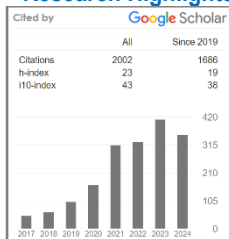


Personal Details
Professor (Tenured) Env. Sc.

 e-mail: (work) fahim.khokhar@iese.nust.edu.pk
 (priv.) sanwalyar74@gmail.com


Other Publications: 15+

Research Highlights

Areas of Interest: Climate Change, Environmental Impact Assessment (EIA), Satellite Remote Sensing and GIS, Algorithm Development, Spectroscopy, Air Quality Assessments (Impacts and Cost), Project management

Research Profile:

- ❖ Citations: over 2000+ (Google Scholar)
- ❖ I-Index: 43, h-Index: 23 (Google Scholar)
- ❖ Publications in ISI indexed journals: 65+
- ❖ Book Chapters: 3
- ❖ Conference papers: over 80

Research Student Supervision

- ❖ Supervised **28 UG** Students for their final year projects
- ❖ Supervised **70 MS** Students and **2 PhD**
- ❖ **12 MS** and **5 PhD** students are in progress

Research Projects

- ❖ Research Projects: 15 Projects
 - **International: 10 Projects**, Donor Agencies: European Commission, ICIMOD, APN, Department of State (US), DAAD-Germany, KAU- Saudi Arabia
 - **National: 5**, Donor Agencies: HEC, MoCC- Pak

Consultancy Projects

- ❖ Consultancies: **15 Assignments**
 - Clients: UNDP, IUCN, MoCC, DD&C, FGEHA, PGPD-EPD, Punjab, KP-EDZMIC

Academic and Professional Experience

Member (non-official) Pakistan's Climate Change Council (PCCC)
 Since August 2022

Visiting Professor at School of Environment and Geoinformatics, China
University of Mining and Technology (CUMT), Xezhou - Oct.2019- Sep 2022

Visiting Scientist at Satellite Remote Sensing Group, Max-Planck Institute for Chemistry (MPI-Ch) Mainz, Germany - Since Nov 2012

HoD at IESE – NUST Since Oct 2019
National University of Sciences and Technology (NUST) Islamabad
Tenured Professor
 Professor
 Associate Professor
 Assistant Professor

 Jan. 2022 – to date
 Mar. 2017 – Dec.2021
 Nov. 2015 – Feb. 2017
 Jan. 2012 – Oct. 2015

Laboratoire Atmosphères, Milieux, Observations Spatiales (LATMOS),
Université Pierre et Marie Curie Paris VI, France

Post-Doctoral Researcher, Feb. 2008 – Dec. 2011


Ruprecht-Karls Universität Heidelberg, Germany

 Post-Doctoral Researcher, Dec. 2006 – Jan. 2002
 Scientific Researcher, Mar. 2002 – Nov. 2006

Pakistan Telecommunications Company Ltd. Pakistan

Engineering Supervisor Sep. 1997 – Feb. 2002

Education

Universität Leipzig, Germany

PhD (Atmospheric Sciences and Climate Change)

Nov. 2006


Regional Telecommunication Training School Lahore, Pakistan

Diploma in Telecommunication Engineering

1995- 1997


University of the Punjab Lahore, Pakistan

Master in Space Science

1994 -1996

Bachelor in Space Science

1992- 1994

Selected Professional Activities


Pak-EPA Reviewer: reviewed numerous EIA reports of developmental projects submitted to Pak-EPA for environmental approvals.

Journal Reviewing: reviewed several research articles for international scientific journals well known in the environmental sciences community.

