phil Space Science	2017-2019	Air quality monitoring during intense smog events using satellite remote sensing data over Punjab, Pakistan
42.	M.Phil Space Science	2017-2019	Spatio-temporal assessment of aerosol optical properties using remote sensing over Baluchistan, Pakistan
43.	B.S Space Science	2005-2019	spatio-temporal study of lightning activity over Pakistan and its relationship with air quality using remote sensing
44.	B.S Space Science	2015-2019	spatio-temporal analysis of smog over Lahore using remote sensing
45.	B.S Space Science	2015-2019	Study of temporal analysis of aerosol optical properties and rainfall over Karachi
46.	M.Sc Space Science	2016-2018	An analysis of precipitation trends and anomalies over Lahore (Pakistan) using satellite sensed and ground based data
47.	M.Sc Space Science	2016-2018	Study of meteorological parameters over Lahore during south Asian heat wave 2007 using RS & GIS techniques
48.	M.Sc Space Science	2016-2018	Detection of transboundary air pollution over Lahore region
49.	M.Phil Space Science	2015-2017	Validation & spatial temporal analysis of rainfall data retrieved from TRMM satellite over Pakistan

50.	B.S Space Science	2013-2017	Analysis of properties of Aerosols during Dust Storm using RS & GIS
51.	B.S Space Science	2012-2016	Genesis of heavy rainfall event during monsoon over Lahore using RS/GIS
52.	B.S Space Science	2012-2016	Fine/coarse mode analysis of atmospheric aerosols over Lahore using AERONET data
53.	B.S Space Science	2012-2014	Effect of aerosols on climate
54.	B.S Space Science	2012-2014	A Study of aerosol properties over Jambi (Indonesia) using remote sensing
55.	B.S Space Science	2012-2014	Remote sensing of Sinabung (Indonesia) volcanic aerosols
56.	B.S Space Science	2009-2013	To evaluate the characteristics of aerosols using remote sensing
57.	B.S Space Science	2008-2012	Impact of meteorological elements on flight dynamics

Projects

1-Title: Remote Sensing, GIS and Climatic Research Lab (RSGCRL)
Role: Co-PI
Amount: 80.92 million PKR
Funding organization: Higher Education Commission of Pakistan.

Paper setter and Examiner

- University of the Punjab, Lahore
- Board of Intermediate and Secondary Education, Lahore

Editor

- Lead guest Editor of a Special Issue of USA-based research Journal of "Advances in Meteorology" (Impact Factor 1.645) entitled "Aerosol and Trace Gas Monitoring for Climate Change Studies"

Reviewer

- Le Studium Research Fellowships Cofunded by a Horizon 2020 grant in the category of the Marie Skłodowska-Curie Actions
- Journal: Environmental Pollution**, Impact factor 5.099.**
- Journal: International Journal of Climatology**, Impact factor 3.760.**
- Journal: Environmental Science and Pollution Research, **Impact factor 4.223**
- Journal: International Journal of Remote sensing, *Impact Factor* **1.724.**
- Journal: Remote Sensing Letters, **Impact factor 1.532**
- Journal: Atmospheric Pollution Research, **Impact factor 4.352**

