17th IUAPPA World Clean Air Congress and 9th CAA Better Air Quality Conference

CLEAN AIR FOR CITIES

PERSPECTIVES AND SOLUTIONS

29 August - 2 September 2016 | Busan Exhibition and Convention Center | Busan, South Korea

Organized by

CLEAN AIR ASIA

KOREAN SOCIETY FOR ATMOSPHERIC ENVIRONMENT 한국대기환경학회

IUAPPA

TABLE OF CONTENTS

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This work was supported by the Korean Federation of Science and Technology Societies (KOFST) Grant funded by the Korean Government.

WELCOME MESSAGE

Welcome to Clean Air for Cities: Perspectives and Solutions, where Clean Air Asia's Better Air Quality (BAQ) Conference and IUAPPA's World Clean Air Congress (WCAC) have come together in this landmark event to highlight the challenges that air pollution now raises to human health and the environment at the urban, national and international levels, and to explore the advances in science, technology, policy and practice that are needed to address these challenges.

We have designed the conference agenda to reflect the synergy of BAQ's Asian focus and commitment to urban and national policy and practice with WCAC's focus on global policy and inter-regional cooperation, and the scientific foundation for action.

Participants will also find a focus on the air pollution challenges that have come starkly into view in the past two years with the emergence of evidence that air pollution exposure is responsible for 7 million premature deaths worldwide and is now the leading environmental health risk; air pollutants such as ozone and particles are major contributors to climate change; and more than 80% of people living in urban areas that monitor air pollution have air quality levels that exceed the WHO guidelines.

The keynote sessions navigate us through the new science on climate and air pollution; air pollution and health in cities; and finding solutions for clean air. The Climate, Air Pollution and Sustainability – New Challenges, New Science, New Opportunities session reflects on the linking of climate and air pollution agendas with sustainability, in light of the Paris Agreement and the 2030 Agenda for Sustainable Development, and what this means for science, policy and practice. In the session on Air Pollution, Health and the Urban Future, the World Health Organization expounds on how the goal of "clean air for cities" is a way to achieve health goals and a sustainable urban future; we will also learn from country and city representatives how their governments are tackling air pollution in China, Latin America, and Europe. The Health Effects Institute will present the findings of the first comprehensive assessment at national and provincial levels of burdens of disease attributable to major sources of particulate-matter air pollution in China. For the final keynote session on The Global Challenge of Air Pollution - Finding Solutions, we look forward to hearing from the International Energy Agency on the role of energy in air pollution and ways in which the energy sector can contribute to a solution, the Climate and Clean Air Coalition on why national and urban strategies to reduce short-lived climate pollutants are critical, and the US EPA on the role of environmental policy, collaboration, and public access to information in finding solutions to air pollution and climate change.

The breakout sessions are where scientific findings and solutions for clean air in cities are discussed in depth.

We thank all our partner and supporting organizations for making this Conference possible. We hope all participants will enjoy the meeting and benefit from it, and that we shall all see progress by the time BAQ next meets in Asia in 2018 and the WCAC meets in Istanbul in conjunction with the European Federation for Clean Air in 2019.

Kil-Choo Moon
President
International Union of Air Pollution Prevention and Environmental Protection Associations

Yong-Won Jung
President
Korean Society for Atmospheric Environment

Bjarne Pedersen
Executive Director
Clean Air Asia

Kil-Choo Moon
President
International Union of Air Pollution Prevention and Environmental Protection Associations (IUAPPA)

It is my pleasure and privilege to invite all of you to the 9th CAA Better Air Quality Conference and the 17th IUAPPA World Clean Air Congress to be held in the beautiful city of Busan, Korea from August 29 to September 2, 2016.

I would like to express my sincere gratitude on behalf of all members of IUAPPA and KOSAE for your attendance and participation in this event.

During the past one hundred years, the world has experienced social and technological changes that we have never seen before, and our natural environment has deteriorated so severely. This event has the theme of "Clean Air for Cities – Perspectives and Solutions", which is a large-scale and urgent issue with regard to the air quality.

Solutions to air pollution are particularly significant at the city level, where more than 65% of the world's population lives in, and impacts on people and nature are direct. We hope that this event will provide an opportunity to discuss means for solving problems and sharing experiences, to seek innovative approaches, to establish partnerships, and to expedite free flow of environmental knowledge.

The enthusiasm and excitement displayed by the Organizers, the International Union of Air Pollution Prevention and Environmental Protection Associations (IUAPPA), Clean Air Asia, and the Korean Society for Atmospheric Environment (KOSAE) certainly promises that this event will be a grand success. We all know that this is the first time that the World Clean Air Congress (WCAC) and the Better Air Quality Conference (BAQ) are held together. Therefore, we hope this event to be an exceptional venue to tackle the global challenge of air pollution.

I look forward to meeting each of you and thank you for your enthusiastic participation and support to make this event successful.

I wish you a pleasant and interesting stay in the beautiful port city of Busan.

Yong-Won Jung
President
Korean Society for Atmospheric Environment

On behalf of Korean Society for Atmospheric Environment (KOSAE), it is my great pleasure to have you at the 17th IUAPPA World Clean Air Congress and 9th CAA Better Air Quality Conference here in Busan. Fifteen years ago, we, KOSAE, hosted the 12th IUAPPA World Clean Air Congress in Seoul, which was very successful. This is the second time for us to have such a large international event since 2001.

In 2005, four years after the 12th IUAPPA World Clean Air Congress, the Korean government finally made the special law and the action plan for the air quality management and improvement in Seoul metropolitan areas, which might be considered as one of the successful outcomes of the conference for Korea at that time. Thanks to this special law and the implementation of the action plan, air quality in Seoul metropolitan areas has been gradually improved especially in the PM_{10} concentration since then.

The recent high $PM_{2.5}$ events which lasted in Korea for almost one month during May of 2016, however, made us realize that it certainly requires far more difficult and different challenges to address the problem that we had never experienced before. I strongly believe that at this conference ideas toward ultimate solutions for the newly emerging air pollution problems which some Asian countries may also be facing can be obtained through active information exchanges and discussions on the new challenging topics including $PM_{2.5}$, health, and energy issues.

I hope you have a scientifically productive and wonderful experience at the conference and wish you an enjoyable time in Korea.

Robert O'Keefe
Chair, Board of Trustees
Clean Air Asia

Bjarne Pedersen
Executive Director
Clean Air Asia

Mary Jane Ortega
Chair, Partnership Council
Clean Air Asia

We are delighted to welcome you all to our 9th Better Air Quality Conference and the 17th IUAPPA World Clean Air Congress. This landmark event is bringing together up to 1000 people from a range of sectors to address the air pollution challenges being faced throughout the world and the ways forward for countries and cities.

This year's theme is "Clean Air for Cities - Perspectives and Solutions." And given the scale of the global air pollution crisis, solutions are imperative. Air pollution is exacting immense human, economic and environmental costs, and is linked to 6.5 million premature deaths per year, making it the world's single greatest environmental health risk and the fourth greatest health risk overall.

Since its inception in 2002, the Better Air Quality Conference has had a successful track record of gathering renowned experts in their fields to collaboratively develop innovative strategies and solutions that are having, and will continue to have, a demonstrable and lasting impact in addressing air pollution and its sources.

This year's conference is no exception, and we are proud to have among the ranks of our keynote speakers such luminaries as Dr Fatih Birol, head of the International Energy Agency, and Dr Margaret Chan, Director-General of the World Health Organization.

The Better Air Quality Conference is the Asia region's leading air quality forum, and through it we are helping to achieve the Long-Term Vision for Urban Air Quality in Asia, and supporting the realization of the United Nations' Sustainable Development Goals. We are also helping to realize our own overarching organizational mission of building healthier and more livable cities via our ethos of partnerships and collaboration to ensure our work has a meaningful and sustainable impact.

Despite the myriad challenges we collectively face in reducing air pollution and greenhouse gas emissions, we know that the multi-sectoral and multi-faceted approaches that we will together identify and develop during this year's Better Air Quality Conference will help us chart a cleaner, greener and healthier future for our cities.

For those who are new to the Better Air Quality Conference, we welcome your presence and valuable input. For those who have taken part in the past, we welcome your return and look forward to more successful outcomes. For united in our efforts and with a shared vision of a pollution-free world, we can and will make the world a better place for all.

환경부
Ministry of Environment

Seongkyu Yoon
Minister
Ministry of Environment
Republic of Korea

It is my great pleasure and privilege to welcome all of you to the 17th World Clean Air Congress (WCAC), which is the biggest and foremost international conference in the field of air environment, as well as to the 9th Better Air Quality Conference (BAQ) of the Clean Air Asia (CAA), which is a regional cooperative body for improving air quality in Asia. I am very pleased that Korea could have the great opportunity to hold this meaningful event in Korea's second largest city, Busan, this year once again after the first time in Seoul in 2001. I would like to express my deep appreciation to the IUAPPA, CAA and Korean Society for Atmospheric Environment for their efforts to co-organize the event.

The theme of the 17th WCAC is "Clean Air for Cities: Perspectives and Solutions". Currently, more than half of the world's population lives in cities and global urbanization is expected to even more accelerate in the future. Consequently, the use of energy and vehicles is increasing to aggravate air pollution. In particular, it is projected that the urban population exposed to polluted air would be growing further to exacerbate health damages. Therefore, controlling and managing urban air quality is now considered one of the most pressing challenges to cities in the world. In such situations, I strongly believe that this event under the theme is held at a very opportune time.

According to the World Health Organization (WHO), 6.5 million premature deaths are closely linked to air pollution. The Organization for Economic Co-operation and Development (OECD) projected that without any actions taken outdoor air pollution could cause 6-9 million deaths a year by 2060. In addition, the International Agency for Research on Cancer (IARC) of WHO classified outdoor air pollution as carcinogenic to humans (Group 1) in 2013. Under the global circumstances, the request of the international society on clean air is increasing.

In Korea, citizens' concern on air pollution is growing as well. However, due to several meteorological and geographical barriers that Korea have experienced in controlling air pollution, such as the limited land space for relatively high population density and high emission rate per unit area that resulted from rapid industrialization and urbanization since 1960s, the necessity to draw up a breakthrough plan for the nation to improve air quality is being gradually highlighted.

Accordingly, the Korean government has put forth the continuous effort, despite the unfavorable condition, in order to prepare plans and implement countermeasures to manage air quality. For example, in 2003 it came up with the Special Act on Metropolitan Air Quality Improvement. In 2005 it initiated long-term measures based on the Basic Plan for Metropolitan Air Quality Management to promote a range of policies, such as introducing the air pollutant emission-cap regulation, tightening emission standards on vehicles, and controlling emissions from old diesel vehicles. As a result of the endeavor, Seoul has shown the significant improvement in air quality compared to early 2000s.

However, the government's national policy cannot be a sole solution for air pollution, because air quality issues are inter-linked with a number of factors including diverse emission sources and stakeholders. Therefore, it is necessary to bring up the participation and combined effort of enterprises, academia, and all the citizens in approaching a range of air quality matters, such as scientific analysis on emission sources, emission reduction, air quality forecasting, and damages on human health. Furthermore, since air pollutants move from a state to other states with no respect for boundaries, the cooperation and mutual assistance among countries are also crucial.

In this regard, I believe that this event will be a great opportunity for us to share the international and national latest policies and technologies on air quality management and emission reduction, as well as to strengthen the global cooperation in urban air environment. I truly hope that by taking this opportunity we can seek out new innovation to address urban air quality matters and there will be a significant step towards our joint effort and better cooperation.

Distinguished guests, ladies and gentlemen, once again, I would like to extend a very warm welcome to the 17th WCAC and 9th BAQ and wish you a good luck during your stay in Busan.

부산광역시
BUSAN METROPOLITAN CITY

Byung-soo Suh
Mayor of Busan Metropolitan City

Mr. MOON Kil-choo, President of the International Union of Air Pollution Prevention and Environmental Protection Associations (IUAPPA), Mr. Robert O'Keefe, Board Chairman of Clean Air Asia (CAA), professionals and experts from all around the world, relevant officials, distinguished guests, and ladies and gentlemen.

It is with my great pleasure that the 17th IUAPPA World Clean Air Congress and the 9th CAA Better Air Quality Conferences are being held here in Busan, a marine capital of Korea. On behalf of the 3.5 million citizens of Busan, I would like to extend my warmest welcome to you all.

Busan is a world-renowned port city boasting beautiful natural environments and a city of conventions and exhibitions in Asia. With its rich experiences and proven capabilities of successfully hosting various kinds of international conferences and events, including the 2005 APEC Economic Leaders' Meeting, we will continue to do our best to make this WCAC and BAQ Conference the best ever.

Air pollutants is one specific area affecting the whole world, while climate change and the worsening air quality, which interact with one another, are becoming a growing threat to life on planet Earth. With an inflow of long-range transboundary air pollutants drifting into Korea, public interest in the prevention of air pollution is becoming more of a concern here in Korea, while clean air quality is becoming a key issue when making environmental related policies for the nation.

Against this backdrop, co-hosting the world's two most prestigious conferences on air quality is very timely and meaningful. I am sure that it will serve as a good opportunity to draw cooperation among many different countries to tackle this growing threat. Through international collaboration and cooperation, the City of Busan will play a leading role in dealing with this global issue.

I look forward to the many good solutions that will be presented at this conference regarding various environmental problems, including climate change and air pollution, as well as ways to maintain clean air in urban areas.

I hope that while enjoying the beautiful natural surroundings and culture that the city has to offer and feeling the warmth that the citizens of Busan have, you will also make many fond memories during your stay here in Busan.

I wish you all participating in the 17th IUAPPA World Clean Air Congress and 9th CAA Better Air Quality Conference all the very best of good luck and health.

Nessim Ahmad
Deputy Director General, Sustainable Development and Climate Change Department concurrently Chief Compliance Officer

Urbanization in Asia and the Pacific is occurring very rapidly. The United Nations reports that cities in this region grew by one billion people in just 30 years from 1980 to 2010 and are expected to grow by another billion by 2040. Half of the region's population will be living in urban areas by 2018. Ninety-seven percent of cities in developing Asian countries have unhealthy levels of air pollution. With rapidly growing exposure to the effects of air pollution, escalating numbers of people in our region are at risk for severe respiratory and cardiovascular illnesses and other adverse environmental impacts such as acid rain and haze. Actions on air pollution and climate change are well embedded in the Sustainable Development Goals.

A systematic and integrated approach to air quality management is necessary. Curbing air pollution in Asian cities requires interventions across multiple sectors. The adoption and promotion of appropriate urban development, clean energy, and sustainable transport policies, plans, and investments are important components to air quality management. At the same time, strengthening governance and management capacity are necessary.

ADB's fruitful partnership with Clean Air Asia (CAA) has reflected this broad-based approach. In the last 15 years, ADB and CAA have cooperated on innovative projects that have improved air quality management across the Asia and Pacific region. The Clean Air Scorecard Tool, which enables cities to comprehensively assess their management of air quality, and the Rapid Assessment of City Emissions, which is a tool for measuring emissions for low carbon cities, are two examples. ADB and CAA also developed a Road Map for Cleaner Fuels and Vehicles in Asia and worked together on pioneering non-motorized transport in Asian cities.

From the very first, ADB has been a proud partner of the Better Air Quality Conference (BAQ). We look forward to sharing and learning about solutions to air pollution in cities in Asia and the Pacific, to help make them greener and more livable.

giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

Roland Haas
Senior Transport Advisor, Competence Centre "Energy and Transport"
Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, Eschborn/Germany

The United Nations Development Summit on 25 September 2015 adopted the Sustainable Development Goals (SDG) "Transforming our world: the 2030 agenda for Sustainable Development". SDG 11 deals specifically with cities: "Make cities and human settlements inclusive, safe, resilient and sustainable".

Its target No. 2 stipulates: "By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons."

Transport plays an important role for other SDGs, among them SDG 3 (health) for traffic accidents, and SDG 7 (energy) for energy efficiency.

The World Clean Air Congress (WCAC) and the Better Air Quality Conference (BAQ) 2016 directly contribute to the SDGs by focusing explicitly on clean air for cities. Activities in this field provide various co-benefits, e.g. for greenhouse gas emission reduction, public health and alleviation of poverty burdens since poorer people have less access to health services and live in increasingly polluted urban areas.

GIZ has actively participated in all BAQs and we are glad to also be a partner organisation. It gives us a platform to learn what and how others are doing, and to in turn share with others what we do. Through our German Government financed development projects, we enable representatives from municipalities, provinces and national government ministries and agencies, as well as from the civil society, to participate in this biggest air quality conference in Asia.

GIZ is working in the urban context e.g. through our technical cooperation programme with ASEAN "Cities, Environment and Transport in the ASEAN Region," and in particular with its project "Transport and Climate Change". Only recently, after 7 years, we finished the project "Clean Air for Smaller Cities" and we are presently preparing a new Programme Module "Sustainable Mobility for Metropolitan Regions in ASEAN Member States". Besides clean air, also greenhouse gas emission reduction, traffic safety, and noise reduction are key areas of consideration.

Our work has shown us that energy efficiency can be a powerful ally in the battle against air pollution, and we look forward to engaging with you on how the two can move forward in tandem to create an energy efficient transport system along with clean air.

We are confident to see a successful BAQ and WCAC 2016 and look forward already to the next conferences.

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KEYNOTE SPEAKER

Dr. Myung Ja Kim

Former Minister of Environment of the Republic of Korea

OPENING KEYNOTE:

Climate, Air Pollution and Sustainability
New Challenges, New Science, New Opportunities

30 August 2016, 11:00am-12:30pm
Summit Hall (Room 205), 2F, Convention Hall

Dr. Kim Myung Ja currently serves as the Chairperson of the Korean Business Council on Sustainable Development (KBCSD), and the President-elect of the Korean Federation of Science and Technology Societies (KOFST). She is also serving as a board member or a special advisor to about forty private and public institutions, such as the Korean Academy of Science and Technology (KAST), the Korean Academy of Environment Science (KAES), the Sustainable Science Society, UN Sustainable Development Solutions Korea Network (SDSN Korea), Community Chest of Korea, Asian Social Welfare Foundation, Vice-president of the Alumni Association of Seoul National University, the Presidential Advisor to KAIST.

