المؤتمر الدولي الثاني لتطبيقات جودة الهواء في العلوم والهندسة

2nd International Conference
on Applications of Air Quality in Science and Engineering

February 9-11, 2026
Kuwait

KISR
معهد الكويت للأبحاث العلمية
KUWAIT INSTITUTE FOR SCIENTIFIC RESEARCH

Under the Patronage of

Prof. Nader Abdullah Al-Jalal

Minister of Higher Education and Scientific Research

2nd International Conference
on Applications of Air Quality in Science and Engineering

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ICAAQSE 2026

9–11 February, 2026

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Scientific Program

Day 1: Monday, 9 February, 2026	
8:30 – 9:00	Registration
9:00 – 9:20	Welcome Address and Official Inauguration
9:20 – 9:40	**Keynote Speaker:** Dr. Petros Koutrakis, Harvard T.H. Chan School of Public Health, USA
	The Environment Public Authority of Kuwait's Study on Human Health Exposure Assessment and Reduction of Air Pollutants
9:40 – 10:40	Exhibition Inauguration and Refreshment Break
Plenary talk	**Chair:** Prof. Tareq Hussein University of Helsinki, Finland
10:40-11:10	**Keynote Speaker:** Professor Roy Harrison, University of Birmingham, UK
	Ultrafine Particles: The Next Frontier in Air Quality Management?
11:10-11:40	**Keynote Speaker:** Prof. Heekwan Lee, Incheon National University, South Korea
	Triple Helix Model of Incheon Innovation Cluster and Future Collaboration Potential
11:40-12:10	**Keynote Speaker:** Prof. Jean Sciare, Climate and Atmosphere Research Center, The Cyprus Institute, Cyprus
	Aerosol pollution sources in Middle East cities: New insights and perspectives
12:10-12:40	**Keynote Speaker:** Dr. Abdel-Sattar Abu-Shady, KISR (consultant), Kuwait
	Recent Advances in Air Samplaing and Analysis of Hazardous Ait Pollutants at Kuwait Institute for Scientific Research (KISR)
12:40-13:40 Lunch Break	

Session 1	Session 1A	Session 1B
	Chair: Prof. Heekwan Lee, Incheon National University, South Korea	**Chair:** Prof. Kasturi Devi Kanniah, Universiti Teknologi Malaysia
13:40 - 14:00	Configuration and verification of the Kuwait Air Quality Forecast System Calori Giuseppe, et al., Italy	Characterization of Water-Soluble Inorganic Ions and Carbonaceous Aerosols in the Urban Atmosphere in Amman, Jordan Tareq Hussein, Finland
14:00 – 14:20	Investigation of Vulnerability of Northern Parts of the Persian Gulf to Dust Emissions by Deep Learning Models Nasim et al., Iraq	Analysis of Potential Trace and Heavy Metals Accumulation in Air Conditional Units in Mosques Ashraf Farahat, KSA
14:20 – 14:40	Temporal Variability and Regional Influences of PM2.5 in the West African Cities of Abidjan (Côte d'Ivoire) and Accra (Ghana) Bahino et al., Côte d'Ivoire	CARO-LIM as a Regional Hub for Aerosol–Cloud–Radiation Interactions in the Eastern Mediterranean and Middle East H. Panahifar et al., Cyprus
14:40 – 15:00	Performance Evaluation of WRF-Chem during Saharan Dust Outbreaks in Northwestern Türkiye Hakki Baltaci, Türkiye	Enhancing Abu Dhabi›s Climate Strategy: The Critical Role of Localized, Sector-Specific Greenhouse Gas Emission Factors Yousef Nazzal, UAE
15:00 – 15:20	Spatiotemporal Analysis and Declining Trends of PM2.3 in Saudi Arabia: A 23-Year Assessment Using MERRA-2 and Ground Observations Turki M A Habeebullah, KSA	Improving Atmospheric Pollution Modeling with Analytical Solutions to the Advection–Diffusion Equation: Validation against Tracer Data for Air Quality and Climate Studies Ali A A Wheida, Egypt
15:20 – 15:40	Characterizing the exposure to particulate pollution under varying congestion scenarios in Lahore, Pakistan Zulfiqar Ali et al., Pakstan	Particulate Matter-Induced Growth Inhibition and Stress Responses in Tomato Seedlings Talaat Ahmed, Qatar
15:40 – 16:00 Poster Session and Coffee Break		