Honours

- Won travel award to present one of my research papers at 18th World Clean Air Congress which will be held from 23rd to 27th September 2019 in Istanbul Hilton Maslak Hotel, Turkey.
- Selected and financially supported by International Global Atmospheric Chemistry (IGAC) project to present one of my research papers at IGAC/SPARC Chemistry-Climate Model Initiative (CCMI) Science Workshop (7−9 August 2019) in The Chinese University of Hong Kong, Hong Kong.
- Selected and financially supported by International Global Atmospheric Chemistry (IGAC) project to present one of my research papers at Atmospheric Composition and Asian Monsoon Workshop (ACAM 2019), Kuala lumpur, Malaysia, 25-29, 2019.
- Selected and financially supported as ***Expert Scientist*** by World Climate research program (WCRP) and World Meteorological Organization (WMO) to participate in the scientific workshop "Developing process-based projections of the ice sheets' contribution to future sea level" during 11th to 13th September 2018 in the Netherlands.
- Selected and financially supported as ***Young Scientist*** by Hohai University, China, to participate in "International Summer School on the Polar Climate System" held from 21 to 25 May 2018 in Nanjing, China.
- Invited by French Government on an official visit to France in the framework of its programme "Make Our Planet Great Again" during 11-17, December 2017.
- Selected and financially supported as ***Young Scientist*** by *Inter-American Institute for Global Change Research* (IAI) and the *INterdisciplinary CLimate INvestigation cEnter* (INCLINE) to present one of my research papers at "São Paulo School of Advanced Science on climate change: Scientific basis, adaptation, vulnerability and mitigation" held from 3rd to 15th July 2017 in São Paulo, Brazil.
- Selected and financially supported as ***Expert Scientist*** by World Climate research program (WCRP) and World Meteorological Organization (WMO) to present one of my

research papers at CLIVAR Open Science Conference in Qingdao, China, September 19-23, 2016.

- **Selected and won** *European Geosciences Union* (*EGU*) **grant to attend the** training school on "Convective and volcanic clouds detection, monitoring and modeling", Castiglione del Lago, Italy, 4-9 October 2015.
- Selected and financially supported as an ***Early Career Researcher*** by World Meteorological Organization (WMO) to present one of my research papers at World Weather Open Science Conference in Montréal, Canada in August 16-22, 2014.
- Selected as a ***Young Scientist*** by Chinese Academy of Sciences to present one of my research papers at Monsoon Asia Integrated Regional Study (MAIRS) Open science conference held on April 7-10, 2014 in Beijing, China.
- Stood 2nd in M.Phil Space Science
- Stood 2nd in B.S. (Hons) Space Science
- Stood 1st in exam conducted by Federal Public Service Commission of Pakistan for the post of Meteorologist
- Awarded merit scholarship by University of the Punjab, Pakistan, in BS (Hons)
- Won best student medals in 2003 and 2004 during F.Sc. from Govt. College for boys, Sadar, Lahore Cantt.

Professional software handling

- MATLAB
- Arc GIS
- SPSS
- C++
- MS Office

List of International Peer-reviewed Impact Factor Publications (53)

1) **Salman Tariq**, Hafsa Shahzad, Usman Mehmood, Zia ul-Haq, 2022. Summertime variability of aerosols and covariates over Saudi Arabia using remote sensing. Air Quality, Atmosphere & Health. https://doi.org/10.1007/s11869-022-01276-y , **Impact factor 5.804.**

2) **Salman Tariq**, Zia ul-Haq, Hasan Nawaz, Usman Mehmood, Zaeem Bin Babar, 2022. Remote sensing of aerosols due to biomass burning over Kanpur, Sao-Paulo, Ilorin and Canberra. Journal of Atmospheric Chemistry, https://doi.org/10.1007/s10874-022-09444-1, **Impact factor 3.360.**

3) Özgür Zeydan, **Salman Tariq**, Fazzal Qayyum, Usman Mehmood, Zia ul-Haq, 2022. Investigating the long-term trends in aerosol optical depth and its association with meteorological parameters and enhanced vegetation index over Turkey. Environmental Science and Pollution Research. https://doi.org/10.1007/s11356-022-23553-0 . **Impact factor 5.190.**

4) **Salman Tariq**, Ayesha Mariam, Zia ul-Haq. Usman Mehmood, 2022. Spatial and temporal variations in PM2.5 and associated health risk assessment in Saudi Arabia using remote sensing, Chemosphere, Volume 308, Part 2, December 2022, 136296, DOI: https://doi.org/10.1016/J.CHEMOSPHERE.2022.136296, **Impact Factor 8.943**.