Prior to becoming the Chairperson of the Green Korea 21 Forum in 2008, she served as the Member of the National Assembly (2004-08) sitting on the Defense Committee as Vice - chairperson and also as Chairperson of the Ethics Committee of the National Assembly. Prior to her election as the lawmaker, Dr. Kim has served as the Minister of Environment (1999-2003) to become the longest serving female minister in the constitutional history of Korea. Under her leadership, the Ministry of Environment was decorated with the Excellence in Government Administration Award for two consecutive years (2001, 2002).

Previously, Dr. Kim had been in academia for more than three decades as a professor of chemistry, history of science, and science policy at KAIST (as Visiting Distinguished Professor), Myong-Ji University (as Distinguished Professor) and Sookmyung Women's University, and was awarded the Presidential Award for the Advancement of Science and Technology (1994). Her numerous scientific publications include the Korean translation of "The Structure of Scientific Revolutions" by Thomas S. Kuhn, and "Entropy"; and published "Science and Modern Society", "The Oriental and Occidental Tradition of Science and Environmental Movement", "Nuclear Dilemma" and many others. Dr. Kim holds a B.S. in Chemistry from Seoul National University ('66) and a Ph.D. from the University of Virginia ('71). Her numerous awards include the Presidential High Decoration of `Changjo-jang' in Science and Technology (2015), Seoul National University's Proud Alumni Award (2015), Blue Stripes Order of Service Merit (2004).

Dr. Drew Shindell

Chair of the Scientific Advisory Panel
Climate and Clean Air Coalition

Opening Keynote:
Climate, Air Pollution and Sustainability
New Challenges, New Science, New Opportunities
30 August 2016, 11:00am-12:30pm
Summit Hall (Room 205), 2F, Convention Hall

Keynote Address:
Two Targets for Climate Action: Reducing Risks for Current and Future Generations

Emissions from power, transportation, industry and agriculture are the primary causes of both climate change and air pollution, inextricably linking these issues. They have distinct physical attributes, however, particularly in the longer timescales of climate change. Policies have begun to link the world's climate and air pollution agendas via sustainability, e.g. the Paris Climate Agreement emphasizes that efforts to address climate change should occur within "the context of sustainable development and efforts to eradicate poverty". Signatories aim to hold "the increase in the global average temperature to well below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels", defining a long-term target. The path we follow towards that target has important consequences for near-term sustainable development and the impacts of climate change on current generations, however, demonstrating the value of a second target associated with short-lived pollutants.

Drew Shindell is the Nicholas Professor of Earth Science at Duke University following two decades at the NASA Goddard Institute for Space Studies. His research concerns climate change, air quality, and links between science and policy. He has been an author on more than 200 peer-reviewed publications, received awards from Scientific American, NASA, the NSF and the EPA, and is a fellow of AGU and AAAS. He has testified before both houses of the US Congress (at the request of both parties). He chaired the 2011 UNEP/WMO Integrated Assessment of Black Carbon and Tropospheric Ozone and was a Coordinating Lead Author on the 2013 IPCC Assessment. He chairs the Scientific Advisory Panel to the Climate and Clean Air Coalition of nations and organizations.

KEYNOTE SPEAKER

KEYNOTE SPEAKER

Dr. Jos Lelieveld

Director
Max Planck Institute for Chemistry

Opening Keynote:
Climate, Air Pollution and Sustainability
New Challenges, New Science, New Opportunities
30 August 2016, 11:00am-12:30pm,
Summit Hall (Room 205), 2F, Convention Hall

Keynote Address:
How does the Earth's atmosphere maintain its self-cleaning capacity?

Millions of tons of pollutant and greenhouse gases are emitted per year, and then photochemically oxidized. The oxidation products are removed by deposition processes. The atmospheric oxidation mechanism is primarily determined by hydroxyl (OH) radicals. OH initiates reaction chains that can either destroy or recycle OH. Some key questions are: If the oxidation capacity is affected by growing pollution emissions, to what extent is it buffered by OH recycling? How do regions with specific photochemical and pollution characteristics act together through atmospheric transport at a global scale? Atmospheric chemistry-climate models have neglected OH recycling in the oxidation of natural hydrocarbons, which are emitted in large quantities by the vegetation. New approaches need to do justice to the intricate interactions between reactive carbon, nitrogen species and oxidants. These interactions give rise to a global buffering mechanism that can maintain the self-cleaning capacity of the atmosphere.

Dr. Jos Lelieveld is director at the Max Planck Institute for Chemistry in Mainz, Germany, since 2000, and is professor in atmospheric physics at the University of Mainz. Since January 2008 he is also affiliated with the Cyprus Institute. His work aims at the understanding of chemical and transport mechanisms that regulate the composition of the atmosphere. He is associated with the Institute for Basic Science in South Korea, member of the German National Academy of Sciences Leopoldina, international committees and societies, and received international distinctions.

Dr. Margaret Chan

Director General
World Health Organization

Keynote Session:
Air Pollution, Health, and the Urban Future
31 August 2016, 11:00am-12:30pm
Summit Hall (Room 205), 2F, Convention Hall

Keynote Address:
Air Pollution: The Global Health Challenge
(video message)

Dr Margaret Chan, from the People's Republic of China, obtained her medical degree from the University of Western Ontario in Canada. She joined the Hong Kong Department of Health in 1978, where her career in public health began.

In 1994, Dr Chan was appointed Director of Health of Hong Kong. In her nine-year tenure as director, she launched new services to prevent the spread of disease and promote better health. She also introduced new initiatives to improve communicable disease surveillance and response, enhance training for public health professionals, and establish better local and international collaboration. She effectively managed outbreaks of avian influenza and of severe acute respiratory syndrome (SARS).

In 2003, Dr Chan joined WHO as Director of the Department for Protection of the Human Environment. In June 2005, she was appointed Director, Communicable Diseases Surveillance and Response as well as Representative of the Director-General for Pandemic Influenza. In September 2005, she was named Assistant Director-General for Communicable Diseases.

Dr Chan was elected to the post of Director-General on 9 November 2006. The Assembly appointed Dr Chan for a second five-year term at its sixty-fifth session in May 2012. Dr Chan's new term began on 1 July 2012 and continues until 30 June 2017.

KEYNOTE SPEAKER

KEYNOTE SPEAKER

Dr. Carlos Dora

Coordinator, Interventions for Healthy Environments
World Health Organization

Keynote Session:
Air Pollution, Health, and the Urban Future
31 August 2016, 11:00am-12:30pm,
Summit Hall (Room 205), 2F, Convention Hall

Keynote Address:
Air Pollution Health Impacts - the Pulse of the New Development Agenda

Air pollution is a major killer, causing almost 7 million deaths a year worldwide. The strong link between air pollution, health and development, is reflected in the indicators for SDGs in health (SDG 3), energy (SDG 7) and cities (SDG 11). We highlight here some of the main challenges and opportunities:

Non Communicable Diseases (NCDs) like heart disease, stroke, cancer and chronic lung diseases are caused by air pollution, yet air pollution is not included in most NCD prevention strategies. Countries of South East Asia (SEARO) are pioneering air pollution interventions targets as a strategy to prevent NCDs.

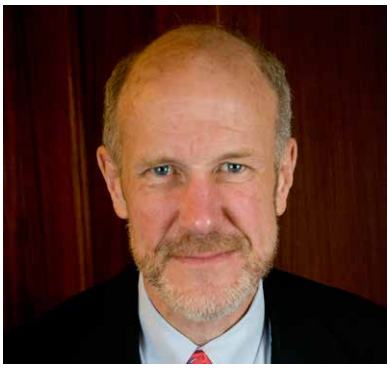
Cooking, heating and lighting with dirty fuels and inefficient technology in the home remain a major source of indoor air pollution causing COPD in women and childhood pneumonia deaths, as well as deterring children, especially girls, from going to school because they need to collect fuel. Advances in the provision of improved cookstoves are not enough. Recent knowledge of how clean these fuels and technologies need to be to protect health, need to form the basis for effective response.

Kerosene is a major source of particulate matter (a deadly air pollutant) and of black carbon (which also causes climate change). Millions of people still rely on kerosene for lighting, sometimes for cooking, but there is little awareness of the importance of kerosene as a cause of ill health.

Addressing air pollution in cities can yield great benefits for health and development. Air pollution is increasing in cities in low and middle income countries, while it is decreasing in the wealthier part of the world. Of 3000 cities worldwide monitoring air quality, more than 80% have yearly average air quality levels that do not meet the WHO guidelines.

This presentation will highlight the global response to the health threats posed by air pollution that is being articulated, following the first World Health Assembly resolution on air pollution and health adopted in 2015.

Carlos Dora, MD, PhD, is a health policy expert with WHO leading work on health impacts of sector policies (energy, transport, housing, extractive industry) involving health impact assessment (HIA) and systems to manage health risks and benefits. He manages the WHO Unit in charge of providing guidance on health risks (air pollution, indoors and outdoors, radiation, occupation), as well as monitoring, evaluation and tracking related policies and health impacts. Dr Dora leads WHO's work on "Health in a Green Economy" analyzing health co-benefits from climate change mitigation policies, and is developing WHO's work on health indicators for post-2015 Sustainable Development Goals. He is engaged in the health co-benefits of sustainable energy initiatives, including SE4All, GACC, and CCAC. He previously worked at the London School of Hygiene and Tropical medicine; at the WHO Regional Office for Europe, and as a senior policy adviser to the WHO Director General. Before that he worked in the organization of primary care systems in Brazil, where he also practiced clinical medicine. He served in US and Chinese science and policy committees. His MSc and PhD are from the London School of Hygiene and Tropical Medicine. His publications cover health impacts of sector policies, Health Impact Assessment and health risk communication.



Robert O'Keefe
Vice President
Health Effects Institute

Keynote Session:
Air Pollution, Health, and the Urban Future
31 August 2016, 11:00am-12:30pm
Summit Hall (Room 205), 2F, Convention Hall

Keynote Address:
Burden of Disease Attributable to Coal-Burning and Other Major Sources of Air Pollution in China - Progress and Future Challenges

The Global Burden of Disease (GBD) is an international effort - by the Institute for Health Metrics and Evaluation involving over 1600 scientists in 119 countries - to estimate what the world's population is dying from, and what risk factors contribute to mortality. The most recent GBD analysis, published in The Lancet, identifies outdoor air pollution as the fourth highest risk factor for death globally and by far the leading environmental risk factor for disease. More than half of all deaths occur in two of the world's fastest growing economies, China and India.

Power plants, industrial manufacturing, vehicle exhaust and burning coal and wood all release small particles into the air that are dangerous to a person's health.

A comprehensive new study led by Tsinghua University and the Health Effects Institute (HEI) using the GBD data and methodology has found that in China coal combustion is the single largest source of air pollution-related health impact, contributing to 366,000 premature deaths in 2013.

This new report, published after rigorous analysis and peer review, provides the first comprehensive assessment at national and provincial levels of current and future burdens of disease attributable to coal-burning and other major sources of particulate-matter air pollution (particulate matter with an aerodynamic diameter of less than 2.5 μm, or $PM_{2.5}$) in China.

In response, China has implemented extensive pollution control programs that require substantial reductions from these and other sources in all major cities.

Looking ahead, the study, Burden of Disease Attributable to Coal-Burning and Other Major Sources of Air Pollution in China, found that, with continued actions to control air pollution, levels will decline substantially by the year 2030, and 275,000 premature deaths will be avoided. However, even with these reduced future pollution levels, as the Chinese population continues to grow and age, the health impacts from air pollution will increase, highlighting the challenges facing the country.

KEYNOTE SPEAKER

KEYNOTE SPEAKER

Robert O'Keefe is Vice President of the Health Effects Institute (HEI). HEI is an independent research institute that provides public and private decision-makers around the world with high-quality, relevant and credible science about the health effects of air pollution, global health impact assessment and emerging work to understand potential impacts of unconventional oil and gas development.

As Vice President, he is responsible for management of the Institute's international program to assess the health effects of air pollution in developing countries and its work to apply the Global Burden of Disease Estimates to air pollution and source specific impacts in developing Asia. He also provides leadership in implementing HEI's research and review programs on unconventional oil and gas development, the health impact of particulates, ozone air toxics and other pollutants, and emerging technologies and fuels, including those driven by climate concerns. He oversaw the Institute's efforts to define and implement new research on "Accountability", a first-of-its-kind program designed to understand the health impacts of environmental regulation. He regularly addresses and provides testimony to prominent institutions, including the Executive Office of the President, US Congress, the European Parliament, the National Research Council, Institute of Medicine, Asian Development and Word Banks and many other domestic and international bodies. He has been invited by the Woodrow Wilson Center to address Congress as part of its "Scholar on the Hill forum."

He served for nine years at the Massachusetts Department of Environmental Protection, as Assistant Deputy Commissioner for Policy and Program Development and as Director of Planning and Budget. He is a member of the USEPA's national Clean Air Act Advisory Committee and Chairs the Board of Directors of Clean Air Asia.

Yandong Tang

Director of International Center for Environmental Technology
Foreign Economic Cooperation Office
China Ministry of Environmental Protection

KEYNOTE SPEAKER

Keynote Session:
Air Pollution, Health, and the Urban Future
Policies for Tackling Air Pollution in Cities
31 August 2016 , 11:00am-12:30pm
Summit Hall (Room 205), 2F, Convention Hall

Keynote Address:
A Roadmap for Better Air Quality in Cities

In recent years, China vigorously implemented the Air Pollution Prevention and Control Action Plan (referred as Ten Measures for Air), established regional joint control cooperation mechanism, built up the biggest monitoring network on ambient air quality in the developing countries. Currently, the 338 cities at prefectural level and above have the monitoring capacity for six indicators including $PM_{2.5}$. The latest release of the interim assessment report shows that the air quality has been improved all over the Chinese cities. $PM_{2.5}$ and PM_{10} concentration decreased, and the expected targets of air quality improvement in 2017 will be achieved overall. However, the cities are still facing the grim situation of air pollution. The heavy pollution problem is prominent in winter, and ozone pollution appears in key regions. In the next step, Ten Measures for Air should be continued vigorously and implemented strictly. We started collaboration with Clean Air Asia in 2005 by establishing the China City Air Quality Management Network, and so far, 31 cities have joined the network, which help Chinese cities to achieve better air quality continuously.

Yandong Tang is the Director of International Center for Environmental Technology Foreign Economic Cooperation Office (FECO), Ministry of Environmental Protection of China. She graduated from the School of Economics and Management, Tsinghua University. She devotes herself to environmental protection management and international cooperation. She has more than 10 years experience in international cooperation projects on environmental protection. She is in charge of the management and implementation of more than 40 projects in the fields of Vienna Convention on Ozone Layer Protection and bilateral cooperation with Norway, Italy, Germany, Sweden and Australia, etc. Supported by MEP, she has made efforts to build the International Platform for Environmental Technology (3iPET). Through the strategies of "Bring in" and "Going global" and in both online and offline forms, the platform has been developed in order to forge communication, matchmaking and promotion of environmentally friendly technologies. 3iPET consists of sub platforms for air, water and soil international cooperation. It carries out the research of international experience on air, water and soil, international technology introduction and transformation as well as environmental technology promotion of China. Furthermore, 3iPET has already established 8 international cooperation offices in countries including USA, Canada, Korea, Australia and Sweden, as well as domestic cooperation offices in 18 provinces and 8 cities. Through communication and interaction, the offices have the ability to carry out exchange and cooperation on environmental protection technologies.

KEYNOTE SPEAKER

Dr. Beatriz Cardenas
Centro Mario Molina
Mexico City

Keynote Session:
Air Pollution, Health, and the Urban Future - Policies for Tackling Air Pollution in Cities
31 August 2016, 11:00am-12:30pm
Summit Hall (Room 205), 2F, Convention Hall

Keynote Address:
Strengthening air quality governance in Central Mexico Megalopolis

Mexico City Metropolitan Area was known to be one of the most polluted cities two decades ago. After implementation of environmental policies to tackle air pollution, as well as a result of other public policies mainly focused in the metropolitan area, air pollution in the area has improved. Still, there is no compliance with Mexican air quality standards for ozone and $PM_{2.5}$. Over the last years, recognition of the need to evaluate causes and impacts of the Central Mexico Megalopolis versus a focus only in the metropolitan area, has risen in different sectors of the society, including public officers. An overview of this new air quality governance will be discussed and the recent air quality crisis in the region.

This assessment of the evolution of policy in Mexico City will be set in the wider context of the awareness, assessment and mitigation of air pollution in Latin American cities generally.

Beatriz Cardenas is the Air Quality Project leader at Centro Mario Molina in Mexico City. Her current work is focused in $PM_{2.5}$ in Mexican cities. Over the last two years she was part of the experts team at the Megalopolis Environmental Commission for the central region of Mexico and was in charge of air quality projects. From 2001 to 2013 she led the Atmospheric pollution research at the National Institute for Ecology and Climate Change. She has participated in several research projects, including the major field campaigns in Mexico City Metropolitan Area in 2003 and 2006. Dr. Cardenas has participated in the Mexican Delegation at IPCC, CCAC, Stockholm Convention Experts Group and CCE. She has a MSc and PhD in environmental engineering from the University of Massachusetts and a bachelors degree in Biochemical engineering from the Autonomous Metropolitan University in Mexico.

Murad Qureshi

Former Chair of the Environment Committee
London Assembly

Keynote Session:
Air Pollution, Health, and the Urban Future - Policies for Tackling Air Pollution in Cities
31 August 2016,11:00am-12:30pm
Summit Hall (Room 205), 2F, Convention Hall

Keynote Address:
Driving away from diesel in European Cities

Since the beginning of the century, Europe has been attempting to reduce its CO_2 emission by encouraging dieselisation of its cars but has inadvertently added to its air pollution crisis via NO_2 emissions particularly in its cities.