Session 2	Session 2A	Session 2B
	Session 2A	**Session 2B**
	Chair: Dr. Hossein Panahifar, ERATOSTHENES Centre of Excellence, Cyprus	**Chair:** Prof. Mohd T Latif, Universiti Kebangsaan Malaysia, Malaysia
16:00 – 16:20	Trends and Patterns in Air Quality: A Time Series Analysis of AQI and PM$_{2.5}$ in Dhaka City, Bangladesh (2016–2024), a Major South Asian Megacity Ahmed Kammurzaman, Bangladesh	Geospatial Mineral Mapping and Analysis Using Hyperspectral Spectral Data: UAE's First Hyperspectral Spectral Library for Environmental and Resource Management Fares M Howari, UAE
16:20 – 16:40	Dust and Black Carbon Mass Absorption Cross-Section from Size-Segregated Measurements in the Eastern Arabian Peninsula Mohamed M K Mahfouz, Qatar	The Effects of the Covid-19 Movement Control Order on Air Quality in Port Cities Using an Artificial Intelligence Technique: A Comparison between Malaysia and Turkiye Noor Z Yahaya, Malaysia
16:40 – 17:00	New Definition on Hotspots and Dust Source Areas Using Remote Sensing Aerosol Algorithms Ahmady-Birgani, Iran	Variations in Cardio-Respiratory Health Outcomes Linked to Heterogeneous Air Pollution in Abidjan: A Hospital-Based Study Kouadio Kouame, Côte d'Ivoire
17:00 – 17:20	Particle Size Fraction Masses and Their Chemical Characterization at Urban, Residential, and Rural Areas over Greater Cairo, Egypt Ibrahim Hassan, Egypt	Indoor and Outdoor Air Quality during and after the COVID-19 Lockdown Period in Türkiye Sibel Menteşe, Türkiye
17:20-17:40	Climate Change Indicators and Their Impact on the Exacerbation of Dust Storms in Iraq Sarhan N Al-Khafaji, Iraq	Air Emissions from Waste Treatment and Disposal Facilities Mahmoud M Ali, Kuwait
17:40 Closing Sessions		

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Day 2: Tuesday, 10 February, 2026		
8:30 – 9:00	Registration	
Session 3	**Session 3A**	**Session 3B**
	Chair: Prof. Petros Koutrakis, Harvard T.H. Chan School of Public Health, USA	**Chair:** Prof. Roy Harrison, University of Birmingham, UK
9:00-9:20	Indoor PM$_{2.5}$ Source Apportionment and Health Risk Assessment in a University Building in the UAE Anwar et al., UAE	Exposure to Indoor Bioaerosols and Associated Respiratory Symptoms, Allergies, and Eczema in Preschool Children Juliana Jalaludin, Malaysia
9:20-9:40	Prioritization and Restoration Planning for Dust Storm Mitigation in the Al-Batha Region, Southern Iraq Hassan M Al-Zamli and Ali Al-Hemoud, Iraq	A Comprehensive Assessment of Air Quality in Sensitive Urban Zones of Bangladesh in South Asia Ahmed Kammurzaman, Bangladesh
9:40-10:00	Source Apportionment of PM2.5 and PM10 Pollutants near an Urban Roadside Site Using Positive Matrix Factorization Hamdan et al., UAE	Optimizing Air Quality Monitoring Networks in African Cities: A Spatial Distribution Analysis Approach for Kampala, Uganda Fidel R Wabinyai, Uganda
10:00-10:20	Sand Dune Areas in Iraq and Their Impact on Transboundary Dust Storms Qusay F Abed, Iraq	Health Associated Risks Following Exposure to Organophosphate Pesticides: An Omics Based Perspective Dina El-Gmaeel, Egypt
10:20 - 10:40	Analyzing the Spatiotemporal Dynamics of Dust Hazard over Kuwait Ali Darvish, Iran	Empowering Governments to Implement Science-Based Air Quality Solutions Oriol Teixidó, UK
10:40 - 11:00 Poster Session and Coffee Break		