5) Mehmood, Usman, **Salman Tariq**, Zia ul Haq, Ephraim Bonah Agyekum, Solomon Eghosa Uhunamure, Karabo Shale, Hasan Nawaz, Shafqat Ali, and Ammar Hameed. 2022. "Financial Institutional and Market Deepening, and Environmental Quality Nexus: A Case Study in G-11 Economies Using CS-ARDL" International Journal of Environmental Research and Public Health 19, no. 19: 11984. https://doi.org/10.3390/ijerph191911984. **Impact Factor 4.614.**

6) **Salman Tariq**, Ayesha Mariam, Zia ul-Haq. Usman Mehmood, Waseem Ahmed, 2022. Assessment of air quality during worst wildfires in Mugla and Antalya regions of Turkey. Natural Hazards. https://doi.org/10.1007/s11069-022-05592-5 , **Impact Factor 3.158**.

7) Mehmood, Usman, Ephraim Bonah Agyekum, Hossam Kotb, Ahmad H. Milyani, Ahmed Azhari, **Salman Tariq**, Zia ul Haq, Arif Ullah, Kashif Raza, and Vladimir Ivanovich Velkin. 2022. "Exploring the Role of Communication Technologies, Governance, and Renewable Energy for Ecological Footprints in G11 Countries: Implications for Sustainable Development" Sustainability 14, no. 19: 12555. https://doi.org/10.3390/su141912555. **Impact Factor 3.889.**

8) **Salman Tariq**, Hasan Nawaz, Zia ul-Haq. Usman Mehmood, 2022. Response of enhanced vegetation index changes to latent/sensible heat flux and precipitation over Pakistan using remote sensing. Environmental Science and Pollution Research. 10.1007/s11356-022-20391-y, **Impact factor 5.190.**

9) Fazzal Qayyum, **Salman Tariq**, Zia ul-Haq, Usman Mehmood, Özgür Zeydan, 2022. Air pollution trends measured from MODIS and TROPOMI: AOD and CO over Pakistan. Journal of Atmospheric Chemistry. https://doi.org/10.1007/s10874-022-09436-1, **Impact factor 3.360.**

10) **Salman Tariq**, Fazzal Qayyum, Zia ul-Haq. Usman Mehmood, 2022. Long-term spatiotemporal trends in aerosol optical depth and its relationship with enhanced vegetation index and meteorological parameters over South Asia. Environmental Science and Pollution Research. https://doi.org/10.1007/s11356-021-17887-4 , 29, pages 30638–30655, **Impact factor 5.190.**

11) Usman Mehmood, **Salman Tariq**, Zia Ul Haq, Ayesha Azhar & AyeshaMariam, 2022. The role of tourism and renewable energy towards EKC in South Asian countries: fresh insights from the ARDL approach, Cogent Social Sciences, 8:1, 2073669, https://doi.org/10.1080/23311886.2022.2073669 .

12) **Salman Tariq**, Usman Mehmood, Zia ul-Haq. Ayesha Mariam, 2022. Exploring the existence of environmental Phillips curve in South Asian countries. Environmental Science and Pollution Research. https://doi.org/10.1007/s11356-021-18099-6 , **Impact factor 5.190.**

13) Zia Ul-Haq, Usman Mehmood, **Salman Tariq**, Fazzal Qayyum, Ayesha Azhar & Hasan Nawaz, 2022. Analyzing the role of meteorological parameters and CO2 emissions towards crop production: empirical evidence from South Asian countries. Environmental Science and Pollution Research. https://doi.org/10.1007/s11356-022-18567-7 **Impact factor 5.190.**

14) Usman Mehmood, **Salman Tariq**, Zia Ul-Haq, Ephraim B. Agyekum, Salah Kamel, Mohamed Elnaggar, Hasan Nawaz, Ammar Hameed, and Shafqat Ali. 2022. "Can Financial Institutional Deepening and Renewable Energy Consumption Lower CO2 Emissions in G-10 Countries: Fresh Evidence from Advanced Methodologies" International Journal of Environmental Research and Public Health 19, no. 9: 5544. https://doi.org/10.3390/ijerph19095544 **Impact factor 3.390.**