The presentation will show what European cities like London, Paris and Berlin are doing to drive away from diesel as a result, particularly in light of the VW scandal. This ranges from outright bans of diesel vehicles; scrappage schemes; changes in national fuel duties to more sophisticated measures like Ultra Low Emission Zones (ULEZ) and toxicity charges. Comparing it also with other attempts in Europe to deal with air pollution like in the UK with its SOx pollution in the 1950's. Lessons will be drawn for the megacities of Asia as they have to deal with both SOx and NOx pollution simultaneously unlike European cities.

Murad Qureshi is an Assembly Member at the London Assembly between 2004-2016 and a former chair of the Environment over the last two terms. He is a specialist in Environment and Sustainability issues in cities like air pollution, noise and energy particularly within the transport sector. Murad has a MSc in Environmental Economics and BA (Hons) Development Studies.

KEYNOTE SPEAKER

KEYNOTE SPEAKER

Dr. Fatih Birol

Executive Director
International Energy Agency

Keynote Session:
The Global Challenge of Air Pollution - Finding Solutions
1 September 2016, 11:00am-12:30pm
Summit Hall (Room 205), 2F, Convention Hall

Keynote Address:
WEO Special Report on Energy and Air Pollution: Solutions for Asia

The energy system contributes vitally to economic and social progress around the world. But there are costly side-effects. Millions of tonnes of energy-related pollutants are released each year, be it the harmful emissions from using traditional biomass for cooking, or the emissions from cars and trucks, factories, power plants and other sources. This is not a problem that economies can expect to grow out of as they become wealthier, but one that will endure until concerted transformative action is taken. For this reason, the IEA has - for the first time - undertaken a major study on the role of energy in air pollution. The report - which will be the focus of the presentation by IEA Executive Director, Dr. Fatih Birol - sets out in detail the scale, causes and effects of the problem and the ways in which the energy sector can contribute to a solution.

Dr. Fatih Birol took office as Executive Director on 1 September 2015, twenty years after first joining the International Energy Agency (IEA). Prior to being elected as Executive Director, Dr. Birol held the positions of Chief Economist and Director of Global Energy Economics, with responsibilities that included directing the flagship World Energy Outlook publication. He is also the founder and chair of the IEA Energy Business Council. Dr. Birol has been named by Forbes Magazine among the most powerful people in terms of influence on the world's energy scene. He is the Chairman of the World Economic Forum's (Davos) Energy Advisory Board and serves as a member of the UN Secretary-General's Advisory Board on 'Sustainable Energy for All'. Dr. Birol is the recipient of numerous awards from government, industry and academia. Prior to joining the IEA, Dr. Birol worked at the Organisation of the Petroleum Exporting Countries (OPEC) in Vienna, where his responsibilities related to analysis of oil markets. A Turkish citizen, Dr. Birol was born in Ankara in 1958. He earned a BSc degree in power engineering from the Technical University of Istanbul. He received his MSc and PhD in energy economics from the Technical University of Vienna. In 2013, Dr. Birol was awarded a Doctorate of Science honoris causa by Imperial College London.

Helena Molin-Valdés

Head of Secretariat
Climate & Clean Air Coalition

KEYNOTE SPEAKER

Keynote Session:
The Global Challenge of Air Pollution - Finding Solutions
1 September 2016, 11:00am-12:30pm
Summit Hall (Room 205), 2F, Convention Hall

Keynote Address:
Multiple Benefits - Climate Action, Clean Air and Sustainable Development.
Action Agenda to Reduce Short-Lived Climate Pollutants (SLCPs)

Two major global decisions were taken in 2015 - the Paris Climate Agreement and the adoption of the 2030 Sustainable Development Agenda and goals. To accomplish both, it will be necessary to incorporate carefully designed policies targeted at actions that yield multiple benefits in different sectors and improve human well-being. That is why national and urban strategies to reduce short-lived climate pollutants (SLCPs) such as black carbon, methane, tropospheric ozone and some hydrofluorocarbons (HFCs) are critical, focusing on measures in household energy sectors, oil and gas production, brick production, agriculture and transport (diesel). Many of these measures have combined climate and other benefits for air quality, human health, food security, as well as energy efficiency. SLCPs are agents that contribute to warming but have relatively short lifetimes in the atmosphere meaning that their concentration can be reduced in a matter of weeks to years with notable beneficial effects on near-term climate. This presentation will focus on global efforts to elevate SLCP reduction in public and private policies and practices, in support of implementing both the Paris Agreement and the Sustainable Development Goals. It will highlight activities and strategies of the Climate and Clean Air Coalition aimed at reducing emission of SLCPs globally.

An experienced leader within the UN system, Helena is since 2013 heading the Secretariat for the Climate and Clean Air Coalition to Reduce Short-lived Climate Pollutants (CCAC), hosted by the United Nations Environment Program in Paris. She is a former senior executive with the UN Office for Disaster Risk Reduction and a long-time proponent of sustainable development, climate change mitigation and adaption, and disaster risk reduction. She was instrumental in making the United Nations Office for Disaster Risk Reduction (UNISDR) an important force in global disaster risk management and launched the global Resilient Cities campaign in 2012. She headed a regional Office in Costa Rica for Latin America and the Caribbean for almost a decade, and worked with the Pan-American Health Organization to build safer hospitals. As Deputy Director of UNISDR, based in Geneva, she worked in both Africa and Asia. Helena has co-authored many papers, handbooks, global reviews and reports on local development, sustainable development, disaster risk reduction and resilience. She worked early in her professional life on community-led local development projects and housing, improved bricks production from traditional kilns in Central America, and improved cook-stoves to reduce indoor air pollution and increase energy efficiency through a Swedish NGO in collaboration with research centres. She holds a Master degree in architecture with thesis on development planning and implementation from Lund University, Sweden.

KEYNOTE SPEAKER

William Niebling

Senior Advisor for Congressional and International Affairs
US Environmental Protection Agency

Keynote Session:
The Global Challenge of Air Pollution - Finding Solutions
1 September 2016, 11:00am-12:30pm
Summit Hall (Room 205), 2F, Convention Hall

Keynote Address:
Environmental policy, collaboration, and public access to information: Solutions to air pollution and climate change

The ingenuity and commitment to improve air quality of the countries, organizations, leaders and scientists in Asia has resulted in significant progress in developing and implementing air quality and emission standards, improving fuel quality and the efficiency of freight movement, establishing emission control zones, and strengthening peer-to-peer capacity building networks. The U.S. has addressed many of the same air quality challenges Asia is now facing and developed useful tools and approaches over the past 45 years to improve air quality. Countries in Asia can accomplish this feat in less time - and with less cost - by applying and adapting what the U.S. and other countries have learned along the way to create new, innovative solutions based on unique local circumstances.

In light of the public health imperative of climate and air pollution, and the importance of integrating strategies to manage these challenges, there are a number of lessons from U.S. experience to share, including:

- Environmental policies based on sound science can drive robust, sustainable economic growth;
- Collaboration across levels of governments, industry, NGOs, and the public is essential to developing and implementing effective environmental policies; and,
- Open, public access to information is critical to the successful development and implementation of environmental policy - it also fuels collaboration.

The U.S. EPA is dedicated to supporting efforts that accelerate improvements in air quality and climate change around the world. We all have a vested interest in the success of others in achieving climate (and air quality) goals - the Paris agreement is testament to this. By collaborating with partners in Asia and worldwide on capacity building and technical training programs, peer-to-peer knowledge platforms, public information systems, among others, we want to foster a wider and wider community of air quality and climate practitioners with the knowledge and tools to improve our air quality and climate.

William Niebling is a Senior Advisor for Congressional & International Affairs in EPA's Office of Air and Radiation. He oversees much of EPA's international air quality and climate work, including the many key agreements and activities in Asia. Prior to joining EPA, he also worked in the United States Senate for Senator Joe Biden, Senator Ted Kaufman, and the Senate Committee on Foreign Relations. He holds degrees from Yale College and Harvard Law School.

29 Aug Monday - WCAC Sessions and BAQ Pre-Events

Venue / Time	**Room 101** 1F, Convention Hall, BEXCO	**Room 102** 1F, Convention Hall, BEXCO	**Room 103** 1F, Convention Hall, BEXCO	**Room 104** 1F, Convention Hall, BEXCO	**Room 105** 1F, Convention Hall, BEXCO	**Room 106** 1F, Convention Hall, BEXCO	**Capri Room**, Paradise Hotel	**Sicily Room**, Paradise Hotel	**Venice Room**, Paradise Hotel	**Room 313** Pusan National University [28-29 Aug]	**Room 208** 2F, Convention Hall, BEXCO	**Emerald Hall**, Centum Hotel	**Room 107** 1F, Convention Hall, BEXCO
8:00-							REGISTRATION						
9:00-	REGISTRATION						6th Governmental Meeting on Urban Air Quality in Asia [closed meeting]	Green Freight and Logistics Day		NASA Earth Observations, Data and Tools for Air Quality Applications	International Community of AirNow Meeting, Public Involvement and Demo/ Training on System and Tools for Air Quality Applications	Estimating the Benefits of Improving Air Quality: Intro to the BenMAP-CE Tool	Soot-Free Urban Bus Fleets in Asian Cities Fleets Workshop (9:30-1:00pm)
9:30													
10:00-12:00	Mega-city Air Quality: Current Status and Prospects	Transportation Emission Sources: Diesel	The Progress in Air Pollution Control Technologies	Air Pollution Measurement Techniques	Long-range Transport and Weather Effect of Air Pollution	MAPS-Seoul (I) [closed session]							
12:00-1:30	Lunch						Lunch						
1:30-3:00	Air Quality Management (I)	Air pollution and their Source Apportionment (I)	Indoor Air Pollution (I)	Air Quality Monitoring Strategy	Linking Air Pollution and Climate	MAPS-Seoul (II) [closed session]	6th Governmental Meeting on Urban Air Quality in Asia [closed meeting]	Green Freight and Logistics Day	Mainstreaming Air Quality in Urban Development through South - South Twinning	NASA Earth Observations, Data and Tools for Air Quality Applications	International Community of AirNow Meeting, Public Involvement and Demo/ Training on System and Tools for Air Quality Applications	Estimating the Benefits of Improving Air Quality: Intro to the BenMAP-CE Tool	
3:00-3:30	Coffee Break & Networking						Coffee Break & Networking						
3:30-5:30	Air Quality Management (II)	Air pollution and their Source Apportionment (II)	Indoor Air Pollution (II)	Organic and Bio-Aerosols	NO SESSION	MAPS-Seoul (III) [closed session]	6th Governmental Meeting on Urban Air Quality in Asia [closed meeting]	Green Freight and Logistics Day	Mainstreaming Air Quality in Urban Development through South - South Twinning	NASA Earth Observations, Data and Tools for Air Quality Applications	International Community of AirNow Meeting, Public Involvement and Demo/ Training on System and Tools for Air Quality	Estimating the Benefits of Improving Air Quality: Intro to the BenMAP-CE Tool	
6:00-8:00	WELCOME RECEPTION Grand Ballroom, 3F, Convention Hall, BEXCO												

WCAC & BAQ Joint Plenary/Session/Activity WCAC Session/Side Event BAQ Session/Side Event

30 Aug Tuesday

Venue / Time								
	Room 205 (Summit Hall), 2F, Convention Hall, BEXCO							
8:00-	REGISTRATION							
9:00-10:30	OPENING PLENARY **Conference Chairpersons** Kil-Choo Moon, President, International Union of Air Pollution Prevention Associations Robert O'Keefe, Chair, Clean Air Asia Board of Trustees **Welcome Remarks** Yong-Won Jung, President, Korean Society for Atmospheric Environment Richard Mills, Director General, International Union of Air Pollution Prevention Associations Bjarne Pedersen, Executive Director, Clean Air Asia **Opening Address** Seongkyu Yoon, Minister of Environment, Republic of Korea Byung-soo Suh, Mayor of Busan Metropolitan City							
10:30-11:00	Coffee Break and Networking							
11:00-12:30	OPENING KEYNOTE: **Climate, Air Pollution and Sustainability - New Challenges, New Science, New Opportunities** Myung Ja Kim, Former Minister of Environment, Republic of Korea Drew Shindell, Chair of the Scientific Advisory Panel, Climate and Clean Air Coalition Jos Lelieveld, Director, Max Planck Institute for Chemistry							
12:30-1:30	LUNCH							
Venue / Time	**Room 102** 1F, Convention Hall, BEXCO	**Room 103** 1F, Convention Hall, BEXCO	**Room 104** 1F, Convention Hall, BEXCO	**Room 105** 1F, Convention Hall, BEXCO	**Room 101** 1F, Convention Hall, BEXCO	**Room 106** 1F, Convention Hall, BEXCO	**Room 107** 1F, Convention Hall, BEXCO	**Room 108** 1F, Convention Hall, BEXCO
1:30-3:00	PM2.5 Research Consortium (Diagnosis, Removal, and Forecast)	Source-wise Emissions and their Consideration onto Air Quality	Aerosol Chemical Composition and Physical Properties (I)	Management of Transportation and Air Quality (I)	Linking Climate & Air Pollution to Achieve the SDGs and Implement the Paris Agreement	Reducing Freight Emissions in Asia	Managing Air Quality in Mountainous Cities	AirNow: Managing and Reporting Air Quality – Community Perspective and Collaboration Opportunities
3:00-3:30	Coffee Break and Networking							
3:30	Fine Particulate Matter (EFCA)	40 years dedication toward a better understanding of air quality	Aerosol Chemical Composition and Physical Properties (II)	Management of Transportation and Air Quality (II)	Addressing Emissions from Coal Use in Power Generation	Cleaner Fuels and Vehicles	Managing Air Quality in Port Cities	Technical Training & Development in Asia [closed meeting]
5:00								
5:30								3rd Periodic Report on the State of Acid Deposition in East Asia (PRSAD3) Room 208, 2F, Convention Hall, BEXCO
7:00								

WCAC & BAQ Joint Plenary/Session/Activity WCAC Session/Side Event BAQ Session/Side Event

31 Aug Wednesday

Venue / Time	Room 102 1F, Convention Hall, BEXCO	Room 103 1F, Convention Hall, BEXCO	Room 104 1F, Convention Hall, BEXCO	Room 105 1F, Convention Hall, BEXCO	Room 101 1F, Convention Hall, BEXCO	Room 106 1F Convention Hall, BEXCO	Room 107 1F, Convention Hall, BEXCO
8:00-	REGISTRATION						
9:00-10:30	Air Quality and the Future of Cities	Source and Evolution of Black Carbon	Formulating Better Urban and Regional Emission Inventories (I)	Air Quality and Health (I)	CCAC Municipal Solid Waste Initiative	Institutionalizing Fuel Economy in Asia	Introduction of Clean Air Certification Pilot Phase
10:30-11:00	Coffee Break and Networking						
Venue / Time	**Room 205** (Summit Hall), 2F, Convention Hall, BEXCO						
11:00-12:30	KEYNOTE SESSION: **Air Pollution, Health, and the Urban Future** Margaret Chan, Director General, World Health Organization Carlos Dora, Coordinator, Interventions for Healthy Environments, World Health Organization Robert O'Keefe, Vice President, Health Effects Institute **Policies for Tackling Air Pollution in Cities** Yandong Tang, Director General, Foreign Economic Cooperation Office, China Ministry of Environmental Protection Beatriz Cardenas, Centro Mario Molina, Mexico City Murad Qureshi, Former Chair of the Environment Committee, London Assembly						
12:30-1:30	Global Atmospheric Pollution Forum - **Room 108** 1F, Convention Hall, BEXCO [by invitation]	KOSAE Board of Trustees Meeting **Room 109**, 1F, Convention Hall, BEXCO	Lunch		Launch of the Global Initiative for Child Health & Mobility **Room 110**, 1F, Convention Hall, BEXCO [by invitation]		
Venue / Time		**Room 102** 1F, Convention Hall, BEXCO	**Room 103** 1F, Convention Hall, BEXCO	**Room 104** 1F, Convention Hall, BEXCO	**Room 105** 1F, Convention Hall, BEXCO	**Room 101** 1F, Convention Hall, BEXCO	**Room 106** 1F, Convention Hall, BEXCO	**Room 107** 1F, Convention Hall, BEXCO
1:30-3:00		Traffic-related Air Pollution	VOCs Emissions, Distribution and Fate	Formulating Better Urban and Regional Emission Inventories (II)	Air Quality and Health (II)	Real-World Emissions	Safe, Healthy, and Clean Cities through Sustainable Mobility	Tackling Air Quality in Megacities
3:00-3:30	IBAQ Advisory Group Meeting **Room 208** 2F, Convention Hall, BEXCO [closed meeting]	Fuel Economy Experts' Group Meeting **Room 107** 1F, Convention Hall, BEXCO [closed meeting]	Break					
3:30			Improving air quality in cities through the Guidance Framework **Room 106** 1F, Convention Hall, BEXCO	KOSAE General Assembly Meeting **Summit Hall** 2F, Convention Hall, BEXCO	Stakeholder Roundtables 1F, Convention Hall, BEXCO Malaysia - **Room 101** India - **Room 102** Nepal - **Room 103** Vietnam - **Room 104** Philippines - **Room 105**	Poster Session I **Rooms 201-204** 2F, Convention Hall, BEXCO	Technical Tours Haeundae Incineration Disposal Plant Suyeong Sewage Disposal Plant EnTech 2016 Exhibition Tour
5:00								
5:30					Walkability and Air Sensing Tour 5:00-6:30pm			
6:00-	IBAQ Networking Dinner [by invitation]							

WCAC & BAQ Joint Plenary/Session/Activity WCAC Session/Side Event BAQ Session/Side Event