	Session 4A	Session 4B
Session 4	**Chair**: Prof. Jean Sciare, Climate and Atmosphere Research Center, The Cyprus Institute, Cyprus	**Chair:** Prof. Juliana Jalaludin, Universiti Putra Malaysia, Malaysia
11:00 – 11:20	Machine Learning Approaches for Predicting PM2.5 Air Pollution and Supporting Environmental Health Policies Asmaa Ali et al., KSA	Diurnal Variation and Health Risk Assessment of Anthropogenic VOCs Concentrations in Abidjan, Côte d›Ivoire: A Comparative Study of Traffic and Domestic Fire Sites Bahino D J Eymard, Côte d'Ivoire
11:20 – 11:40	Data Foundations for Machine Learning-Based $PM_{2.5}$ Exposure Models in Kampala, Accra, Fort Portal, and Jinja Fidel R Wabinyai, Uganda	Air Pollution Effects on Public Health Resulting from Exposure to Limestone Industry's Particulate Matter Hilmi S Salem, Palestine
11:40 – 12:00	Optimized Machine Learning Models for Scalable and Interpretable Air Quality Monitoring Nidal Nasser et al., KSA	Health Risk Assessment of Polycyclic Aromatic Hydrocarbons (PAHs) and Polychlorinated Biphenyls (PCBs) Emissions from Shisha Brands in Nigeria Jamiu A Adeniran, Nigeria
12:00 – 12:20	Application of an Artificial Neural Network for Predicting Air Pollutants and Air Quality Indices in Ahvaz, Iran Heydar Maleki and Gholamreza Goudarzi, Iran	Study of Atmospheric Pollution and Health Risk Assessment: A Case Study for the Sharjah and Ajman Emirates (UAE) Yousef Nazzal, UAE
12:20 – 12:40	Multilinear Regression Analysis of PM2.5 in Kampala and Fort Portal Cities: Effects of Meteorological Factors and Lagged Pollution Fidel R Wabinyai, Uganda	Airborne Microfiber Exposure and Respiratory Health Effects among Office Workers in Selangor Noor H Kamaludin, Malaysia
12:40 – 13:40 Lunch Break		

Session 5	Session 5A	Session 5B
	Chair: Prof. Hakki Baltaci, Gebze Technical University, Turkey	**Chair:** Prof. Ahmad Kamruzzaman, Stamford University, Bangladesh
13:40 – 14:00	Measurements of Airborne Fine Dust and Ultrafine Particles at a Seaport in Southern Italy Tomasz Prokop, Germany	Health Risk Assessment and Source Apportionment of Elemental Particulate Contents from a South Asian Future Megacity Muhammad Ibrahim, Pakistan
14:00 – 14:20	Coupling Wet Scavenging and the HYSPLIT Trajectory Model for Aerosol Removal Assessment: A Case Study of Lake Urmia, NW Iran Ahmady-Birgani, Iran	The Accumulation Rate of Alpha Particles in the Fallen Dust Samples and its Inhaling Risks: Nuclear Radiation Pollution Assad H Ismail, Iraq
14:20 – 14:40	Analysis of the Impact of Rangeland Vegetation Cover on the Frequency of Dust Storms Caused by Wind Erosion in the Lake Urmia Watershed Using Remote Sensing Amirmohammad Hasanzadegan, Iran	Application of Olfactometry for Odour Regulation in Abu Dhabi Asmaa Al-Hanaee, UAE
14:40 – 15:00	Advancing Air Quality Monitoring with AI and Remote Sensing for $PM_{2.5}$ Estimation Kasturi D. Kanniah, Malaysia	Radiological Impacts of Hookah Smoke on Liver Enzymes and Hematological Parameters of the Albino Rats Assad H Ismail, Iraq
15:00 – 15:20	Spatio-Temporal Trend Analysis of Particulate Matter in Lahore, Pakistan Usman Ahmad et al., Pakstan	Bridging Science and Policy: Assessing Air Pollution Exposure and Health Risks among School Children to Guide Indoor Air Quality Mitigation Plans Juliana Jalaludin, Malaysia
15:20 – 15:40 Poster Session and Coffee Break		

Session 6	Session 6A	Session 6B
	Chair: Prof. Sibel Menteşe, Çanakkale Onsekiz Mart Üniversitesi, Türkiye	**Chair:** Prof. Ibrahim Hassan, Alexandria University, Egypt
15:40 – 16:00	Remote Sensing Based Investigation of Smog Formation in Northeastern Punjab-Pakistan Due to Biomass Burning Muhammad I Shahzad, Pakistan	Volatile Organic Compounds (VOCs) in Ambient Air in Malaysia and Their Impact on the Environment and Human Health Mohd T Latif, Malaysia
16:00 – 16:20	A Long-Term Spatiotemporal Analysis of Oxidant ($O_x=O_3+NO_2$) Levels in the City of Tehran: Impacts and Local and Regional Contributions Ahmed Taheri, Iran	Spatiotemporal Variation of Ambient Volatile Organic Compounds (VOCs) in the Southern Industrial Area of Kuwait and the Impact of the 2020 Covid-19 Lockdown Nabeel et al., Kuwait
16:20 – 16:40	Impact of Air Conditioning System Type on Indoor Air Quality in Kuwaiti Schools: A Comparative Assessment of CO_2 Concentrations and Thermal Comfort Layla Al-Awadi et al., Kuwait.	Association of Indoor Air Pollutants with Leukotriene B4 (LTB4) on Airway Inflammation among Preschool Children in Klang Valley, Malaysia Fahimah Hashim, Malaysia
16:40 – 17:00	Air Quality Impact of the World›s Largest Single-Train Petroleum Refinery Jamiu A Adeniran, Nigeria	Assessment of Air Pollution Effects from Petroleum Hydrocarbons on Vegetation Surrounding Tehran Oil Refinery M Kazemi, Iran
17:00-17:20	The Effect of Different Courtyards and Ventilation Strategies on Indoor CO_2 Concentration in University Buildings in Hot Arid Climate Amr Sayed, KSA	Assessment of particulate pollution on roads in Lahore, Pakistan Zulfiqar Ali et al., Pakstan
17:20 Closing Session		
17:20 – 19:20	Visit to the Mubarakiya Market (Transportation Included)	
19:20 – 21:30	Banquet Dinner: Kuwait Towers Restaurant (Transportation Included)	