15) Usman Mehmood, Ephraim B. Agyekum, **Salman Tariq**, Zia Ul Haq, Solomon E. Uhunamure, Joshua N. Edokpayi, and Ayesha Azhar. 2022. "Socio-Economic Drivers of Renewable Energy: Empirical Evidence from BRICS" International Journal of Environmental Research and Public Health 19, no. 8: 4614. https://doi.org/10.3390/ijerph19084614 . **Impact factor 3.390.**

16) **Salman Tariq**, Hasan Nawaz, Zia ul-Haq, Usman Mehmood, 2021. Investigating the relationship of aerosols with enhanced vegetation index and meteorological parameters over Pakistan, Atmospheric Pollution Research, 12/6 101080, ISSN 1309-1042, https://doi.org/10.1016/j.apr.2021.101080 , **Impact factor 4.831.**

17) Mehmood, Usman, Ali Imran, Aysha Abid, **Salman Tariq**, Zia ul Haq, Rabiya Mazhar, Asim Daud, Khalid Mahmood, Munawar Iqbal, and Adila Batool, 2022. Nexus between Greenhouse Gas Emissions, Energy Use and Economic Growth: Empirical Evidence From South Asian Countries. Polish Journal of Environmental Studies 31(1), 763–770, DOI: https://doi.org/10.15244/pjoes/135879, **Impact factor 1.699.**

18) Aysha Abid, Usman Mehmood, **Salman Tariq**, Zia ul–Haq, 2021. The effect of technological innovation, FDI, and financial development on CO2 emission: evidence from the G8 countries. Environmental Science and Pollution Research. 29, pages11654–11662, https://doi.org/10.1007/s11356-021-15993-x , **Impact factor 4.223.**

19) **Salman Tariq**, Sumayia Mehmood, Aiman Nisa, Zia Ul-Haq, Usman Mehmood, 2021. Remote sensing of aerosol properties during intense smog events over Lahore (Pakistan)", Kuwait Journal of Science, Vol.48, No.(4), 1-16, https://doi.org/10.48129/kjs.v48i4.10407 , **Impact factor 0.948.**

20) **Salman Tariq**, Hasan Nawaz, Fazzal Qayyum, Zia ul-Haq, 2021. A study of the passage of high-speed solar wind streams, their plasma/field properties and space weather effects of geomagnetic disturbances. Journal of Astrophysics and Astronomy 42, 98. https://doi.org/10.1007/s12036-021-09768-6, **Impact factor 1.270.**

21) Usman Mehmood, **Salman Tariq**, Zia ul–Haq, 2021. Effects of population structure on CO2 emissions in South Asian countries: evidence from panel estimation. Environmental Science and Pollution Research. **28**, pages 66858–66863 https://doi.org/10.1007/s11356-021-14976-2, **Impact factor 4.223.**

22) Fazzal Qayyum, Usman Mehmood, **Salman Tariq**, Zia ul-Haq, Hasan Nawaz, 2021. Particulate matter (PM2.5) and diseases: an autoregressive distributed lag (ARDL) technique. Environmental Science and Pollution Research. **28**, pages 67511–67518, https://doi.org/10.1007/s11356-021-15178-6 . **Impact factor 4.223.**

23) Ayesha Mariam, **Salman Tariq**, Zia ul-Haq Usman Mehmood, 2021. Spatio-temporal variations in fine particulate matter and evaluation of associated health risk over Pakistan, Integrated Environmental Assessment and Management, 17:1243–1254. https://doi.org/10.1002/ieam.4446. **Impact factor 3.440.**