1 Sep Thursday

Venue / Time	Room 102 1F, Convention Hall, BEXCO	Room 103 1F, Convention Hall, BEXCO	Room 104 1F, Convention Hall, BEXCO	Room 105 1F, Convention Hall, BEXCO	Room 101 1F, Convention Hall, BEXCO	Room 106 1F, Convention Hall, BEXCO	Room 107 1F, Convention Hall, BEXCO
8:00-							
9:00-10:30	Short-Lived Climate Pollutants; Regional Action on Climate and Air Pollution	Air Quality Modeling and Forecasting (I)	Remote Sensing to Measure Air Quality (I)	Impacts and Risk from Natural and Anthropogenic Air Pollution	Air Quality Management in China, India and Southeast Asia	Enabling and Scaling-up Electro-mobility	Fostering City-to-City Cooperation
10:30-11:00	Coffee Break and Networking						
Venue / Time	**Room 205** (Summit Hall), 2F, Convention Hall, BEXCO						
11:00-12:30	KEYNOTE SESSION: **The Global Challenge of Air Pollution: Finding Solutions** Fatih Birol, Executive Director, International Energy Agency Helena Molin-Valdes, Head of Secretariat, Climate & Clean Air Coalition William Niebling, Senior Advisor for Congressional and International Affairs, US Environmental Protection Agency						
12:30-1:30	Lunch					Launch of Clean Air Scorecard **Room 208** 2F, Convention Hall, BEXCO [by registration]	
1:30-3:00	"New" and Renewable Energy and Air Pollution	Air Quality Modeling and Forecasting (II)	Remote Sensing to Measure Air Quality (II)	World Air Day - Working towards a U.N. International Declaration Day	Delivering Clean Air and Climate Benefits: Reducing SLCP Emissions	Transport Debate	Next Generation Air Quality Monitoring and Communication Tools for Cities
3:00-3:30	Coffee Break and Networking						
3:30-5:30	Launch of Clean Air Asia Strategy (2017-2020) Presentation of 2016 Kong Ha Award for Excellence in Air Quality Management **Room 205** (Summit Hall) 2F, Convention Hall, BEXCO					Poster Session II **Rooms 201-204** 2F, Convention Hall, BEXCO	
5:30							
6:00-8:30	GALA DINNER (Grand Ballroom, 3F Convention Hall, BEXCO)						

WCAC & BAQ Joint Plenary/Session/Activity WCAC Session/Side Event BAQ Session/Side Event

2 Sep Friday - WCAC Sessions and BAQ Post-Events

Venue / Time	Room 102 1F, Convention Hall, BEXCO	Room 103 1F, Convention Hall, BEXCO	Room 104 1F, Convention Hall, BEXCO	Room 105 1F, Convention Hall, BEXCO	Room 101 1F, Convention Hall, BEXCO	Room 106 1F, Convention Hall, BEXCO	Room 107 1F, Convention Hall, BEXCO
8:00	REGISTRATION						
9:00-10:30	Strengthening the Global Framework for Tackling Air Pollution	Air Quality Modelling and Forecasting (III)	Emission Regulation Strategy	Management of Transportation and Air Quality (III)	Case Studies in the Implementation of Actions to Prevent Air Pollution in the Asia-Pacific Region	Train for Clean Air	Sustainable Urban Mobility and Urban Planning
10:30-11:00	Break						
11:00-12:00	17th IUAPPA WCAC and 9th CAA BAQ Closing Ceremony Room 205 (Summit Hall), 2F, Convention Hall, BEXCO					Train for Clean Air	Sustainable Urban Mobility and Urban Planning
12:00-1:30	Lunch						
1:30-4:30							Sustainable Urban Mobility and Urban Planning

WCAC & BAQ Joint Plenary/Session/Activity WCAC Session/Side Event BAQ Session/Side Event

Date/Time	Title	Organizers	Venue	Remarks
BAQ PRE-EVENTS (28-29 August)				
Pre-events - Sunday, 28 August				
9:00am - 5:00pm	NASA Earth Observations, Data and Tools for Air Quality Applications (Day 1)	NASA Pusan National University	Department of Atmospheric Science Building #313 Pusan National University	Registration required
Pre-events - Monday, 29 August				
9:00am - 5:00pm	NASA Earth Observations, Data and Tools for Air Quality Applications (Day 2)	NASA Pusan National University	Department of Atmospheric Science Building #313 Pusan National University	Registration required
9:00am - 5:00pm	6th Governmental Meeting on Urban Air Quality in Asia	UNEP, Clean Air Asia	Capri Room, Paradise Hotel	By invitation
9:00am - 5:00pm	Green Freight and Logistics Day	ADB-led GMS CEP, GIZ, CCAC, and Clean Air Asia	Sicily Room, Paradise Hotel	Open with limited seats; registration required
1:30 - 4:30pm	South-South Twinning for Managing Urban Air Quality	ADB, Clean Air Asia	Venice Room, Paradise Hotel	By invitation
9:00am - 5:00pm	Estimating the Benefits of Improving Air Quality: Intro to the BenMAP-CE Tool	US EPA	Emerald Hall, Centum Hotel	Open with limited seats; registration required
9:00am - 4:30pm	International Community of AirNow Meeting, Public Involvement and Demo/Training on System and Tools for Air Quality Applications	US EPA	Room 208, 2F, Convention Hall, BEXCO	Open with limited seats; registration required
9:30-1:00pm	CCAC Clean Bus Fleets Workshop	CCAC, C40, ICCT, Clean Air Asia	Room 107, 1F, Convention Hall, BEXCO	Open with limited seats; registration required
BAQ POST-EVENTS (2 September)				
Post-events - Friday, 2 September				
9:00am - 12:00pm	Train for Clean Air	Clean Air Asia	Room 106, 1F, Convention Hall, BEXCO	Registration required
9:00am - 5:00pm	Sustainable Urban Mobility and Urban Planning-How to Support Urban Access for All?	IGIZ, ICLEI, and Clean Air Asia	Room 107, 1F, Convention Hall, BEXCO	Registration required
SIDE MEETINGS				
Tuesday, 30 August				
3:30 - 5:30pm	Technical Training & Development in Asia	US EPA	Room 108, 1F, Convention Hall, BEXCO	Closed meeting
5:00 - 7:00pm	3rd Periodic Report on the State of Acid Deposition in East Asia (PRSAD3)	EANET, ACAP	Room 208, 2F, Convention Hall, BEXCO	Open
Wednesday, 31 August				
12:30-3:00pm	Global Atmospheric Pollution Forum	IUAPPA	Room 108, 1F, Convention Hall, BEXCO	By invitation only
12:00-1:30pm	KOSAE Board of Trustees Meeting	KOSAE	Room 109, 1F, Convention Hall, BEXCO	Closed meeting
3:30 - 6:00pm	KOSAE General Assembly Meeting	KOSAE	Room 205 (Summit Hall), 2F, Convention Hall, BEXCO	By invitation only
3:00 - 5:30pm	IBAQ Advisory Group Meeting	Clean Air Asia	Room 208, 2F, Convention Hall, BEXCO	By invitation only
3:00 – 5:30pm	Fuel Economy Experts' Group Meeting	UNEP, Clean Air Asia	Room 107, 1F, Convention Hall, BEXCO	Closed meeting
TECHNICAL TOURS & SITE VISITS				
Wednesday, 31 August				
3:30 - 6:00pm	Technical Tour: Haeundae Incineration Disposal Plant	KOSAE	898, Haeun-daero, Haeundae-gu, Busan, Korea	Registration required; limited slots
3:30 - 6:00pm	Technical Tour: Suyeong Sewage Disposal Plant	KOSAE	185, Oncheoncheonnam-ro, Dongnae-gu, Busan, Korea	Registration required; limited slots
3:30 - 5:30pm	EnTech 2016 Exhibition Tour	KOSAE	Exhibition Hall, BEXCO	Open; guided tour
5:00 - 6:30pm	Walkability & Air Sensing Tour	Clean Air Asia, STI, Ben's Free Tour	Around Busan city	Open event; limited slots
SOCIAL EVENTS				
Monday, 29 August				
6:00 - 8:00pm	Welcome Reception	KOSAE, IUAPPA, and Clean Air Asia	Grand Ballroom, 3F Convention Hall, BEXCO	Open event
Wednesday, 31 August				
12:30 – 1:30pm	Launch of the Global Initiative for Child Health & Mobility (Lunch)	FIA Foundation	Room 110, 1F, Convention Hall, BEXCO	By invitation
6:00 – 8:00pm	IBAQ Networking Dinner	Clean Air Asia	TBC	By invitation
Thursday, 1 September				
12:30 – 1:30pm	Launch of Clean Air Scorecard (Lunch)	Clean Air Asia	Room 208, 2F, Convention Hall, BEXCO	Registration required; limited slots
6:00 - 8:00pm	Gala Dinner	KOSAE, IUAPPA, and Clean Air Asia	Grand Ballroom, 3F Convention Hall, BEXCO	Registration required

TOWARDS BETTER AIR QUALITY—
Launch of the Clean Air Scorecard Tool for Asian Cities

CLEAN AIR ASIA

Now more than ever, we need a tool to assess a city's existing capacity and to identify effective actions in protecting human health and the environment from the effects of deteriorating air quality.

1 September 2016, Thursday
12:30 PM – 1:30 PM
Room 208, 2F, Convention Hall
Busan Exhibition and Convention Center

Clean Air Asia will launch the Clean Air Scorecard as an easily accessible online platform—ready to use by a broad range of air quality stakeholders.

Invited air quality management experts and practitioners will provide insights on how the tool can be useful for Asian cities and how it could contribute to an enriched understanding of air quality and its management in the region.

The Clean Air Scorecard assesses a city's capacity to improve air quality. It objectively scores a city's air quality status, management practices, and policies.

Air Pollution and Health Index (APHI) + Clean Air Management Capacity Index (CAMC) + Clean Air Policies and Actions Index (CAPA) = **Clean Air Score**

LEARN
Understand the tool and how it works. Learn about air quality and how it affects you.

ASSESS
Conduct your own assessment of your city's air quality management and its effectiveness.

DISCOVER
Explain the results for different cities. See featured data for an Asia-wide overview of air quality trends.

We are pleased to invite air quality management experts, policymakers and decision makers, civil society, media, and concerned citizens/groups to the event. Lunch will be provided.

Please contact Ms. Dang Espita (dang.espita@cleanairasia.org) to register and reserve your seat not later than **29 August 2016.**

GREEN FREIGHT DAY

29 August 2016 | 8:00-17:00

Level 1, Sicily Room, Main Building, Paradise Hotel

With air pollution implicated in the deaths of 7 million people annually around the world, the Better Air Quality (BAQ) Conference and the World Clean Air Congress are meeting jointly in a landmark event to explore the scientific, technological and policy advances and innovations - at local, national and international levels - that could solve the global challenges to health and the environment.

Recognizing the importance of freight transport as a key contributor to air pollutant and greenhouse gas emissions in the region, a whole day event called Green Freight Day is being co-organized by Clean Air Asia, GIZ, the Asian Development Bank Greater Mekong Subregion Core Environment Program, and the Climate and Clean Air Coalition.

WHO SHOULD JOIN?

Representatives from government institutions, private companies, and international development organizations working on, or wanting to learn more about freight transportation are most welcome to join the session.

BACKGROUND

A number of green freight and logistics initiatives have been initiated in many countries in the ASEAN region involving either or both public and private sectors. There have been efforts also to promote a regional framework on green freight to ensure a harmonized approach and to maximize cross-learning of best practices among countries and private sector players. The CCAC identified tangible actions that are meant to address main challenges in the world of green freight thru the Global Green Freight Action Plan.

The Green Freight and Logistics Day will highlight previous and current green freight initiatives in Asia, which will be shared by country representatives from South Asia, Southeast Asia, and East Asia. Experiences and best practices from the US and other advanced countries will be showcased in the event. Similarly, there will be a presentation on how to access climate finance for green freight.

WHAT IS GREEN FREIGHT DAY

- Sharing of best practices among countries and private sector players to advance the development and harmonization of green freight programs to reduce the emissions intensity of carbon dioxide (CO2), black carbon, and other air pollutants from freight transport globally.
- Enhanced coordination on the different green freight initiatives from the government and private sector in the region
- Sharing of the Global Logistics Emissions Council methodology that provides for universal and transparent way of calculating logistics emissions across the global multi-modal supply chain
- Sharing of opportunities on how to access climate finance for green freight

CLEAN AIR ASIA

german cooperation DEUTSCHE ZUSAMMENARBEIT

giz

ADB GREATER MEKONG SUBREGION CORE ENVIRONMENT PROGRAM

CLIMATE & CLEAN AIR COALITION TO REDUCE SHORT-LIVED CLIMATE POLLUTANTS

TRAIN FOR CLEAN AIR (T4CA):
STRATEGIC FRAMEWORK FOR AIR QUALITY MANAGEMENT
Training for practitioners and policy-makers

OBJECTIVES

The half-day training aims to equip decision-makers and practitioners with updated knowledge and information on AQM in cities, enabling them to make informed decisions when planning city development and measuring the environmental impacts of policy decisions.

TOPICS COVERED AND ACTIVITIES INCLUDE

- Urban air quality management
- Regulations, standards, and enforcement
- Interactive session and discussions

TARGET PARTICIPANTS

Representatives from national environment ministries, cities – urban managers, implementers, and other interested agencies and stakeholder groups.

DATE & TIME

02 September 2016 | 9:00 AM – 12:00 NN

VENUE

BEXCO Room 106

CONTACT PERSON

Tanya Gaurano
Environment Researcher
Clean Air Asia
Tel +632 6311042 | Fax +632 6311390 |
Email tanya.gaurano@cleanairasia.org

MEET YOUR TRAINERS

DR. KIM OANH, ASIAN INSTITUTE OF TECHNOLOGY-THAILAND

Dr. Kim Oanh is a professor at AIT in Bangkok, Thailand, where she also holds an Engineering Doctorate degree in Environmental Engineering and Management. She is an expert on air quality management and has had vast experience in undertaking research work and projects on different AQM issues and topics in Asia.

DR. SUPAT WANGWONGWATANA, REGIONAL RESOURCE CENTRE FOR ASIA AND THE PACIFIC

Dr. Supat Wangwongwatana has over 30 years of experience in environmental management, environmental quality control, and environmental policy planning. He is the former Director General of the Pollution Control Department of Thailand and continues to give lectures at various universities and to speak at international seminars and conferences. He holds a doctorate degree in Air Pollution Engineering from the University of Cincinnati and is currently the Senior Programme Specialist of the Regional Resource Centre for Asia and the Pacific (RRCAP).

This training is free and open to everyone but seats are limited. Contact the BAQ Secretariat at baq@cleanairasia.org to register and reserve your seat not later than 29 August 2016.

Get the opportunity to explore the City of Busan and try out the Walkability app, and AirBeam, a low-cost portable air quality sensor!

Register by 30 August through
baq@cleanairasia.org

Hosted by: STi Sonoma Technology, Inc., CLEAN AIR ASIA, BENs FREE TOUR

Suyeong Branch

Haeundae Branch

Haeundae Incineration Disposal Plant and Suyeong Sewage Disposal Plant
31 Aug, 3:30-6:00pm

Registration for Haeundae Incineration & Suyeong Sewage Disposal Plant is on a first come, first served basis. Please register on-site through the Busan Tourism Organization (BTO) booth "E", located at the first floor of Convention Hall, BEXCO.

Bus Shuttle service will be provided.

Jane Tour & DMC

Jane Tours DMC offers Tours in Busan South Korea. Tour details and reservation form can be downloaded at the conference website at

http://www.cleanairforcities.org/sub01/sub01_3.php

E-mail : janet@janetour.com, Tel. No. +82 51 714 7388

ENTECH 2016

Environment and Energy Tech 2016 is Korea's leading Environment & Energy Trade Show

hosted by the City of Busan
The exhibition opens on 31 Aug till 2 Sep 2016 at the Exhibition Center, BEXCO.