Day 3: Wednesday, 11 February, 2026		
8:30 – 9:00	**Registration**	
Session 7	**Session 7A**	**Session 7B**
	Chair: Prof. Magdy AbdelWahab, Cairo University, Egypt	**Chair:** Prof. Nasser Hamdan, American University of Sharjah, UAE
9:00-9:20	In silico CFD Applications for Prediction of Inhalation Probabilities and Heat Transfer Dynamics in a Crowded Semi-Outdoor Space. Islam M S Abouelhamd, Japan	Tackling Air Pollution and Greenhouse Gas Emissions in Pakistan's Transport Sector Mir et al., Pakistan
9:20-9:40	Design and Optimization of Diffuser Configurations for Improved Airflow Distribution, Air Quality, and Contaminant Control in Operating Rooms K. Khanafer, USA	Haze and Visibility over the Arabian Peninsula: Variability and Trends Shahid et al., Qatar
9:40-10:00	Estimating The Pollutant Concentration Emitted From A Non-Uniform Source Using The Response Factor Method Mahmoud Bady et al., KSA	Weather Normalization Technique Using Random Forest to Quantify the Role of Meteorological Conditions in Air Quality Data Dhoha Al-Rushoud, Kuwait
10:00 - 10:20	Modeling and Assessment of Seasonal Dispersion Patterns of Gaseous Pollutants in Tehran Oil Refinery M. Kazemi, Iran	Decadal Trends and Extreme Haze Events in Northeastern Pakistan: An Integrated Analysis of Aerosol Composition, Optical Properties, and Meteorology Muhammad Zahid, Pakistan
10:20 - 10:40	Application of Multiple-Path Particle Dosimetry (MPPD) Model in Aged-Specify Schoolchildren Airways Exposed to Ambient Particulate Matter in Malaysia Ernie S Junaidi, Malaysia	Electromagnetic Wave and Air Quality: Investigating the Absorption Performance of Core-Shell Nanostructures H Kazemi, Iran
10:40-11:00 Coffee Break and Poster Session		

Session 8	Session 8A	Session 8B
	Chair: Prof. Yousef Nazzel, Zayed University, UAE	Chair: Prof. Ashraf Farahat, King Fahad University of Petroleum and Minerals, KSA
11:00-11:20	Seasonal Differences of Metal Pollutants in the Coarse Particulate Matter: A Case of South Asian Future Megacity Muhammad Ibrahim, Pakistan	Air Quality Emission Profile during the Wildfire of Canakkale, Türkiye Dincer K and Menteşe S, Türkiye
11:20 -11:40	Monitoring and Determination of Signatures of Atmospheric Microplastics and Their Associated Microbiome: A New Component of the Human Exposome Nur A S Feisal, Malaysia	Indoor-Outdoor Airborne Microplastics in Malaysian Daycare Centre: Number Concentration, Size-Shape and Environmental Influences Ainur Balqis Radzi, malaysai
11:40 -12:00	Investigating the Effect of Particle Size on Aerosol Deposition Using an Improved Eulerian Model, Maryam Gharibzad, Iran	A comprehensive review of GHG emissions from coal mining and transportation using Life Cycle Assessment Suresh Pandian Elumalai, India
12:00-12:20	Thermal Comfort and Adaptation in Air-Conditioned Buildings in Hot Climate in the State of Kuwait Sana Al-Azzah, Kuwait	Assessing the Connection between Heat Waves and Air Quality: A Case Study of Al-Jahra, Kuwait Zaher H A Al-Abadla, Palestine
12:20-12:40	Renewable Energy and Air Quality: A Comprehensive Analysis M M AbdelWahab, Egypt	Various Sources of Greenhouse Gases Emissions in Kuwait Abdullah Al-Rashidi, Kuwait
12:40-13:00	Quantifying Urban Air Quality Gains from Metro Use: Evidence from Behavioral Modeling in Kuwait Ahmad Aiash, Kuwait	Degradation Intensity of Archaeological Building Materials by Air Pollutants: A Systematic Meta-Analysis in Pharaonic Temple of Tell Basta, Al Sharqia, Egypt Mohamed Al-Gohary, Egypt
13:00-13:20	Analysis of Dust Storm Frequency in the Northern Shoreline of Urmia Lake Based on Remote Sensing Images Maryam Fathi, Iran	Comparison of Urban Deposits Composition in Various Areas of Kuwait. Mohamed F Hamoda, Kuwait
13:20-13:40	How Many Lucky Among Us Will See The Sunrise In Year 2050 Abdul Rehman Khan, Uk	Diversity of Airborne Fungal Spores at Two Regions in Riyadh City, Saudi Arabia Samir M A Radwan, KSA
13:40-15:00 Closing Ceremony and Lunch Break		