24) Usman Mehmood, Ayesha Azhar, Fazzal Qayyum, Hasan Nawaz, **Salman Tariq**, Zia ul–Haq, 2021. Air pollution and hospitalization in megacities: empirical evidence from Pakistan. Environmental Science and Pollution Research. **28**, pages 51384–51390, https://doi.org/10.1007/s11356-021-14158-0 . **Impact factor 4.223.**

25) Usman Mehmood, Amal Mansoor, **Salman Tariq**, Zia ul–Haq, 2021. The interactional role of globalization in tourism-CO2 nexus in South Asian countries. Environmental Science and Pollution Research **28**, pages 26441–26448 . https://doi.org/10.1007/s11356-021-12473-0 , **Impact factor 4.223.**

26) Usman Mehmood, **Salman Tariq**, Zia ul–Haq, Muhammad Saeed Meo, 2021. Does the modifying role of institutional quality remain homogeneous in GDP-CO_2 emission nexus? New evidence from ARDL approach. *Environmental Science and Pollution Research*. https://doi.org/10.1007/s11356-020-11293-y . **Impact factor 4.223.**

27) **Salman Tariq** and Zia ul–Haq, 2020. Investigating the Aerosol Optical Depth and Angstrom Exponent and their Relationships with Meteorological Parameters over Lahore in Pakistan. Proceedings of the National Academy of Sciences, India Section A: Physical Sciences, 90, pages 861–867, https://doi.org/10.1007/s40010-018-0575-6 , ISSN: 0369-8203 (Print) 2250-1762 (Online). **Impact factor 1.544.**

28) Usman Mehmood, **Salman Tariq**, 2020. Globalization and CO2 emissions nexus: evidence from the EKC hypothesis in South Asian countries. Environmental Science and Pollution Research 27, 37044–37056, https://doi.org/10.1007/s11356-020-09774-1 . **Impact factor 4.223.**

29) Asim Daud Rana, Shahid PARVEZ, Zia UL-HAQ, Syeda Adila BATOOL, CHAUDHARY, M. N.– MAHMOOD, K., **Salman Tariq**, 2019. Anthropogenic, Biogenic and Pyrogenic Emission Sources and Atmospheric Formaldehyde (HCHO) And Nitrogen Dioxide (NO2) Columns Over Different Landuse/Landcovers Of South Asia, Applied Ecology and Environmental Research, ISSN 1589 1623, **Impact** *Factor 0.711*.

30) Shahid Parvez, Asim Daud Rana, Zia Ul-Haq, Syeda Adila BATOOL, Ali, M., **Salman Tariq,** Mahmood, K., BANO, S., 2019. Investigating Contributions of Gases, Meteorological Parameters, And Aerosols Towards Tropospheric Ozone Variabilities Over Megacity Lahore (PAKISTAN), Applied Ecology and Environmental Research, ISSN 1589 1623, **Impact** *Factor 0.711*.

31) Khalid Mahmood, Zia Ul-Haq, Fiza Faizi, **Salman Tariq**, Muhammad Azhar Naeem, Asim Daud Rana, 2019. Monitoring open dumping of municipal waste in Gujranwala, Pakistan using a combination of satellite-based bio-thermal indicators and GIS analysis, Ecological Indicators, Volume 107, 105613, ISSN 1470-160X, https://doi.org/10.1016/j.ecolind.2019.105613 . **Impact factor 4.958.**

32) **Salman Tariq** and Zia ul–Haq, 2018. Ground Based Remote Sensing of Aerosol Properties over a coastal mega-city of Pakistan, *Advances in Meteorology,* vol. 2018, Article ID 3582191, 12 pages, https://doi.org/10.1155/2018/3582191 . **Impact factor 1.962**.

33) **Salman Tariq**, Zia ul–Haq, Khalid Mahmood, Asim Daud Rana, 2018. Spatio-Temporal Distributions and Trends of Aerosol Parameters over Pakistan Using Remote Sensing, Applied Ecology and Environmental Research, 16(3):2615-2637. ISSN 1589 1623, DOI: http://dx.doi.org/10.15666/aeer/1603_26152637 , **Impact** *Factor 0.711*.