Monday 29 August 2016

Breakout Session Mon 29 Aug 10:00am - 12:00pm	**Mega-city Air Quality: Current Status and Prospects** Chairperson: Min Hu, Peking University Venue: Room 101, 1F, Convention Hall, BEXCO
Seasonal variations of PM2.5 concentrations in urban areas of five megacities of China: a long term approach	Peilin Li, Peking University
A Study on Air Pollution in Ulaanbaatar City, Mongolia	Tugjsuren Nas-Urt, Mongolian University of Science and Technology
The Impact of Secondary Aerosols on Beijing Haze Events in the Year of 2014	Tianyi Tan, Peking University
How to build an indicator for the most polluted city related to air pollution?	Dietrich (Dieter) Schwela, Stockholm Environment Institute
Chemical compositions and seasonal characteristics of PM2.5 in Seoul, South Korea: Focus on elevated wintertime aerosol concentrations	Yumi Kim, Korea Environment Institute
Air quality in cities and megacities in Indonesia	Muhayatun Santoso, National Nuclear Energy Agency (BATAN)
The effects of prescribed burns on air quality in Sydney	Giovanni Di Virgilio, University of New South Wales
Breakout Session Mon 29 Aug 10:00am - 12:00pm	**Transportation Emission Sources: Diesel** Chairpersons: Martin M. Ott, Eminox Limited and Patricia Krecl, Federal Technological University Venue: Room 102, 1F, Convention Hall, BEXCO
Diesel Particle Filter retrofit practice in three Chinese cities	Liyan Wang, Swiss Agency for Development and Cooperation
Black carbon, total and size-resolved particle number emission factors by fuel type in real-world conditions	Patricia Krecl, Federal Technological University
Vehicle emissions inventory for heavy duty vehicles in SSA: A case study for Nairobi, Kenya	Andriannah Mbandi, Stockholm Environment Institute
Improving Air Quality by Reducing Air Pollution from Diesel Engine Vehicles	Martin M. Ott, Eminox Limited
Black carbon aging from diesel engine exhaust under polluted urban environment	Zhuofei Du, Peking University
OH-Initiated Oxidation of m-Xylene on Black Carbon Aging	Song Guo, Peking University
Breakout Session Mon 29 Aug 10:00am - 12:00pm	**The Progress in Air Pollution Control Technologies** Chairperson: Masaaki Yoshikawa, Osaka Gas Co., Ltd. Venue: Room 103, 1F, Convention Hall, BEXCO
Air purifying effect of Activated Carbon Fibers installed in Noise Insulation Panel at the highway in Japan	Masaaki Yoshikawa, Osaka Gas Co., Ltd.
Development of VOCs removal system using microwave	Sang Jun Park, ECOPRO
Filtration characteristics of V-bank depth filter module with external electric field for application of HVAC system	Young-Ok Park, Korea Institute of Energy Research
Hydrogen sensing property of palladium nanocube –TiO2 nanofiber composite	Je-A Woo, Inha University
Breakout Session Mon 29 Aug 10:00am - 12:00pm	**Air Pollution Measurement Techniques** Chairperson: Kangho Ahn, Hanyang University Venue: Room 104, 1F, Convention Hall, BEXCO
Atmospheric Aerosol Measurement Using Recoverable Sounding System	Kangho Ahn, Hanyang University
Demonstration of Near-Reference monitoring of air pollution using low cost compact air quality monitoring stations in Delhi, India	Paul R Pickering, Aeroqual Ltd.
Mobile Measurements of Ultrafine Particles in Various Urban Environments: The Effects of Micrometeorology and Micro-scale Built Environment	Wonsik Choi, Pukyong National University
Traceable precision dynamic dilution method to generate dimethyl sulfide gas mixtures for ambient measurement	Mi Eon Kim, Korea Research Institute of Standards and Science
Ultra-fast and high sensitivity NO2 gas sensor with 2-dimensional tin disulfide (SnS2) nanomaterials	Young-Ho Kim, Inha University
The Analysis of Particle Number Counts [PNC] at Coastal Area in Bachok, Malaysia Using Stochastic Boosted Regression Trees Approach	I.N. Azman, Universiti Malaysia Terengganu

Breakout Session Mon 29 Aug 10:00am - 12:00pm	**Long-range Transport and Weather Effect of Air pollution** Chairperson: Melissa Hart, University of New South Wales and Iwasaka Yasunob, The University of Shiga Prefecture Venue: Room 105, 1F, Convention Hall, BEXCO	
Mixing State of Bioaerosols Transporting Long-Range in the Free troposphere over North-East Asia; Measurements at Taklimakan desert (China) and Noto (Japan)		Yasunobu Iwasaka, The University of Shiga Prefecture
Influence of Chinese haze events in January 2013 on South Korea PM2.5 levels: Transported vs. local contributions from secondary and biomass burning sources		Jihoon Seo, Green City Technology Institute, Korea Institute of Science and Technology
Monitoring of Mercury Deposition Across Asia		David A. Gay, University of Illinois
Linking synoptic circulation patterns to air quality conditions in the Sydney basin		Melissa Hart, University of New South Wales
A Study on Wash-out Efficiency of High-Concentration PM10 by Precipitation in Jeju		Hansol S. Lee, National Institute of Environmental Research
Variation of urban air quality with the Climatic and geographical condition of the urban cities in Sri Lanka		Premasiri H.D.S, National Building Research Organisation
Breakout Session Mon 29 Aug 10:00am - 12:00pm	**MAPS-Seoul (I) [closed session]** Chairperson: Rokjin Park, Seoul National University Venue: Room 106, 1F, Convention Hall, BEXCO	
An early report from the MAPS-Seoul field study		Joon-Young Ahn, National Institute of Environmental Research
Aerosol chemical, physical and optical properties measured in downtown Seoul during MAPS-Seoul campaign		Jeongeun Kim, National Institute of Meteorological Sciences
Monitoring of Surface Fluxes and PBL Structure in Seoul Metropolitan Area during the MAPS-Seoul campaign		Je-Woo Hong, Yonsei University
Preliminary results of PAN and VOCs measurements at Taehwa Research Forest during MAPS-Seoul 2016		Meehye Lee, Korea University
Case study of the effects of NO and NO2 on night time high O3 at urban Olympic experimental site, Seoul Korea during MAPS-Seoul campaign		Deug-Soo Kim, Kunsan National University
Black carbon measurements in metropolitan area of the Korean Peninsula performed during MAPS-2016 Seoul Study		Jeonghoon Lee, Korea University of Technology and Education
12:00-13:30	LUNCH	
Breakout Session Mon 29 Aug 1:30-3:00pm	**Air Quality Management (I)** Chairperson: Oguntoke Olusegun, Federal University of Agriculture Abeokuta Venue: Room 101, 1F, Convention Hall, BEXCO	
Air Quality Planning for Jiangsu Province: Key Findings and Lessons Learned		Rebecca L. Nicholson, RTI International
Urban Air pollution arising from municipal waste burning and the prospect of its profitable Management: Case Study of Abeokuta City, Nigeria		Oguntoke Olusegun, Federal University of Agriculture Abeokuta
Stable Isotopic Characteristics of CO2 Emitted from Gasoline Vehicles		Yao Xiao, Peking University
Integrated transport master plan for Colombo Megalopoly Development Plan - New concept of high productive land use plan		Don S. Jayaweera, Strategic Enterprise Management Agency of Sri Lanka
A Study on the development of Transportation Demand Management model for urban air quality management		Jin Sik Kim, University of Seoul
Breakout Session Mon 29 Aug 1:30-3:00pm	**Air pollution and their source apportionment (I)** Chairperson: Sung-Deuk Choi, Ulsan National Institute of Science and Technology Venue: Room 102, 1F, Convention Hall, BEXCO	
Concentrations and Sources of Atmospheric Polycyclic Aromatic Hydrocarbons and Nitropolycyclic Aromatic Hydrocarbons of Several Japanese Cities in Last 16 Years		Kazuichi Hayakawa, Kanazawa University
Determination of Source Contribution Combining a Receptor Model with the Emission Inventory		Qingfeng Guo, Peking University
Exploratory application of the 3-way PMF to PM2.5 and PM10 at two sites in Queensland, Australia		Godwin A Ayoko, Queensland University of Technology
Source Identification of Criteria Air Pollutants (CAPs) in Ulsan, Korea		Sang-Jin Lee, Ulsan National Institute of Science and Technology (UNIST)

Breakout Session Mon 29 Aug 1:30-3:00pm	**Indoor Air Pollution (I)** Chairperson: Gwi-Nam Bae, Korea Institute of Science and Technology Venue: Room 103, 1F, Convention Hall, BEXCO
Black carbon concentrations at airports and in passenger aircrafts. Are our travels clean?	Admir Créso Targino, Federal University of Technology
Development of Indoor Air Quality Guideline in Sri Lanka	Thusitha Sugathapala, University of Moratuwa
Factors Associated with Secondhand Smoke Incursion in Multiunit Housing	Jeonghoon Kim, Seoul Medical Center
Sealed Office Interiors in Tropical city of Colombo: Associations between comfort, air quality and worker's satisfaction	Indrika Rajapaksha, University of Moratuwa
Characterization of Ambient, On-road and Indoor Air Pollutions in Seoul, South Korea	Gwi-Nam Bae, Korea Institute of Science and Technology
Breakout Session Mon 29 Aug 1:30-3:00pm	**Air Quality Monitoring Strategy** Chairperson: Selahattin Incecik, Istanbul Technical University Venue: Room 104, 1F, Convention Hall, BEXCO
From certified regulatory PM monitoring over portable measurements up to studies in airspace - Simultaneous determination of PM fractions, particle number and particle size distribution in high time resolution applying one and the same optical measurement technique	Karsten Pletscher, Palas GmbH
Information system for real-time air quality monitoring for City of Zagreb	Silvije Davila, Institute for Medical Research and Occupational Health
The Island-wide Ambient Air Quality Monitoring Program in Sri Lanka	Priyantha M.P, Central Environmental Authority of Sri Lanka
O3 Variations at Taehwa Research Forest (TRF) during 2011 ~ 2014	Hyunjin An, Korea University
Analysis of surface ozone levels in the forest and vegetation areas of the Biga Peninsula, Turkey	Selahattin Incecik, Istanbul Technical University
Breakout Session Mon 29 Aug 1:30 - 3:00pm	**Linking Air Pollution and Climate** Chairperson: Christopher A. James, Regulatory Assistance Project Venue: Room 105, 1F, Convention Hall, BEXCO
Black Carbon and Other Short-Lived Climate Pollutants in the Arctic - Consequences of Current Regulatory Frameworks to Emissions and Impacts	Kupiainen K., Finnish Environment Institute (SYKE) and International Institute of Applied Systems Analysis (IIASA)
Characteristics of atmospheric CO2 and CH4 at a suburban site in Gangwon province, Korea	Hyeon-Kook Kim, National Institute of Environmental Research
China Industrial Efficiency Programs Improve Air Quality and Reduce Energy Consumption: A Control Measure Template for Air Regulators	Christopher A. James, Regulatory Assistance Project
Emission of Short-Lived Climate Forcers from Rural Household Kitchens in North India	Khaiwal Ravindra, School of Public Health, Postgraduate Institute of Medical Education and Research (PGIMER)
Breakout Session Mon 29 Aug 1:30-3:00pm	**MAPS-Seoul (II) [closed session]** Chairperson: Jin Young Kim, Korea Institute of Science and Technology Venue: Room 106, 1F, Convention Hall, BEXCO
Aerosol Pollution Characteristics and Sources in Seoul Korea during Spring: Insights from the MAPS-Seoul Campaign	Hwajin Kim, Korea Institute Science and Technology
Characteristics of high O3 episodes during the 2015 MAPS (Megacity Air Pollution Study)-Seoul in relation with NOx, PAN, and H2O2	Woochul Choi, Korea University
Diurnal Variation of VOCs at Seoul During the MAPS-Seoul Campaign	Youngjin Kim, Yonsei University
Temporal, Spatial, and Vertical Distribution of Volatile Organic Compounds over Korea during MAPS-Seoul	Yong Hwan Lee, National Institute of Environmental Research
3:00 - 3:30	COFFEE BREAK & NETWORKING
Breakout Session Mon 29 Aug 3:30 - 5:30pm	**Air Quality Management (II)** Chairperson: Hongyan REN, Asian Development Bank and Meehye Lee, Korea University Venue: Room 101, 1F, Convention Hall, BEXCO
Keep calm and think green: what is the role of pressure groups in the battle over air pollution? Lessons and implications for air quality management in cities	Xiuxiu Gao, University of York

Air Quality Improvement Scenario for China During the 13th Five Year Plan Period	Qian Tang, Chinese Academy for Environmental Planning
South Korea air quality evaluation by CAI (Comprehensive Air Quality Index) result analysis	Seungyeon Kim, Korea Environment Corporation
The EIA system reform and regional air quality management in China	Hongyan Ren, Asian Development Bank
Evaluating Emission Reduction Efficiency of Emission Control Area in the Pearl River Delta	Xinxin Jin, Tsinghua University
Air pollution measurement and management in Chennai City, India	Ravi Shankar Pitani, Department of Community Medicine, SRMC&RI
Simulation and Assessment of Air Quality Attainment Plan in Shanghai	Zhang Yihua, Shanghai Environmental Monitoring Center
Breakout Session Mon 29 Aug 3:30 - 5:30pm	**Air pollution and their Source Apportionment (II)** Chairperson: Noor Z. Yahaya, Universiti Malaysia Terengganu Venue: Room 102, 1F, Convention Hall, BEXCO
Plenary) Application and Evaluation of Particulate Source Apportionment Technique for a PM Forecasting System	Byeong-Uk Kim, Georgia Environmental Protection Division
Seasonal Variation and Source Identification of Polycyclic Aromatic Hydrocarbons (PAHs) in the Atmosphere of Ulsan, Korea	Tuyet Nam Thi Nguyen, Ulsan National Institute of Science and Technology (UNIST)
Source identification of carbon in size-fractionated PM and time-resolved bulk PM10 using radiocarbon and molecular source markers	Hyun-Min Hwang, Texas Southern University
Chemical Composition and Source Apportionment of Atmospheric PM2.5 at a Regional Site and an Urban Site of the North China Plain	Mengren Li, Peking University
Novel Method to Analyse Air Pollution Big Data Using Stochastic Boosted Regression Trees	Noor Z. Yahaya, Universiti Malaysia Terengganu
Distribution Characteristics and Source Identification of n-Alkanes in PM2.5 in the duration of 2014 APEC in the Typical Urban Area of Beijing	Hao Zhang and Hong Li, Chinese Research Academy of Environmental Sciences
The applications of machine learning on consumer-generated $PM_{2.5}$ data to track ambient air quality in Beijing	Liam R. Bates, Origins Technology
Breakout Session Mon 29 Aug 3:30 - 5:30pm	**Indoor Air Pollution (II)** Chairperson: Ki-Joon Jeon, Inha University Venue: Room 103, 1F, Convention Hall, BEXCO
Photocatalytic Indoor Air Purification: Correlation between Catalyst Structure and Durability	Seunghyun Weon, Pohang University of Science and Technology (POSTECH)
Nanoparticles and VOCs from 3D printer emission in the workplace environment	Eunji Han, Inha University
Current Status of Indoor Air Quality in a Single Cell House in Nepal and Associated Health Risk	Indira Parajuli, Incheon National University
Experimental Study on Indoor Particle Deposition Rate and Ventilation Strategies	A. Norhidayah, Universiti Malaysia Pahang
Breakout Session Mon 29 Aug 3:30 - 5:30pm	**Organic and Bio-aerosols** Chairperson: Hwajin Kim, Korea Institute Science and Technology Venue: Room 104, 1F, Convention Hall, BEXCO
Real time measurements of submicrometer aerosols in Seoul, Korea: Sources, characteristic and processing of organic aerosols during winter time	Hwajin Kim, Korea Institute Science and Technology
Organic Particle Formation in Korea: An Evolution of Literature and Measurements	Yong B. Lim, Korea Institute of Science and Technology
Organonitrate Formation in Wet Aerosols: A Smog Chamber Study	Yong B. Lim, Korea Institute of Science and Technology
Observations of aerosol-phase organic nitrates in Beijing using an Aerodyne High-Resolution Aerosol Mass Spectrometer	Fangting Gu, Peking University
Characterization and Source Identification of PAHs for coastal Industrial City Mangalore, India	Raj Mohan B, National Institute of Technology Karnatka Surathkal
Direct observations of organic aerosols in common wintertime hazes in North China: insights into their size, shape, mixing state, and source	Shurui Chen, Shandong University
Polycyclic Aromatic Hydrocarbons (PAHs) in air particulate matter from a traffic site in Quezon City	Everlyn Gayle T. Tamayo, University of the Philippines Diliman

Breakout Session Mon 29 Aug 3:30 - 5:30pm	**MAPS-Seoul (III) [closed session]** Chairperson: Yu Deok Hong, National Institute of Environmental Research Venue: Room 106, 1F, Convention Hall, BEXCO
Shipboard measurements of reactive gases and aerosol properties in the Yellow Sea during MAPS-Seoul 2016 and its implication on ship emissions	Meehye Lee, Korea University
Estimating Columnar Concentrations of Chemical Components of Aerosols using AERONET Data Downwind of Seoul during the MAPS-Seoul Campaign	Yongjoo Choi, Hankuk University of Foreign Studies
Aircraft-based aerosol composition measurements during MAPS-Seoul	Taehyoung Lee, Hankuk University of Foreign Studies
Characteristics of Aerosol Size Distribution and chemical composition on the west sea around Korea peninsula by using vessel (Gisang 1) during MAPS-Seoul experiment	Joo Wan Cha, National Institute of Meteorological Science
Evaluation of inorganic aerosol simulation in East Asia using GRIMs-Chem during the MAPS 2016 campaign	Seungkyu K. Hong, Seoul National University
Inter-comparison of MAPS2016 forecasting models for surface ozone in Korea	Seungun Lee, Seoul National University

Tuesday 30 August 2016

Plenary Tue 30 Aug 9:00-10:30	**Opening Plenary** Venue: Room 205 (Summit Hall), 2F, Convention Hall, BEXCO Moderator: Young Sunwoo, Korean Society for Atmospheric Environment	
Welcome Remarks	Conference Chairs: Kil-Choo Moon, President, International Union of Air Pollution Prevention Associations Robert O'Keefe, Chair, Clean Air Asia Board of Trustees	
	Yong-Won Jung, President, Korean Society for Atmospheric Environment	
	Richard Mills, Director General, International Union of Air Pollution Prevention Associations	
	Bjarne Pedersen, Executive Director, Clean Air Asia	
Opening Address	Seongkyu Yoon, Minister of Environment, Republic of Korea	
	Byung-soo Suh, Mayor of Busan Metropolitan City	
10:30 - 11:00	COFFEE BREAK & NETWORKING	
Opening Keynote Tue 30 Aug 11:00 - 12:30	**Opening Keynote: Climate, Air Pollution and Sustainability - New Challenges, New Science, New Opportunities** Venue: Room 205 (Summit Hall), 2F, Convention Hall, BEXCO Chair: Korean Society for Atmospheric Environment	
Keynote Address		Myung Ja Kim, Former Environment Minister of the Republic of Korea
Two Targets for Climate Action: Reducing Risks for Current and Future Generations		Drew Shindell, Chair of the Scientific Advisory Panel, Climate and Clean Air Coalition
How does the Earth's Atmosphere Maintain its Self-cleaning Capacity?		Jos Lelieveld, Director, Max Planck Institute for Chemistry
12:30 - 1:30pm	LUNCH	
Breakout Session Tue 30 Aug 1:30 – 3:00pm	**$PM_{2.5}$ Research Consortium (Diagnosis, Removal, and Forecast)** Chairperson: Kihong Park, Gwangju Institute of Science and Technology Venue: Room 102, 1F, Convention Hall, BEXCO	
PM2.5 mitigation technology: monitoring, toxicity, forecast, and reduction		Kihong Park, Gwangju Institute of Science and Technology
Development of a Filter-Free Air Cleaning Device for High-Concentration PM2.5 Ultrafine Particles with Condensational Growth		Donggeun Lee, Pusan National University
Development of air purifier to maintain particle collection efficiency		Myong-Hwa Lee, Korea Institute of Industrial Technology
Assessment of Model Performance for Predicting Fine Particle Concentrations Using Measurement Data at the Surface		Yongjoo Choi, Hankuk University of Foreign Studies
Trend of the chemical composition in PM2.5 at Seoul		Yong Pyo Kim, Ewha Womans University
Breakout Session Tue 30 Aug 1:30 – 3:00pm	**Source-wise Emissions and their Consideration onto Air Quality** Chairperson: Cecile Nourigat, World LPG Association Venue: Room 103, 1F, Convention Hall, BEXCO	
Autogas: The Clean Burning Fuel of the Future		Cecile Nourigat, World Liquid Petroleum Gas Association
Comparison of operation-based NOx emission rates from heavy-duty CNG buses using conventional and electric-hybrid powertrain systems		Taewoo Lee, National Institute of Environmental Research
Atmospheric Emissions from Clamp Kilns in the Clay Brick Industry		Oladapo Akinshipe, University of Pretoria
Impact of emissions from large point sources in Chungcheongnam-do on surface particulate matter concentration in the surrounding area		Soontae Kim, Ajou University
Analysis of Air Pollution Trends in the Barnett Shale Gas Region of North Texas		Kuruvilla John, University of North Texas