- ❖ Atmospheric Environment by ELSEVIER
- ❖ Atmospheric Chemistry and Physics (ACP) - an interactive open access journal from European Geosciences Union
- ❖ Journal of Geophysical Research (JGR) - from American Geosciences Union
- ❖ Aerosol and Air Quality Research Journal (AAQR)
- ❖ Journal of Remote Sensing
- ❖ Springer Nature – Scientific Reports
- ❖ Atmospheric Research by ELSEVIER



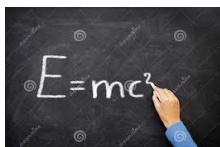
World Organization' Membership – actively representing and participating the world level organisations:

- ❖ German Academic Exchange Service (DAAD) – Scientific Evaluator
- ❖ Stratosphere-troposphere Processes And their Role in Climate (SPARC)
- ❖ International Global Atmospheric Chemistry Project (IGAC)
- ❖ European Geoscience Union (EGU)
- ❖ Atmospheric Composition and the Asian Summer Monsoon (ACAM)
- ❖ Member Advisory panel for Atmospheric sciences research in Asia at ICIMOD – Nepal
- ❖ Committee Member - Monsoon Asian and Oceania Networking Group (IGAC -MANGO)



International Field Campaigns – organised and participated in following international field campaigns to execute science experiments:

- ❖ Monitoring the Air Quality along N5-Highway from Islamabad to Lahore by involving scientists from Pakistan Germany and Japan in November 2013
- ❖ Multi Axis DOAS - Comparison campaign for Aerosols and Trace gases (MAD-CAT) filed campaign conducted in Mainz Germany during June- August 2014
- ❖ Monitoring the Air Quality along N5-Highway and M2-3 Motorways across the Punjab by involving scientists from Pakistan and Germany in February 2015
- ❖ The Cabauw Inter-comparison campaign for Nitrogen Dioxide measuring Instruments (CINDI-2) at KNMI's Cabauw Experimental in Netherlands (August - September 2016).



Teaching - Taught, updated and innovation introduced in curriculum of existing courses at IESE-NUST:

Postgraduate Courses (PG) – MPhil and PhD

ENV - 832 >> RS & GIS Applications in Environment	(3+0 Crd Hrs)
ENV - 827 >> Climate Change Adaptation and Mitigation	(3+0 Crd Hrs)
ENE - 817 >> Air & Noise Pollution Control	(3+0 Crd Hrs)
ENE - 802 >> Environmental Impact Assessment	(3+0 Crd Hrs)
ENE - 804 >> Energy and Environment	(3+0 Crd Hrs)

Undergraduate Courses (UG)

ENE - 423 >> Air & Noise Pollution Control	(3+1 Crd Hrs)
GiE - 201 >> Introduction to RS&GIS	(2+1 Crd Hrs)

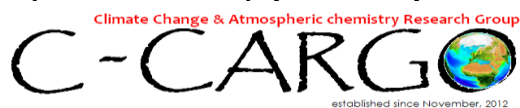
**Setup/Organized
 Research
 Laboratories**

**Research
 Group**

- ❖ **Atmospheric Chemistry Research Lab (ARL)** setup at Institute of Environmental Science and Engineering, National University of Sciences and Technology, Islamabad, Pakistan. (Operational since November 2012)
- ❖ **Managed the operations of IESE - Mobile Monitoring Lab.**
- ❖ **Organized Air & Noise Lab of IESE-NUST for both research and teaching purposes.**
- ❖ **Prototype Development** following instruments were developed under my supervision for Air & Noise Lab to conduct UG lab experiments (working models)
 - (1) Cyclone Separator (2) Gravity Settler
 - (3) Gravity Settler (4) Electrostatic precipitators
 - (5) Bag house filter (6) Semi-automated Solar Water Heater
 - (7) CO₂ Arrestor (8) CO₂-Bin
 - (9) Air Track - PM₁₀ & PM_{2.5} samplers (10) Roadside speed brakers for Electricity Generation
 - (11) SURGE Model – GLOFs Susceptibility and Risk Assessment
 - (12) Carbon Scan – future of carbon measurements

Climate Change and Atmospheric chemistry Research Group (C-CARGO)

C-CARGO, a newly established research group at IESE-NUST (Institute of Environmental Sciences and Engineering- National University of Sciences and Technology) is a step to address the issues of regional air quality and climate change. This research group in collaboration with international partners is playing a vital role in exploring the atmospheric composition over Pakistan, in revisiting the existing air quality management procedures, Environmental Impact Assessment and to help policy makers in developing cost effective but efficient climate change mitigation and adaptation strategies in Pakistan