34) Syeda Adila Batool, Zia ul–Haq, **Salman Tariq**, Asim Daud Rana, Khalid Mahmood, Muhammad Nawaz Chaudhry, 2018. Temporal and spatial variations of NO_2 over Saudi Arabia and identification of major hotspot areas during 2005-2014 by using satellite data. 5757-5770, Applied Ecology and Environmental Research**.** *Impact Factor 0.711***.**

35) Zia ul–Haq, Asim Daud Rana, **Salman Tariq**, Khalid Mahmood, Muhammad Ali, Iqra Bashir, 2018. Modeling of tropospheric NO2 column over different climatic zones and land use/land cover types in South Asia, Journal of Atmospheric and Solar-Terrestrial Physics. Volume 168, March 2018, Pages 80–99, **Impact factor 1.735.**

36) **Salman Tariq,** Zia ul–Haq, Ali Imran, Usman Mehmood, Muhammad Umar Aslam, Khalid Mahmood, 2017. CO_2 emissions from Pakistan and India and their relationship

with economic variables, Applied Ecology and Environmental Research. 15(4), 1301-1312. *Impact Factor 0.711*.

37) Zia ul–Haq, Zertasha Ramzan, **Salman Tariq**, Syeda Adila Batool, Muhammad Ali, Javed Sami, 2017. Comparison of total ozone column observations from space-borne Ozone Monitoring Instrument with ground-based Dobson Ozone Spectrophotometer at an urban location in Indo-Gangetic Basin, *International Journal of Remote Sensing*, VOL. 39, NO. 2, 544–564, ISSN: 0143-1161 (Print) 1366-5901 (Online), An official journal of the Remote Sensing and Photogrammetry Society published by Taylor & Francis Group. *Impact Factor* **3.151**.

38) Zia ul–Haq, **Salman Tariq**, Muhammad Ali, 2017. Spatiotemporal Patterns of Correlation between Atmospheric Nitrogen Dioxide and Aerosols over South Asia, Meteorology and Atmospheric Physics, vol 129, ISSN 0177-7971, pp 507–527, DOI 10.1007/s00703-016-0485-6, **Impact factor 2.065**.

39) Khalid Mahmood, Syeda Adila Batool, Fiza Faizi, Ch. Muhammad Nawaz, Zia ul–Haq, Asim Daud Rana, **Salman Tariq**, 2017. Bio-thermal effects of open dumps on surroundings detected by remote sensing - influence of geographical conditions, Ecological Indicator 82, 131–142. *Impact Factor 4.958***.**

40) Zia ul–Haq, **Salman Tariq**, Muhammad Ali, Asim Daud Rana, Khalid Mahmood, 2017. Satellite sensed tropospheric NO2 patterns and anomalies over Indus, Ganges, Brahmaputra and Meghna river basins, *International Journal of Remote Sensing*, An official journal of the Remote Sensing and Photogrammetry Society published by Taylor & Francis Group. VOL. 38, NO. 5, 1423–1450, *Impact Factor* **3.151.**

41) Zia ul–Haq, **Salman Tariq**, Muhammad Ali, 2017. Spatiotemporal assessment of CO2 emissions and its satellite remote sensing over Pakistan and neighboring regions, Journal of Atmospheric and Solar-Terrestrial Physics, 152, 11-19. http://dx.doi.org/10.1016/j.jastp.2016.11.001 . **Impact factor 1.735**.

42) Zia ul–Haq, **Salman Tariq**, Muhammad Ali, 2016. Anthropogenic emissions and space-borne observations of carbon monoxide over South Asia**,** *Advances in Space Research*, 58 (2016), 1610–1626, ISSN 0273-1177, http://dx.doi.org/10.1016/j.asr.2016.06.033 , **Impact factor 2.152**.