Breakout Session Tue 30 Aug 1:30 – 3:00pm	**Aerosol Chemical Composition and Physical Properties (I)** Chairperson: Chul-Un Ro, Inha University Venue: Room 104, 1F, Convention Hall, BEXCO
Wintertime Particulate Matter and Carbonaceous Aerosols over A Rural Station in Haryana, India	P.C.S. Devara, Amity University Haryana
Surface-active substances in primary and secondary atmospheric aerosols	Zhijun Wu, Peking University
Single-particle investigation of summertime and wintertime Antarctic sea spray aerosols collected at King George Island using low-Z particle EPMA, Raman microspectrometry, and ATR-FTIR imaging techniques	Chul-Un Ro, Inha University
Oxidative potential and chemical composition of ambient fine particulate matter from urban sites in Gwangju, South Korea and Metro Manila, Philippines	Lucille Joanna S. Borlaza, Gwangju Institute of Science and Technology
Hygroscopic Properties of Newly Formed Particles in the Urban Atmosphere of Beijing during wintertime	Kai Qiao, Peking University
Particle hygroscopicity and its link to chemical composition in the polluted urban atmosphere	Fangting Gu, Peking University
Breakout Session Tue 30 Aug 1:30 – 3:00pm	**Management of Transportation and Air Quality (I)** Chairperson: Nguyen Thi Kim Oanh, Asian Institute of Technology Venue: Room 105, 1F, Convention Hall, BEXCO
In-vehicle / Outside vehicle nitrogen dioxide concentrations to inform urban road tunnel ventilation design optimisation	Damon Roddis, Pacific Environment
Particle emissions from road traffic – novel tools to estimate non-exhaust source contribution in emission inventories	Kupiainen K., Finnish Environment Institute (SYKE)
A broad spatial framework for cities where mobility potential of transit systems remain to be optimally utilized	Eunice Premanjali. Anna University
Impact of ethanol fuel on evaporative emissions of vehicles under different control conditions	Huan Liu, Tsinghua University
Application of the GRAZ Lagrangian model (GRAL) to assess the effects of major road tunnels on air quality and health in Sydney	Paul Boulter, Pacific Environment
Assessment of Air Quality and Climate Co-benefits of Faster Euro Technology Intrusion for Passenger Fleets in Asian Cities	Nguyen Thi Kim Oanh, Asian Institute of Technology
Breakout Session Tue 30 Aug 1:30 – 3:00pm	**Linking Climate & Air Pollution to Achieve the SDGs and Implement the Paris Agreement** Organized by: Institute for Global Environmental Strategies (IGES), Partnership on Low Carbon Transport (SLoCaT), Clean Air Asia Chair: Katsunori Suzuki, Kanazawa University and Co-Chair of the Asian Co-benefits Partnership Venue: Room 101, 1F, Convention Hall, BEXCO
Welcome and Session Overview	Katsunori Suzuki, Kanazawa University and Asian Co-benefits Partnership
Integrated Approaches in the SDGs and the Paris Agreement	Eric Zusman, Institute for Global Environmental Strategies
Accessible Climate-Relevant Emission Measurements & Application to Brick Kilns	Tami Bond, University of Illinois
Integrated Approaches in the Transport Sector	Cornie Huizenga, Partnership on Sustainable Low Carbon Transport
The Influence of Climate Change on Air Quality in the US: Key Findings of the 2016 National Climate Assessment	Neal Fann, US Environmental Protection Agency
Panel Discussion	Facilitated by Supat Wangwongwatana, Asian Institute of Technology – Regional Resource Center for Asia and the Pacific
Breakout Session Tue 30 Aug 1:30 – 3:00pm	**Reducing Freight Emissions in Asia** Organized by: ADB-led GMS Core Environment Program (CEP), German International Cooperation (GIZ), Climate and Clean Air Coalition, and Clean Air Asia Chair: Clean Air Asia Venue: Room 106, 1F, Convention Hall, BEXCO
Session Introduction and Overview	Alvin Mejia, Clean Air Asia
Freight fuel efficiency actions in the GMS	Sumit Pokhrel, ADB-led GMS Core Environment Program (CEP)

National and Regional Strategies towards Green Freight and Logistics	Friedel Sehlleier, GIZ
Experiences on China Guangdong Green Freight Demonstration Project	Binyam Reja, World Bank
Considerations for Developing a City Freight Strategy: The Case of Beijing	Wang Boyong, Smart Freight Centre
Launching of EPA Technology Verification Training Curriculum	Buddy Polovick, US EPA
Open Discussion and Closing	Glynda Bathan, Clean Air Asia
Breakout Session Tue 30 Aug 1:30 – 3:00pm	**Managing Air Quality in Mountainous Cities** Organized by: International Center for Integrated Mountain Development (ICIMOD) Chair: Arnico Panday, ICIMOD Venue: Room 107, 1F, Convention Hall, BEXCO
Session Introduction Air quality in Mountainous Cities: Challenges and Opportunities	Arnico Panday, ICIMOD
Lessons from Latin America: Mexico City and Santiago de Chile	Luisa Molina, Molina Center for Energy and the Environment
Numerical Modeling as an Air Quality Management Tool	Bhupesh Adhikary, ICIMOD
Panel Presentations by Government Representatives	• Ganesh Shrestha, Department of Environment, Nepal • Batbayar Jadamba, National Agency for Meteorology and Environmental Monitoring, Mongolia • Li Xiang, Beijing Environmental Protection Agency, China • Jatinder Singh Kamyotra, Central Pollution Control Board, India
Breakout Session Tue 30 Aug 1:30 – 3:00pm	**AirNow: Managing and Reporting Air Quality – Community Perspective and Collaboration Opportunities** Organized by: U.S. Environmental Protection Agency (US EPA) Venue: Room 108, 1F, Convention Hall, BEXCO
Welcome and Introductions	Justin Harris and Lourdes Morales, US EPA
Opening Remarks from Various Speakers on the Importance of Air Quality Programs and the AirNow-I Community	William Niebling, US EPA
Regional Perspective on Air Quality Systems	Environmental Protection Administration City of Jakarta-Regional Environment Management Board* Vietnam Monitoring Center (CEM) Thailand Pollution Control Department*
Overview of AirNow- International Program – including the benefits of data sharing, upcoming cloud-based system and the AirNow-I community (w/ Q&A)	John E. White, US EPA
Open discussion on collaboration opportunities with session attendees (identify opportunities for sharing data, joining community, joint projects/ challenges, joint webinars, etc.)	Facilitated by John E. White, Lourdes Morales and Justin Harris, US EPA
*invited	
3:00 – 3:30pm	COFFEE BREAK & NETWORKING
Breakout Session Tue 30 Aug 3:30- 6:00pm	**Fine Particulate Matter** Session sponsored by the European Federation for Clean Air and Environmental Protection Associations EFCA Chairperson: Thomas Reichert, EFCA Venue: Room 102, 1F, Convention Hall, BEXCO
Dramatic Increase Projected in Mortality Attributable to Fine Particulate Air Pollution	Jos Lelieveld, Max Planck Institute for Chemistry, Mainz, Germany
Household Combustion and Agriculture: Important Sources of Particulate Matter – Pollution with Large Mitigation Potential	Cristina B.B. Guerreiro, Norwegian Institute for Air Research (NILU), Kjeller, Norway
Carbon as a Main Traffic Pollutant in Centre of Zagreb, Croatia	Ranka Godec, Institute for Medical Research and Occupational Health, Zagreb, Croatia
Panel Session on Fine Particles and Health Effects with Jos Lelieveld, Cristina B.B. Guerreiro, Ranka Godec	Chaired by Thomas Reichert, EFCA President and Fraunhofer Institute for Chemical Technology ICT, Germany

Breakout Session Tue 30 Aug 3:30- 5:30pm	**40 years dedication toward a better understanding of the air quality:** A session tribute to Professor. Gregory R. Carmichael Chairperson: SeogYeon Cho, Inha University Venue: Room 103, 1F, Convention Hall, BEXCO
Multi-Year Application of WRF-CAM5 over East Asia: Comprehensive Evaluation, Interannual Variability, and Chemistry-Climate Interactions	Yang Zhang, North Carolina State University
Source Apportionment Analysis of Atmospheric PM2.5 Measured at a Coastal Location Near the U.S. – Mexico Border	Kuruvilla John, Texas A&M University - Kingsville
Meso-scale Air Quality Forecasting Using Initial Conditions Generated by the Global Air Quality Forecasting Model CAMS	SeogYeon Cho, Inha University
Development of a numerical system to improve particulate matter forecasts in South Korea using geostationary satellite-retrieved aerosol optical data over Northeast Asia	Chul-han Song, Gwangju Institute of Science and Technology
Improving Air Quality (and weather) Predictions via Application of New Data Assimilation Techniques Applicable to Coupled Models	Gregory R. Carmichael, University of Iowa
Breakout Session Tue 30 Aug 3:30- 5:30pm	**Aerosol Chemical Composition and Physical Properties (II)** Chairperson: Seung-Bok Lee, Korea Institute of Science and Technology Venue: Room 104, 1F, Convention Hall, BEXCO
New Particle Formation Observed Infrequently in Yulong Mountain (3410m) in Southwest China	Min Hu, Peking University
Spatial Distribution of Cloud Condensation Nuclei in the Marine Boundary Layer along the California Coastline	Armin Sorooshian, University of Arizona
Characterization of ambient aerosols from Amazonian rainforest and city of Manaus, Brazil	Li Wu, Inha Univesity
Physical and chemical characterization of road dust collected at urban sites in Korea and Mongolia	Tsatsral Batmunkh, Gwangju Institute of Science and Technology
Estimation of the water content based on a basis of chemical composition	Zhijun Wu, Peking University
Study of Physico-chemical Characteristics of aerosol coarse particles during different seasons at an eastern coastal site in India	Upasana Panda, CSIR-Institute of Minerals and Materials Technology
Breakout Session Tue 30 Aug 3:30- 5:30pm	**Management of Transportation and Air Quality (II)** Chairperson: Ray Minjares, International Council on Clean Transportation Venue: Room 105, 1F, Convention Hall, BEXCO
Specific actions to enhance sustainable mobility and reduce air pollution in Lisbon	Francisco Gonçalves, Lisbon Energy and Environment Agency
The Impact of the Odd/Even Scheme On Delhi's Air Quality	Isha Kulkarni, Enzen Global Solutions
Role of standards in Transport, Energy & Environment	Eng K Jayantha Sirikumara, Sri Lanka Standards Institution
Enhancing sustainability and inclusiveness of urban transportation systems in Asia	Madan Regmi, ESCAP
Impacts of emission from on-road transport changes on air quality in Bangkok Metropolitan Region (BMR), Thailand	Penwadee Cheewaphongphan, King Mongkut's University of Technology Thonburi Thailand
Assessment of routine servicing and maintenance as a low-cost policy measure to reduce emissions from 2-wheel vehicles in Kathmandu, Nepal	Prakash V. Bhave, International Centre for Integrated Mountain Development
The 'Transit Elevated Bus' in Beijing: Feasibility, Black Carbon Reduction Potential and Impact on Urban Health	Jiayi He, Climate and Clean Air Coalition
Impacts and mitigation of excess diesel NOx emissions in 11 major vehicle markets	Ray Minjares, International Council on Clean Transportation
Environmental Policy Database-Cross-Country Policy Comparison: What Does a Successful Eco-car Policy Design Look Like?	Keiko Hirota, Japan Automobile Research Institute

Breakout Session Tue 30 Aug 3:30- 5:00pm	**Addressing Emissions from Coal Use in Power Generation** Organized by: Clean Air Asia and Centre for Science and Environment Chair: J S Kamyotra, Central Pollution Control Board (CPCB) Venue: Room 101, 1F, Convention Hall, BEXCO
Keynote: Current scenario, challenges, and available solutions in addressing emissions from coal-fired power plants in Asia	Priyavrat Bhati, CSE
Sharing of good practices, including success factors: • Beijing's experience in reducing emissions from coal-fired power plants. • Improvement on allocation method of air pollutions cap and trade system in South Korea	• Li Xiang, Beijing Environmental Protection Bureau • Minyoung Lee, Korea Environment Corporation
Panel discussion: • Panelists will provide an overview of the current uptake of solutions to address emissions and their respective challenges for each sub-region (East Asia, Southeast Asia, and South Asia)	Facilitated by: Anumita Roy Chowdhury, CSE • Savitri Garivait, King Mongkut's University of Technology Thonburi • S K Paliwal, Central Pollution Control Board of India • Batbayar Jadamba, National Agency of Meteorology and Environmental Monitoring of Mongolia
Breakout Session Tue 30 Aug 3:30- 5:30pm	**Cleaner Fuels and Vehicles** Organized by: United Nations Environment Programme (UNEP), Asian Clean Fuels Association (ACFA), Clean Air Asia Chair: Alvin Mejia, Clean Air Asia Venue: Room 106, 1F, Convention Hall, BEXCO
Session introduction	Alvin Mejia, Clean Air Asia
Global Strategy for Lower Sulphur Fuels	Bert Fabian, UNEP
Meeting Euro 5 Fuel Standards	Nurfarahislinda Ismail, ACFA
Advancements in Vehicle Emission Control Technologies	Steve Johnson, Faurecia
Establishing Euro 4 Roadmap in Sri Lanka	Thusitha Sugathapala, University of Moratuwa, Sri Lanka
Phasing-out Old Diesel Commercial Vehicles in Hong Kong – An Evaluation of the Programme's Effectiveness in Improving Local Air Quality	Roy Tsang, Hong Kong Environmental Protection Department
Summary	Bert Fabian, UNEP
Breakout Session Tue 30 Aug 3:30- 5:00pm	**Managing Air Quality in Port Cities** Organized by: Natural Resources Defense Council (NRDC), Clean Air Asia, and United Nations Environment Programme Chair: Freda FUNG, NRDC Venue: Room 107, 1F, Convention Hall, BEXCO
Overview of Asia Port and Shipping Emissions	Freda FUNG, NRDC
Green Port and Shipping Practices in China	Chuansheng PENG, China Waterborne Transport Research Institute, Ministry of Transport
Prevention and Control Emissions in Port Cities- The Case of Hong Kong	Simon NG, Civic Exchange
Busan Port Efforts & Future Program for Green Port	Boo Wan KANG, Busan Port Authority
Emission Inventory of Tanjung Priok Port in Indonesia	Julius Adravida Barata, Ministry of Transport (Indonesia)
Emission Control for Ships- A Perspective from a Marine Diesel Engine Developer	Thomas Werner, Winterthur Gas and Diesel
Interactive discussion: The Potential of Establishing Emission Control Areas in Asia	All speakers