Poster Presentations

ID	Title
AQ8	First Complete African Anthropogenic Emission Inventory for Greenhouse Gases and Air Pollutants from 1990 to 2022 Sekou Keita, Côte d›Ivoire
AQ9	Using Sentinel 5 and GEE Software to Analyze Air Pollutants and Their Relationship to Meteorological Parameters in Areas Surrounding Oil Fields in Dhi Qar Province, Southern Iraq Bassim M Hashim, Iraq
AQ56	Studying the Types of Polycyclic Aromatic Hydrocarbons, Organic Carbon, and How Particulate Matter Changes throughout the Day in Riyadh City, Saudi Arabia Adel et al., KSA
AQ63	Synthesis of a Novel Compound (amino-N-(phenylcarbamothioyl)benzamide): An Eco-Sustainable and Promising Antiozonant Agent to Alleviate Poverty through Mitigation of Ozone-Induced Oxidative Stress in Crops Nesreen S Haiba, Egypt
AQ66	Scientific Understanding of Interconnections between Air Pollutants, Climate Change and Human Discomfort: A Case Study of Libya Mustafa Al-Jaff, Iraq
AQ82	SCIENTIFIC REVIEW oF INDOOR PLANTS AS AN ALTERNATIVE TECHNOLOGY FOR REDUCING CARBON FOOTPRINT AND INDOOR AIR pollutants
AQ85	Spatio-Temporal Trend Analysis of Particulate Matter in Lahore, Pakistan Ahmad, Pakistan
AQ86	Characterizing the Exposure to Particulate Pollution under Varying Congestion Scenarios in Lahore, Pakistan Ali et al., Pakistan
AQ87	Assessment of Particulate Pollution on Roads in Lahore, Pakistan Ali et al., Pakistan
AQ91	Climate Change: Worsening Air Quality and Increasing Airway Allergies Muhammad Humayun, Pakistan
AQ92	Air Quality Impacts of Natural Gas Power Plant Emissions on Local Receptor Environment Zainab Yaqub, Nigeria

AQ95	Health Risk Assessment and Source Apportionment of Elemental Particulate Contents from a South Asian Future Megacity Muhammad Ibrahim, Pakistan
AQ111	Spatial and Temporal Variation of Ambient Air Quality during the COVID-19 Period in Gallipoli, Türkiye Menteşe S et al., Türkiye
AQ112	Bioaerosol Composition of Sport Saloons Menteşe S et al., Türkiye
AQ113	Determination of the Organic Emission Profile of Basic Household Cleaning Products on the Market Menteşe S et al., Türkiye
AQ115	The Contribution of House Cleaning Materials on Volatile Organic Compound (VOC) Emissions in the Air Menteşe S et al., Türkiye
AQ116	Contribution of Marine and Road Traffic on Ambient Air Quality around the Busy Lapseki Harbors, Türkiye Menteşe S et al., Türkiye
AQ135	Size-Resolved Insights into Mass and Number Concentration Measurements by Low-Cost Sensors in Indoor Environments Saifi Izhar, India
AQ142	Comparison of Indoor Air Quality and Blatella Germanica Infestation in Food Retail Outlets Attached to Green Building Certified and Non-Certified Shopping Malls Lee S Sing, Malaysia
AQ152	Dust Emission Initiation Hotspots in the Middle East: Spatio-Temporal Dynamics Alireza Rashki, Iran
AQ164	How Plant Photosynthesis Can Improve Air Quality Mahmoud M Ali, KSA