43) Zia ul–Haq, Muhammad Ali, Syeda Adila Batool, **Salman Tariq,** Zarmina Qayyum, 2016. Emissions quantification of refrigerant CFCs, HCFCs and HFCs in megacity Lahore (Pakistan) and contributed ODPs and GWPs, Journal of Earth System Science, Springer, DOI 10.1007/s12040-016-0724-8, 125, No. 6, August 2016, ISSN 0253-4126, pp. 1273–1284. *Impact Factor* **1.371.**

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List of Publications in HEC Recognized Local Journals

1) **Salman Tariq**, S. A. Batool, A. D. Rana, K. Mahmood, M. Batool, I. Murtaza, A. Hashim, 2013. Variability of size distribution, refractive index and asymmetry parameter of aerosols over Lahore derived from AERONET. Science International **24**, 137-139.

2) K. Mahmood, A. D. Rana, **Salman Tariq**, S. Kanwal, R. Ali, A. H. Ali and T. Tahseen, 2013. Groundwater Levels Susceptibility to Degradation in Lahore metropolitan. Science International **25**, 123-126.

3) Khalid Mahmood, Syeda Adila Batool, Asim Daud Rana, **Salman Tariq**, Zulfiqar Ali and Muhammad Nawaz Chaudhry, 2013. Assessment of leachate effects to the drinking water supply units in the down slope regions of municipal solid waste (MSW) dumping sites in Lahore Pakistan. International Journal of Physical Sciences Vol.**8 (28)**, pp. 1470-1480. DOI:10.5897/IJPS2013.3927.

Book Chapter

1. Zia ul-Haq, **Salman Tariq**, 2021. Impact of Biomass Burning on Surface-Level Carbon Monoxide over Lahore and Karachi and Their Comparison with South Asian Megacities. "Biomass Burning in South and Southeast Asia" 1st edition, Volume 2, Chapter 4, Edited by Krishna Prasad Vadrevu, Toshimasa Ohara, Christopher Justice - ISBN 9780367076047, DOI: 10.1201/9780429022036-5, published by CRC Press.

2. **Salman Tariq**, Zia ul-Haq, 2018. Satellite remote sensing of aerosols and gaseous pollution over Pakistan. "Land-Atmospheric Research Applications in South and Southeast Asia" edited by Krishna Prasad Vadrevu, Toshimasa Ohara, Christopher

Justice - ISBN 978-3-319-67474-2, Series: Springer Remote Sensing/Photogrammetry, pp 543-549, DOI:10.1007/978-3-319-67474-2_24, published by Springer Nature.

List of Papers Submitted to Peer-reviewed Impact Factor Journals

1. **Salman Tariq**, Ayesha Azhar, Zia ul-Haq, Usman Mehmood, 2022. Assessment of long-term trends in chlorophyll-a and sea surface temperature in the Arabian Sea and their association with aerosol nutrients using remote sensing, Ocean Science Journal.
2. **Salman Tariq**, Hafsa Shehzad, Ayesha Tanveer, Fareeha Tariq, Zia ul-Haq, Usman Mehmood, 2022. Investigating the physical and radiative properties of atmospheric aerosols over Arctic and Antarctic locations using AERONET data, *Environmental Science and Pollution Research*
3. **Salman Tariq**, Aiman Nisa, Zia ul-Haq, Usman Mehmood, 2022. Classification of aerosols using particle linear depolarization ratio (PLDR) over seven urban locations of Asia, *Urban Climate*
4. **Salman Tariq**, Ayesha Mariam, Zia ul-Haq, Usman Mehmood, 2022. PM2.5 trend clustering and health risk assessment in Indian subcontinent, *Environment International*
5. Uzma Basharat, **Salman Tariq**, Muhammad Nawaz Chaudhry, Zia ul-Haq, 2021. Climatological variations in PM2.5, aerosol optical depth and Angstrom exponent over four provinces of Pakistan and assessment of associated health risk, *Environmental Science and Pollution Research*
6. Fazzal Qayyum, **Salman Tariq**, Hassan Nawaz, Zia ul-Haq, Usman Mehmood, 2022. Impact of COVID-19 lockdown phases on air pollution in mega-city of Lahore (Pakistan), *Journal of Earth System Science*