Wednesday 31 August 2016

Breakout Session Wed 31 Aug 9:00- 10:30	**Air Quality and the Future of Cities** Chairperson: John Murlis, Environment Protection, UK Venue: Room 102, 1F, Convention Hall, BEXCO
Energy Futures and the Prospects for Cleaner Cities	Alan Gertler, Desert Research Institute
Sustainable Cities: Delivering Climate Mitigation and Clean Air through Resource Efficiency	Luca de Giovanetti, Swisscontact
Transport, Accessibility and Connectivity	John Murlis, Environment Protection, UK
Cleaner Air for Cities: the Role of Governance and Regulation	Christopher James, Regulatory Assistance Program
Panel Discussion: Key Challenges for Air Pollution in Asian, African and Latin American Cities	Frank Murray, Murdoch University Bert Fabian, United Nations Environment Programme Beatriz Cardenas, Centro Mario Molina
Breakout Session Wed 31 Aug 9:00- 10:30	**Source and Evolution of Black Carbon** Chairpersons: Sumal Nandasena, National Institute of Health Sciences and Taehyoung Lee, Hankuk University of Foreign Studies Venue: Room 103, 1F, Convention Hall, BEXCO
Black carbon and fine particle emissions in Sri Lankan kitchens	Sumal Nandasena, National Institute of Health Sciences
Evolution of soot particles during aging process under ambient conditions	Min Hu, Peking University
An Analysis of Potential Control Options and Expected Reductions in Elemental Carbon Emissions in Delhi	Sakshi Batra, Central Pollution Control Board
Seasonal variation of ozone and black carbon observed at Paknajol, an urban area in the Kathmandu Valley, Nepal	Bhupesh Adhikary, International Centre for Integrated Mountain Development
Breakout Session Wed 31 Aug 9:00- 10:30	**Formulating Better Urban and Regional Emission Inventories (I)** Chairperson: Karvosenoja Niko, Finnish Environment Institute and Deug-Soo Kim, Kunsan National University Venue: Room 104, 1F, Convention Hall, BEXCO
Importance of spatially representative emission inventories in regional air quality modeling	Karvosenoja N., Finnish Environment Institute (SYKE)
Challenges and opportunities in the design and construction of a GIS-based emission inventory infrastructure for the Niger Delta region of Nigeria	Mofoluso A. Fagbeja, National Space Research and Development Agency
Develop mobile source emission inventory for Hanoi, Vietnam	Dam Thanh Vo, Norwegian Institute for Air Research
NOx emissions variability of a light duty diesel vehicle using on-road emission factors for 1-km trip segments under different season-route combinations	Taewoo Lee, National Institute of Environmental Research
Emission Inventory of Air Pollutants in Bangkok from Road Transportation in 2013	Narisara Thongboonchoo, King Mongkut's Institute of Technology Ladkrabang
Breakout Session Wed 31 Aug 9:00- 10:30	**Air Quality and Health (I)** Chairperson: Ken Yamashita, Asia Center for Air Pollution Research Venue: Room 105, 1F, Convention Hall, BEXCO
Plenary) Neurotoxicity of Ultrafine Particulate Matter and PM2.5 from Urban Air Pollution	Amitava Bandyopadhyay, University of Calcutta
Indoor air quality exposure assessment in rural settings of central Nepal	Alpha Thapa, International Centre for Integrated Mountain Development
Assessing Health Impacts and Implications Associated with Air Quality in Bangkok Metropolitan Region using BenMAP-CE	Savitri Garivait, King Mongkut's University of Technology Thonburi
Outdoor PM2.5 and black carbon exposure assessment in urban slums in India	Abhay Anand, IIT Bombay
Study on the evaluation of adverse effect on human health using the monitoring data of air pollutants in East Asia	Ken Yamashita, Asia Center for Air Pollution Research

Breakout Session Wed 31 Aug 9:00- 10:30	**CCAC Solid Waste Management Initiative** Organized by: Climate and Clean Air Coalition (CCAC), C40 Cities Climate Leadership Organization Chair: Ricardo Cepeda-Marquez, C40 Cities Venue: Room 101, 1F, Convention Hall, BEXCO	
Session Introduction		Ricardo Cepeda-Marquez, C40 Cities
The CCAC MSW Initiative: Driving transformative changes in waste management practices in cities		Ricardo Cepeda-Marquez, C40 Cities
Climate change and local air quality impacts from the waste sector		Mushtaq Memon, United Nations Environment Programme (UNEP)
Showcase of projects supported by IGES / CCAC MSWI in Asia addressing waste management and air pollution challenges		Premakumara Jagath Dickella Gamaralalage, Institute for Global Environmental Strategies (IGES)
City case Study: Overview of a case study by a representative from a city participating in CCAC MSWI		TBD
Panel discussion: • How cities can connect the importance of waste management actions with climate change and improved air quality • The benefits of city to city collaboration • The importance of measuring and demonstrating impacts • The importance for local and short term impacts in the fight against climate change		Facilitated by Milag Ballesteros, C40 Cities Ricardo Cepeda-Marquez, C40 Cities Mushtaq Memon, UNEP Premakumara Jagath Dickella Gamaralalage, IGES Participating City Representative*
Open Q&A		
Breakout Session Wed 31 Aug 9:00- 10:30	**Introduction of Clean Air Certification Pilot Phase** Organized by: United States Environment Protection Agency (US EPA) Chair: Katharine Thoday, Cities Clean Air Partnership, Clean Air Asia Venue: Room 107, 1F, Convention Hall, BEXCO	
The Cities Clean Air Partnership (CCAP) is an initiative that seeks to address the challenges that cities face in improving air quality by making a clear business case that links air quality improvements to cities' economic and quality-of-life decisions. The core of the initiative is the development of a certification scheme that will: • recognize actions that cities take to address air quality, • increase opportunities for cities to learn from each other and collectively address issues, and make it easier to establish new collaborations with public and private stakeholders.		
Overview of certification standard development		Glynda Bathan, Clean Air Asia Katsunori Suzuki, Kanazawa University Japan
Panel Discussion: Anticipated impact of certification		Renee Haider, Sustainable Jersey Jamie Leather, Asian Development Bank Mathias Miedreich, Faurecia Mayor Danilo Fernandez, City of Sta. Rosa Cordelia Lacsamana, City of Baguio Arif Dermawan, City of Malang
Launch of Pilot		Bjarne Pedersen, Clean Air Asia Wen-Ti Chu, EPA, Chinese Taipei Mark Kasman, US EPA
Breakout Session Wed 31 Aug 9:00- 10:30	**Institutionalizing Fuel Economy in Asia** Organized by: United Nations Environment Programme (UNEP), German International Cooperation (GIZ), and Clean Air Asia Chair: Tali Trigg, GIZ Venue: Room 106, 1F, Convention Hall, BEXCO	
Session introduction		Tali Trigg, GIZ
Global Fuel Economy: State and Prospects		Sheila Watson, FIA Foundation
CO2-Based Taxation Policies		Watcharin Boonyarit, Department of Alternative Energy Development and Efficiency, Ministry of Energy Thailand
Case of South Korea: Fuel Economy and GHG Standards		Jin Young Park, The Korean Transport Institute
Sri Lankan Experience: Impacts of Fiscal Policies on Fuel Economy		Don Jayaweera, Strategic Enterprise Management Agency of Sri Lanka

Panel Discussion • Inter-ministerial cooperation and stakeholder participation in the development and implementation of policy • Data collection and monitoring fuel economy • The importance of labeling, consumer awareness and market transformation strategies	• Ernesto Abaya, University of the Philippines National Center for Transportation Studies • Peerawat Saisirirat, National Metal and Materials Technology Center, Thailand • Le Anh Tu, Vietnam Register • Malaysia Automotive Institute
Summary and Closing	Tali Trigg, GIZ
10:30- 11:00 COFFEE BREAK & NETWORKING	
Keynote Session Wed 31 Aug 11:00am - 12:30pm	**Air Pollution, Health, and the Urban Future** Venue: Room 205 (Summit Hall), 2F, Convention Hall, BEXCO Moderator: Clean Air Asia
Air Pollution: The Global Health Challenge	Margaret Chan, Director General, World Health Organization
Air Pollution Health Impacts - the Pulse for the New Development Agenda	Carlos Dora, Coordinator, Interventions for Healthy Environments, World Health Organization
Burden of Disease Attributable to Coal-Burning and Other Major Sources of Air Pollution in China - Progress and Future Challenges	Robert O'Keefe, Health Effects Institute
Policies for Tackling Air Pollution in Cities	
A Roadmap for Better Air Quality in Cities	Yandong Tang, Director of International Center for Environmental Technology, Foreign Economic Cooperation Office, China Ministry of Environmental Protection
Strengthening air quality governance in Central Mexico Megalopolis	Beatriz Cardenas, Centro Mario Molina, Mexico City
Driving away from diesel in European Cities	Murad Qureshi, Former Environment Committee, London Assembly
12:30-13:30 LUNCH	
Breakout Session Wed 31 Aug 1:30 – 3:00pm	**Traffic Related Air Pollution** Chairperson: Erik Velasco, Singapore-MIT Alliance for Research and Technology, Center for Environmental Sensing and Modeling Venue: Room 102, 1F, Convention Hall, BEXCO
Particles exposure in the public transport of Singapore	Erik Velasco, Singapore-MIT Alliance for Research and Technology, Center for Environmental Sensing and Modeling
Time-Series Ozone Model with the Consideration of Traffic Flows and Meteorological Factors in Urban Regions	Youngkook Kim, The Korea Transport Institute
Spatial-Temporal Assessment on Marine Emission Control Policy – A Case Study of the Container Port in Hong Kong	Yiqi Zhang, Hong Kong University of Science and Technology
Characteristics of the evaporative emissions from three types of light-duty gasoline vehicles on SHED test in China	Fanyuan Deng, Tsinghua University
An Analytical Application of the Role of Carbon Monoxide as Published Indicators of Urban Transport with GIS (Case Study: Qazvin City)	Sadra Alipour, Director General for Research and Environment Technology Development, Bureau Department of Environment
Assessment of NO2 concentration levels in a traffic urban hotspot in Madrid (Spain) through an experimental field campaign and high resolution modelling	Rafael Borge, Technical University of Madrid
Breakout Session Wed 31 Aug 1:30 – 3:00pm	**VOCs Emissions, Distribution and Fate** Chairperson: Haryono Huboyo, Diponegoro University Venue: Room 103, 1F, Convention Hall, BEXCO
Spatial and Seasonal Distribution of Volatile Organic Compounds (VOCs) and Source Identification in Ulsan, Korea	Seong-Joon Kim, Ulsan National Institute of Science and Technology
Volatile Organic Compound concentration in the city of Colombo	Perera G.B.S., University of Moratuwa Sri Lanka
Measuring the Uptake Rates of Ethylene by Common Tree Species in Chinese Taipei	En-Jang Sun, Professor, Chinese Taipei
VOCs Identification from Indonesian Peatland Fire During Smoldering Phase	Haryono Huboyo, Diponegoro University
Community Observation Networks for Air in action	Elizabeth R. Somervell, National Institute of Water and Atmospheric Research

Breakout Session Wed 31 Aug 1:30 – 3:00pm	**Formulating Better Urban and Regional Emission Inventories (II)** Chairperson: Huan Liu, Tsinghua University Venue: Room 104, 1F, Convention Hall, BEXCO	
An estimation of NOx emissions over East Asia using satellite-observed NO2 columns		Kyung M. Han, Gwangju Institute of Science and Technology
Emission Inventory Activity on Tanjung Priok Port, Indonesia as The Base for The Implementation of Sustainable Port Concept		Yusa C. Permana, Indonesia Transportation Society
Health and climate impacts of Ocean-going vessels in East Asia		Huan Liu, Tsinghua University
Implementation of Near Real-Time Fire and Dust Emissions in Air Quality Forecast over Northeast Asia		Soontae Kim, Ajou University
Current and Future Emissions from Crop residue burning in India		Tanbir Singh, Panjab University
Improvement of CREATE emissions inventory of anthropogenic carbon monoxide for Northeast Asia		Ki-Chul Choi, Konkuk University
Breakout Session Wed 31 Aug 1:30 – 3:00pm	**Air Quality and Health (II)** Chairperson: Ho Kim, Seoul National University Venue: Room 105, 1F, Convention Hall, BEXCO	
Health effect of future ambient ozone levels in 7 major cities, South Korea		Jae Young Lee, Seoul National University
Association Between Air Pollutants Exposure with Frequency of Micronuclei (Mn) in Exfoliated Buccal Mucosa among Primary School Children Nearby Industrial Area		Nor Ashikin Sopian, Universiti Putra Malaysia
A physico-chemical study of dust fall samples collected within human human settlements that are close to derelict and ownerless asbestos mine dumps in Mpumalanga province, Republic of South Africa		Shadung John Moja, Sustainable Resources and Environment Competency, Council of Geoscience,
Ambient air PM2.5 and its impact on cardiovascular disease in Ulaanbaatar residents		Enkhjargal Altangerel, Public Health Institute
Indoor Air Quality and Its Association with Respiratory Health among Preschool Children in Urban and Suburban Area		Juliana Jalaludin, Universiti Putra Malaysia
Household air pollution in urban and rural sectors, and in poorer and better off households in the Western Province in Sri Lanka		Sumal Nandasena, National Institute of Health Sciences
Breakout Session Wed 31 Aug 1:30 – 3:00pm	**Real-World Emissions** Organized by: United Nations Environment Programme (UNEP), German International Cooperation (GIZ), and Clean Air Asia Chair: Bert Fabian, UNEP Venue: Room 101, 1F, Convention Hall, BEXCO	
Session introduction		Bert Fabian, UNEP
US EPA experience on Light Duty Vehicle Enforcement and Compliance Program		Jim Blubaugh, US EPA
EU Experience and New Concept for Emission Testing		Antonio Multari, MAHA
Real-World and Certified Fuel Consumption Gap Analysis		Maya Ben Dror, The Innovation Center for Energy and Transportation (iCET)
Panel Discussion and Q&A		Ray Minjares, ICCT Jeong-Soo Kim, Ministry of Environment, ROK Fatehah Aziz, MAI Axel Friedrich*, GIZ
Summary and Closing		Bert Fabian, UNEP
*to be confirmed		
Breakout Session Wed 31 Aug 1:30 – 3:00pm	**Safe, Healthy, and Clean Cities through Sustainable Mobility** Organized by: International Council for Local Environmental Initiatives (ICLEI) and German Partnership for Sustainable Mobility (GPSM) Chair: ICLEI and GPSM/GIZ Venue: Room 101, 1F, Convention Hall, BEXCO	
Introduction and Session Overview		Michel Arnd, GPSM/GIZ
Case Studies		
Walking as a Means to Urban Livability: The Case of Hong Kong		Simon Ng, Civic Exchange
Planning of Livable Cities and Sustainable Urban Transportation Systems		Mayor Chen Chu, Kaohsiung City*

Citizen Participation for Sustainable Urban Mobility	Mayor Yeom Tae-Young, Suwon City*
Reaching for Clean Air: The Role Civil Society Can Play	Dorothee Saar, Deutsche Umwelthilfe
The Role of Development Banks in Supporting Cities	Jamie Leather, Asian Development Bank
Panel Discussion	All session speakers
Summary and Closing	Sunny Kodukula, ICLEI
**Invited*	
Breakout Session Wed 31 Aug 1:30 – 3:00pm	**Tackling Air Quality in Megacities** Organized by: Clean Air Asia Chair: FU Lu, Clean Air Asia Venue: Room 107, 1F, Convention Hall, BEXCO
Overview of Asia Megacities Status and Trends	Kaye Patdu, Clean Air Asia
Air Quality Improvement and Prospects of Shenzhen City	Yu Xinglu, Shenzhen Human Environment Commission
Tokyo's Experience in Vehicle Emission Control	Kaoru Akahoshi, Institute for Global Environmental Strategies
Control Strategies for Stationary Source Emissions and Their Effects on Ambient Air Quality in Shanghai	Zhang Yihua, Shanghai Environmental Monitoring Center
Sustainable Mobility in ASEAN Metropolitan Regions – A regional project approach towards avoiding the "megacity development trap"	Roland Haas, GIZ
Interactive discussion: challenges and opportunities of air quality improvement in Asian megacities	Panelists: All speakers and Naini Jayaseelan, Inter State Council Secretariat, India
3:00- 3:30pm	COFFEE BREAK & NETWORKING
Breakout Session Wed 31 Aug 3:30 – 6:00pm	**Mapping steps and actions to improve air quality in cities through the Guidance Framework** Organized by: Clean Air Asia Chair: Gary Haq, Stockholm Environment Institute Venue: Room 106, 1F, Convention Hall, BEXCO
Welcome Remarks Session Overview & Introduction of Participants	Gary Haq, Stockholm Environment Institute
The Guidance Framework for Better Air Quality in Asian Cities	Wei Wan, Clean Air Asia
The Guidance Framework Roadmap & Status of AQM in Asia	Kim Oanh, Asian Institute of Technology
Application of the Guidance Framework Roadmaps: Towards Stepwise Actions to AQM Improvement Panel Presentations & Discussion: 1. China – Best practices of city-city exchanges of tools/capacity to jumpstart emissions inventories in less-developed cities 2. Philippines – Airshed Governance 3. Mongolia – Air quality communication 4. Vietnam – National-level Clean Air Action Planning	1. Hu Ming, Shanghai Environmental Monitoring Center 2. Jean Rosete, Environmental Management Bureau, Department of Environment and Natural Resources – Philippines 3. Ministry of Environment, Green Development and Tourism (Mongolia) 4. Vietnam Environment Administration
Plenary Discussion	Facilitated by Gary Haq, Stockholm Environment Institute
Closing	Gary Haq, Stockholm Environment Institute

Breakout Session Wed 31 Aug 3:30- 5:00pm	**Stakeholder Roundtables** This Roundtable will provide a platform to discuss what is needed to improve urban air quality, reduce GHG emissions, and make cities more livable in different Asian countries.
	Malaysia Stakeholders Roundtable Moderator: Noor Zaitun Yahaya, University of Malaysia Venue: Room 101, 1F, Convention Hall, BEXCO India Stakeholders Roundtable Moderator: Prarthana Borah, Clean Air Asia – India Venue: Room 102, 1F, Convention Hall, BEXCO Nepal Stakeholders Roundtable Moderator: Rajan Thapa, Clean Air Network Nepal Venue: Room 103, 1F, Convention Hall, BEXCO Vietnam Stakeholders Roundtable Moderator: Phan Quynh Nhu, Vietnam Clean Air Partnership Venue: Room 104, 1F, Convention Hall, BEXCO Philippines Stakeholders Roundtable Moderator: Julieta Manlapaz, Partnership for Clean Air Venue: Room 105, 1F, Convention Hall, BEXCO
Wed 31 Aug 3:30-5:00	**Poster Session I** Venue: Rooms 201-204, Convention Hall, BEXCO