**Memorandum of
 Understanding
 (MoUs)**


- 1. Max-Planck Institute for Chemistry Mainz, Germany - since Year 2012**
Title: To perform joint measurements applying the MAX-DOAS-technique.
- 2. Int. Centre for Integrated Mountain Development (ICIMOD)- Kathmandu Nepal - since Year 2014**
Title: Cooperation in Climate Change and Adaption Research
- 3. Civil Society Collation for Climate Change - Pakistan - since Year 2017**
Title: Collaborative research activities for climate change
- 4. National Ozone Unit, MoCC Govt of Pakistan - since Dec.2019**
Title: Collaborative research on ODS released in the atmosphere

**Research
 Projects**


- 1. Funding Agency: NUST – Flagship Projects 2023-2025**
 Project title: “Indigenous CO₂ Bin and CO₂ Arrestor to reduce GHG emissions from building and the transport Sectors to combat Climate Change”.
 Approximate Amount: PkR. 17.2 million Role: **Principal Investigator**
- 2. Funding Agency: NUST – Living Lab Funding Initiative 2023-2024**
 Project title: “Deployment of CO₂ Bins at Strategic locations of NUST Campus to offset CO₂ emissions”,
 Approximate Amount: PkR. 2 million Role: **Principal Investigator**
- 3. Funding Agency: NASA - USA 2024-2025**
 Project title: “AERONET Station - Setting up at NUST as part of research collaboration with NASA”
 Approximate Amount: US \$. 40 K Role: **Lead Investigator**
- 4. Funding Agency: NASA - USA 2022-2025**
 Project title: “PANDORA Global network - to Improve Air Pollution Monitoring Across Asia”
 Approximate Amount: US \$. 60 K Role: **Lead Investigator**
- 5. Funding Agency: Department of States (US) - Duke University 2021-2023**
 Project title: “Building Capacity to Improve Air Quality in South Asia: Reducing PM_{2.5} Through Low-Cost Sensor Network Driven Policy Decisions”
 Approximate Amount: US \$. 1.98 million Role: **Co-I Investigator**
- 6. Funding Agency: European Commission, Erasmus+ 2021-2023**
 Project title: “MIC Erasmus Project NUST and Toulouse University France”,
 Approximate Amount: 35476 Euro Role: **Co-I Investigator**

7. **Client: Directorate of Design and Consultancy (DD&C) and FGEHA 2020**
 Assignment: Project title: "IEE of Chaklala Heights (FGEHA) Chaklala Scheme - III, Rawalpindi"
 Amount: PK Rs. 0.7 million Role: EIA/Environmental Expert **Status: (completed)**
8. **Client: Client: International Union for Conservation of Nature (IUCN) Islamabad 2020**
 Assignment: Project title: "Chilgoza Forests restoration Project – RAUM Report"
 Amount: PK Rs. 0.5 million Role: RS and GIS Expert **Status: (completed)**
9. **Client: UNDP Islamabad and Ministry of Climate Change (MoCC) 2019-20**
 Assignment: "Pilot scale system to detect deforestation by exploiting AI" Amount: PK Rs. 2.7 million
 Role: Principal Investigator **Status: (completed)**

Book Chapters Publications



1. **M.F. Khokhar and K. Aamir, Environmental Challenges for Contemporary Pakistan: The Way Forward.** Book: Perspectives on Contemporary Pakistan - **Governance, Development & Environment** 2020 Jun 9 (pp. 197-211). Routledge.sia, ISBN 9780367435295, **2020**
2. **M.F. Khokhar and N. Yasmin, Investigating the Aerosol Type and Spatial Distribution During Winter Fog Conditions over Indo-Gangetic Plains.** Book Chapter, pp 471-497
 Book: Land-Atmospheric Research Applications in South and Southeast Asia, ISBN: 978-3-319-67473-5, **2018** Vadrevu, Krishna Prasad, Ohara, Toshimasa, Justice Chris (Eds.)