Conference / Workshop

1) **Salman Tariq,** 2019. Optical, microphysical and radiative properties of aerosols at Barrow and Hornsund using AERONET measurements. 3rd PACES Open Science Meeting Oslo, 18-20 September, Norway.
2) **Salman Tariq**, 2019. Study of aerosol physical and optical properties and transport of aerosols over an Arctic location. Year of Polar Prediction (YOPP) Arctic Science Workshop, 14 to 16 January 2019 at the Finnish Meteorological Institute in Helsinki, Finland.
3) **Salman Tariq** and Zia Ul-Haq, 2017. An analysis of aerosol properties and HYSPLIT model estimates for aerosol transport pathways over an Arctic location Oliktok point (Alaska) (70 ^{o}N, 149 ^{o}W). 2nd PACES Workshop, 27-29 June 2017, Victoria, B.C., Canada.

4) **Salman Tariq** and Zia Ul-Haq, 2016. Aerosol optical depth and single scattering albedo variability over Arabian Sea during 2002-2015. CLIVAR Open Science Conference in Qingdao, China, September 19-23, 2016.
5) **Salman Tariq**, 2016. Investigating the properties of aerosols during intense haze events over Pakistan using remote sensing. 33rd International Geographical Congress (IGC 2016) held from 21-25 August in Beijing, China.
6) **Salman Tariq,** 2015. Characteristics of aerosol optical and physical properties during major dust storm and intense biomass burning events over a mega-city of Lahore (Pakistan). Our Common Future Under Climate Change Conference, **held in 7-10 July 2015,** Université Pierre et Marie Curie (UPMC), **Paris, France.**
7) Iqra Bashir, Muhammad Ali, **Salman Tariq,** 2015. **Analysis of Aerosol Properties over Jambi (Indonesia) using Remote Sensing. Advances in Atmospheric Science and Applications (ATMOS 2015), 8-12 June 2015, University of Crete, Heraklion, Greece, organized by European Space Agency.**
8) **Salman Tariq,** 2014. Variability in aerosol optical depth and its relationship with meteorological parameters over mega-city Lahore (Pakistan). World Weather Open Science Conference, August 16-22, 2014, in Montreal, Canada.
9) **Salman Tariq,** 2014. Variability of Aerosol Properties and HYSPLIT Model Estimates for Aerosol Transport Pathways over Lahore. Monsoon Asia Integrated Regional Study Open Science Conference 2014, April 7-10, 2014 in Beijing, China.
10) **Salman Tariq**. An analysis of aerosol optical properties using different remote sensing sensors, **2nd International Conference Energy & Meteorology 2013** Meteo-France International Conference Centre, Toulouse, France *25 - 28 June 2013.*
11) **Salman Tariq** and Muhammad Ali. Variability in Single Scattering Albedo, Aerosol Index and Angstrom Exponent during different seasons, over mega-city Lahore. Atmospheric science conference **(ATMOS 2012)**, Bruges 18-22 June 2012, **organized by European Space Agency**.
12) Attended training workshop on 'Disaster Risk Management' organized by NDMA, NIDM, UNDP & dept. of Geography, University of the Punjab, April 11-12, 2011, Lahore.
13) Attended training workshop on 'Youth Political School' organized by SPO and UNDP, November 24-29, 2008, Lahore.

Memberships

- World Climate Research Program (WCRP) Explaining and Predicting Earth System Change (EPESC) Lighthouse Activity
- European Geosciences Union (EGU)
- Association of Polar Early Career Scientists (APECS)
- Young Earth System Scientists community (YESS)

Countries Visited

France, The Netherlands, Belgium, Switzerland, Luxembourg, Turkey, China, Malaysia, Hong Kong, Nepal

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