Journal Publications



1. Zeb, B., Alam, K., Huang, Z. Khokhar. M.F et al. In-depth characterization of particulate matter in a highly polluted urban environment at the foothills of Himalaya–Karakorum Region. *Environ Sci Pollut Res* (2024). <https://doi.org/10.1007/s11356-024-33487-4>
2. Latif MT, Purhanudin N, Afandi NZM, Cambaliza MOL, Hien TT, Hlaing OMT, Jansz WRLH, Khokhar MF, Lestari P, Lung SC, Naja M, Oanh NTK, Othman M, Salam A, Salim PM, Song CK, Tanimoto H, Yu LE, Crawford JH. In-depth analysis of ambient air pollution changes due to the COVID-19 pandemic in the Asian Monsoon region. *Sci Total Environ.* **2024** May 18:173145. d
3. A Muddassir, S Malik, MF Khokhar - Estimating Health Burden and potential benefits of mitigating particulate matter pollution in Pakistan, submitted to AAQR, 2024
4. Saeed, T., Abbasi, N.A., Zahid, M.T. Khokhar M.F. et al. Toxicological profile and potential health concerns through metals and trace elements exposure in brick kiln workers from Lahore, Pakistan. *Environ Geochem Health* 46, 150 (2024).
5. Majeed, R., Anjum, M. S., Imad-ud-din, M., Malik, S., Anwar, M. N., Anwar, B., & **Khokhar, M. F.** (2024). Solving the mysteries of Lahore smog: the fifth season in the country. *Frontiers in Sustainable Cities*, 5, Article 1314426. <https://doi.org/10.3389/frsc.2023.1314426>
6. Din KS, Khokhar MF, Butt SI, Qadir A, Younas F. Exploration of microplastic concentration in indoor and outdoor air samples: Morphological, polymeric, and elemental analysis. *Science of The Total Environment.* **2024** Jan 15;908:168398.
7. Khokhar M.F., M. Shehzaib Anjum, Abdus Salam, Vinayak Sinha, Manish Naja, Kirpa Ram, Hiroshi Tanimoto, James H. Crawford, Mohammed I. Mead, Recurring South Asian smog episodes: Call for regional cooperation and improved monitoring, -*Atmospheric Environment*, Volume 295, **2023**, 119534"
8. Safdar, F., Khokhar, M.F., Mahmood, F. et al. Observed and predicted precipitation variability across Pakistan with special focus on winter and pre-monsoon precipitation. *Environ Sci Pollut Res* (2022).
9. Iqbal, A.; Ahmad, N.; Mohy ud Din, H.; Van Roozendaal, M.; Anjum, M.S.; Zeeshan Ali Khan, M.; Khokhar, M.F. (2022). Retrieval of NO₂ Columns by Exploiting MAX-DOAS Observations and Comparison with OMI and TROPOMI Data during the Time Period of 2015–2019., *Aerosol and Air Quality Research*, Vol. 22, Issue 6, A210398, DOI: 10.4209/aaqr.210398, **2022**
10. Khokhar MF, Anjum MS, Salam A, Sinha V, Naja M, Tanimoto H, Crawford JH, Mead MI. Countries of the Indo-Gangetic Plain must unite against air pollution. *Nature.* **2021**;598(7881):415-415
11. Muneeb F, Baig SU, Khan JA, Khokhar MF. Inventory and GLOF Susceptibility of Glacial Lakes in Hunza River Basin, Western Karakorum. *Remote Sensing.* **2021** Jan;13(9):1794.
12. Ali SM, Malik F, Anjum MS, Siddiqui GF, Anwar MN, Lam SS, Nizami AS, Khokhar MF. Exploring the linkage between PM_{2.5} levels and COVID-19 spread and its implications for socio-economic circles, *Environ Res.* 2021 Feb; 193: 110421. **2021**
13. An Emerged Challenge of Air Pollution and Ever-Increasing Particulate Matter in Pakistan; A Critical Review" has been assigned the following manuscript number: Volume 402, 15 January 2021, 1239-