Thursday 1 September 2016

Breakout Session Thu 1 Sep 9:00- 10:30	**Short-Lived Climate Pollutants: Regional Actions on Climate and Air Pollution** Chairperson: Kevin Hicks, Stockholm Environment Institute Venue: Room 102, 1F, Convention Hall, BEXCO
Hemispheric Transport of Air Pollution and Short-Lived Climate Pollutants: the work of the UNECE Convention	Greg Carmichael, University of Iowa
Air Pollution and Climate in Asia: The Asian Regional Assessment	Frank Murray, Murdoch University
Assessment and Action in Latin America	
The Regional Action Plan on Air Pollution in Latin America and the Caribbean	Eric Concepcion, Ministry of the Environment Peru
The Regional Assessment of Short-Lived Climate Pollutants in Latin America and the Caribbean: Findings and Conclusions	Sunday Leonard, Climate and Clean Air Coalition
Assessment and Action in Africa	
Cooperation on Air Pollution in Southern Africa: Issues and Opportunities	Hanlie Liebenberg-Enslin, Airshed Partners, South Africa
National and Sub-Regional Action on SLCPs in West Africa	Bert Fabian, United Nations Environment Programme

Breakout Session Thu 1 Sep 9:00- 10:30	**Air Quality Modeling and Forecasting (I)** Chairperson: Soontae Kim, Ajou University Venue: Room 103, 1F, Convention Hall, BEXCO
Development of a reactive plume model for the consideration of power-plant plume photochemistry and its applications	Yong H. Kim, Gwangju Institute of Science and Technology
Dependence of predicted ozone and its precursor concentrations to vertical diffusivity schemes in photochemical models	Chunwoong Park, Ajou University
CMAQ Simulation Study to Analyze the Long-term Variations of Criteria Air Pollutants in the Seoul Metropolitan Area, South Korea, during 2004~2015	Soontae Kim, Ajou University
Analysis of NOx and PM Improvement and Population Exposure due to On-road Mobile Source Emissions Control Plan in Seoul	Yoo Jung Kim, Konkuk University
Tracking Chemical Histories of Pollutant Plumes Using a Lagrangian-Eulerian Hybrid System	Minah Bae, Ajou University

Breakout Session Thu 1 Sep 9:00- 10:30	**Remote Sensing to Measure the Air Quality (I)** Chairperson: Chang Limseok, National Institute of Environmental Research Venue: Room 104, 1F, Convention Hall, BEXCO
Introduction of Geostationary Environment Monitoring Spectrometer (GEMS)	Chang Limseok, National Institute of Environmental Research
Comparing OMI-TOMS and OMI-DOAS over High SO2 Regions: Volcanic Site and China Industrial Region	Wonei Choi, Pukyong National University
The Development of the GEMS NO2 algorithm: Effects of aerosol properties on AMF and SCD Precision	Hyunkee Hong, Pukyong National University
Investigation of temporal and spatial distribution of HCHO column retrieved using ground based PANDORA over the Korean Peninsula: preliminary results and analysis	Hanllim Lee, Pukyong National University
Comparison of vertical column density of sulfur dioxide between measured by PANDORA and Ozone Monitoring Instrument in Seoul between 2012 and 2015	Hanlim Lee, Pukyong National University
Development of aerosol retrieval algorithm using optimal estimation method	Mijin Kim, Yonsei University

Breakout Session Thu 1 Sep 9:00- 10:30	**Impacts and Risk from Natural and Anthropogenic Air Pollution** Chairperson: Seung-Muk Yi, Seoul National University Venue: Room 105, 1F, Convention Hall, BEXCO
Estimation of volcanic ash concentration from Largrangian dispersion model	J.Y.Lee, Chungbuk National University
Assessment of Volcanic Ash Fragility for Agricultural Crops	Woo Seok Yun, Kangwon National University
Health effects of volcano ash components	Ho Kim, Seoul National University
Development of Air Quality Management Portal for Volcanic Ash Dispersion Event	Daeyoung Heo, Kookmin University

Breakout Session Thu 1 Sep 9:00- 10:30	**Enabling and Scaling-up Electromobility** Organized by: Wuppertal Institute, Urban Electric Mobility Initiative (UEMI), and Clean Air Asia Chair: Oliver Lah, Wuppertal Institute/UEMI Venue: Room 106, 1F, Convention Hall, BEXCO
Session Introduction Electromobility: Towards Achieving SDGs and Climate Goals	Oliver Lah, Wuppertal Institute/UEMI
Private Sector Initiatives: Collaboration and Challenges	Nobuhiko Koga, Toyota Motor Corporation
Electric Mobility in Developing Countries	David Rubia, United Nations Environment Programme (UNEP)
The Neglected Transport Mode: Energy Efficient 2-wheelers in ASEAN	Tali Trigg, German International Cooperation (GIZ)
Panel Discussion	• Nobuhiko Koga, Toyota Motor Corporation • David Rubia, UNEP • Tali Trigg, GIZ • Jinyoung Park, The Korea Transport Institute • Don Jayaweera, Strategic Enterprise Management Agency of Sri Lanka
Summary and Closing	Oliver Lah, Wuppertal Institute/UEMI

Breakout Session Thu 1 Sep 9:00- 10:30	**Fostering City-to-City Cooperation** Organized by: United States Environment Protection Agency (US EPA) Chair: Katharine Thoday, Cities Clean Air Partnership, Clean Air Asia, and Milag Ballesteros, C40 Cities Venue: Room 107, 1F, Convention Hall, BEXCO

City-to-city cooperation encourages cities to take collective actions. This interactive networking workshop led by C40 Cities and Cities Clean Air Partnership of Clean Air Asia, seeks to share experience in developing successful partnerships and to identify key areas for future cooperation with a particular focus on how cities can best meet both air quality and climate change objectives:

- Which actions to address air quality are most needed at the city level?
- What are the main challenges in addressing these?
- What is the potential for city co-operation to address these issues?

Moderators and Facilitators	Katharine Thoday, Cities Clean Air Partnership Milag Ballesteros, C40 Cities Linda Giannelli Pratt, Green Cities California Gina Bonifacino, US EPA

Breakout Session Thu 1 Sep 9:00- 10:30	**Air Quality Management in China, India and Southeast Asia** Organized by: Clean Air Asia Chair: Mary Jane Ortega, Clean Air Asia Partnership Council Venue: Room 101, 1F, Convention Hall, BEXCO
Session overview	Mary Jane Ortega, Clean Air Asia Partnership Council
Progress in Chinese cities – Launch of China Air 2016 Report	FU Lu, Clean Air Asia
Status of air quality and its management in India	Rashid Hasan, Ministry of Environment and Forests, India
Challenges in India	Prarthana Borah, Clean Air Asia
Status and trends in Southeast Asia – Launch of the Handbook on Clean Air Management in Smaller Cities in ASEAN	Tanya B. Gaurano, Clean Air Asia, and Roland Haas, GIZ
Opportunities for air quality improvements within the context of SDGs and New Urban Agenda	Avi Sarkar, South-East Asia Region Water for Asian Cities Programme & MEK-WATSAN Initiative, UN-HABITAT
Q&A	All speakers
10:30- 11:00	COFFEE BREAK & NETWORKING

Keynote Session Wed 31 Aug 11:00- 12:30	**The Global Challenge of Air Pollution - Finding Solutions** Venue: Room 205 (Summit Hall), 2F, Convention Hall, BEXCO Moderator: International Union of Air Pollution Prevention Associations	
WEO Special Report on Energy and Air Pollution: Solutions for Asia		Fatih Birol, Executive Director, International Energy Agency
Reducing Short-Lived Climate Pollutants (SLCPs) to Deliver Climate and Clean Air Benefits		Helena Molin-Valdes, Head of Secretariat, Climate & Clean Air Coalition
Environmental policy, collaboration, and public access to information: Solutions to air pollution and climate change		William Niebling, Senior Advisor for Congressional and International Affairs, Office of Air and Radiation, US Environmental Protection Agency
12:30-1:30pm	LUNCH	
Breakout Session Thu 1 Sep 1:30 – 3:00pm	**"New" and Renewable Energy & Air Pollution** Chair: Alexander Maennel, Korea Institute of Energy Research Venue: Room 102, 1F, Convention Hall, BEXCO	
Air Pollutant Emission Reduction Potential of Renewable Energy in South Korea		Alexander Maennel, Korea Institute of Energy Research
The impact of biomass burning on downwelling surface shortwave radiation: Sensitivity of carbon density to aerosol concentration		Chang K. Kim, Korea Institute of Energy Research
Effect of Climate Change on Wind Resource under IPCC A1B Emissions Scenario		Jin-Young Kim, Korea Institute of Energy Research
Effect Analysis of Air Quality Improvement to Efficiency in Photovoltaic System		Shin-Young Kim, Korea Institute of Energy Research
Trend and Prediction of Food and Energy Consumption in the Korean Peninsula		Min Ju Yeo, Ewha Womans University
Methane for Power Generation		Naini Jayaseelan, Inter State Council Secretariat (India)
Breakout Session Thu 1 Sep 1:30 – 3:00pm	**Air Quality Modeling and Forecasting (II)** Chairperson: Youn-Seo Koo, Anyang University Venue: Room 103, 1F, Convention Hall, BEXCO	
PM Episode Analysis Using the Korean Air Quality Forecasting System in Seoul Metropolitan Area		Youn-Seo Koo, Anyang University
Ozone Simulations over the Seoul Metropolitan Area for a 2014 May Episode: Application of CMAQ-HDDM to Predict Ozone Response to Different Meteorological Models		Eunhye Kim, Ajou University
Multi-scale modeling of urban air pollution: development and application of a Street-in-Grid model		Youngseob Kim, Université Paris-Est
Impact of Planetary Boundary Layer Schemes on Modeled Surface Ozone Concentrations in the Seoul Metropolitan Area, South Korea: Long-range Transport Case Study		Seunghee You, Ajou University
Breakout Session Thu 1 Sep 1:30 – 3:00pm	**Remote Sensing to Measure the Air Quality (II)** Chairperson: Olusegun G. Fawole, University of Birmingham Venue: Room 104, 1F, Convention Hall, BEXCO	
Space-borne Monitoring of NO2 Emissions from Cement Kilns in South Korea		Hyun Cheol Kim, National Oceanic and Atmospheric Administration
Development of an Improved Inventory of Air Pollutant Emissions from Biomass Open Burning Using Satellite Information for Haze Pollution Control and Management in northern Thailand		Savitri Garivait, King Mongkut's University of Technology Thonburi
In-Service Conformity Surveillance using Remote Sensing Measurements of RDE		Niranjan Vescio, Opus Inspection
Gas flaring: Aerosol pollution over West Africa using AERONET retrievals		Olusegun G. Fawole, University of Birmingham
Breakout Session Thu 1 Sep 1:30 – 3:00pm	**World Air Day – Working towards a U.N. International Day Declaration** Chair: Seung Cheol Hong, Inje University Venue: Room 105, 1F, Convention Hall, BEXCO	
The World Air Day Declaration – Background and Future Strategies		Yoonshin Kim, Konkuk University

Aerosol Variations in Boundary Atmospheres: Reviews and Prospects	Bin Chen, Maki Teruya, Hong Chun Sang, Kim Yoon Shin, and Shi Guangyu Institute of Atmospheric Physics (IAP), Chinese Academy of Sciences (CAS)
Research on Green Patrol Technologies for Clean Air Management	Jo-Chun Kim, Konkuk University
Indoor Air Pollution in Japan – Problems, Regulation and Research Trends	Naohide Shinohara, National Institute of Advanced Industrial Science and Technology
Panel Discussion: International Cooperation for a Successful U.N. World Air Day Declaration	Yong Won Jung, Korean Society for Atmospheric Environment Gwi-Nam Bae, Korean Society for Indoor Environment and all session speakers

Breakout Session
Thu 1 Sep
1:30 – 3:00pm

Delivering Clean Air and Climate Benefits: Reducing SLCP Emissions
Organized by: Climate and Clean Air Coalition (CCAC), Clean Air Asia and International Union of Air Pollution Prevention Associations
Chair: Sunday Leonard, CCAC
Venue: Room 101, 1F, Convention Hall, BEXCO

Introduction and Overview	Sunday Leonard, CCAC
The Urban Health Initiative/Breathe Life Campaign	Carlos Dora, World Health Organization
Opportunities for reducing SLCPs across sectors	
Building Back Better Brick Kilns	Bidya Pradhan, International Centre for Integrated Mountain Development
Soot-free Urban Bus Fleets Initiative	Tim Dallmann, International Council on Clean Transportation
Reducing SLCPs in Asia's Waste and Transport Sectors: Progress and Challenges	Eric Zusman, Institute for Global Environmental Strategies
Panel Discussion	All speakers
Summary and Closing	Sunday Leonard, CCAC

Breakout Session
Thu 1 Sep
1:30 – 3:00pm

Transport Debate: Smart Growth for Asian Cities
Organized by: Clean Air Asia
Venue: Room 106, 1F, Convention Hall, BEXCO

The Transport Debate has been and continues to be one of the highlights of the Better Air Quality conference. Its objective is to highlight a controversial contemporary issue that needs to be resolved and to bring forth evidence for and against the resolution, with the aim of helping policymakers see different perspectives and guide them in their decision-making on the best pathway towards sustainable transportation.

This year's debate tackles Smart Growth strategies including mixed land use, transit-oriented and compact city developments, and linking them to sustainable transport for emerging Asian cities. Should emerging cities in Asia go for Smart Growth?

Breakout Session
Thu 1 Sep
1:30 – 3:00pm

Next Generation Air Quality Monitoring and Communication Tools for Cities
Organized by: NASA ARSET and Clean Air Asia
Chair: Prarthana Borah, Clean Air Asia
Venue: Room 107, 1F, Convention Hall, BEXCO

Session Introduction	Prarthana Borah, Clean Air Asia
Satellite Observations of Air Quality Around the World: Methods, Applications and Future Opportunities	Pawan Gupta, NASA ARSET
Tools and Features of the New AirNow System and U.S. Embassy/EPA Monitoring Program	John White, US Environmental Protection Agency
Low-Cost Sensors for Air Quality Monitoring and Management: Technology Review and Sample Applications	Tim Dye, Sonoma Technology, Inc.
Lightning Talks: Air quality monitoring and communication technologies for the community	Facilitated by the Session Chair • Liam Bates, Origins Technology • Jeff Smith, Ambience Data • Robert Heinecke, Breeze • Attilio Poli, Asia Pacific Air Quality Group
Open Forum	
Chair's Closing	

3:00-3:30pm COFFEE BREAK & NETWORKING

Plenary Session Thu 1 Sep 3:30-5:00pm	**Plenary: Clean Air Asia Milestones and New Strategy** Organized by: Clean Air Asia Venue: Room 205 (Summit Hall), 2F Conference Hall, BEXCO	
Clean Air Asia - 15 years		Glynda Bathan, Clean Air Asia
Launch of Clean Air Asia New Strategy (2017-2020)		Bjarne Pedersen, Clean Air Asia
Presentation of Kong Ha Award		Mary Jane Ortega, Clean Air Partnership Anumita Roychowdhury, Center for Science and Environment Bjarne Pedersen, Clean Air Asia
Acceptance Speech by the 2016 Kong Ha Award Winner		Supat Wangwongwatana Senior Policy and Technical Advisor of Regional Resources Centre for Asia and the Pacific, Asian Institute of Technology Former Director General of the Pollution Control Department of Thailand Former Secretary General of the Office of Natural Resources and Environment Policy and Planning of Thailand
Poster Session Thu 1 Sep 3:30-5:00pm	**Poster Session II** Venue: Rooms 201-204, 2F, Convention Hall, BEXCO	

Friday 2 September 2016

Breakout Session Fri 2 Sep 9:00- 10:30	**Strengthening the Global Framework for Tackling Air Pollution** Chairperson: Richard Mills, International Union of Air Pollution Prevention Associations (IUAPPA) Venue: Room 102, 1F, Convention Hall, BEXCO
Report-back from the Global Atmospheric Pollution Forum:	
Chair's Introduction	Richard Mills, IUAPPA
Making progress on Co-operation at the Regional Scale and between Regional Networks	Kevin Hicks, Stockholm Environment Institute
Learning and Experience-Sharing on Air Quality Management between Cities in Asia, Africa, and Latin America	Beatriz Cardenas, Centro Mario Molina
Developing Global Atmospheric Data Systems	Chris Malley, Stockholm Environment Institute
The Nitrogen Balance	Kevin Hicks, Stockholm Environment Institute
Breakout Session Fri 2 Sep 9:00- 10:30	**Air Quality Modeling and Forecasting (III)** Chairperson: Akula Venkatram, University of California and Cheol-Hee Kim, Pusan National University Venue: Room 103, 1F, Convention Hall, BEXCO
Interpreting Particulate Matter and Ozone Air Quality Forecasts Based on Instrumented 3-Dimensional Photochemical Grid Models for South Korea	Soontae Kim, Ajou University
Urban Air Quality Simulations with On-road Air Pollutant Emissions estimated from Mobile Monitoring	Kyung-Hwan Kwak, Kangwon National University
Development and Application of Web-based Air Pollution Models for Air Quality Management	Akula Venkatram, University of California
On the Reactive Plume Dispersion over Idealized Urban Roughness	Chun-Ho Liu, The University of Hong Kong
Modelling Fine Particulate Concentrations in Metro Manila	Candy Tong, Clean Air Asia
Breakout Session Fri 2 Sep 9:00- 10:30	**Emission Regulation Strategy** Chairperson: Yongsung Cho, Korea University and Hong Chun Sang, Hankuk University of Foreign Studies Venue: Room 104, 1F, Convention Hall, BEXCO
Discussion of Emission Regulation Standard for SRF Facility	Jung-Min Shim, Kanwon National University
Framework Design of Pollutant Discharge Permit for Electric Power Industry in China	Jiang Chunlai, Chinese Academy for Environmental Planning
Options to Control CO2 emission as a measure of GHG Emission Mitigation in Steel Industry	Amitava Bandyopadhyay, University of Calcutta
Estimating the Consumer's Willingness-to-pay and the Costs of Korean Forest Carbon Credits	Yongsung Cho, Korea University
Quantification of Co-benefits of Low Carbon Society Policies on Air Pollution	Gakuji Kurata, Kyoto University
Breakout Session Fri 2 Sep 9:00- 10:30	**Management of Transportation and Air Quality (III)** Chairperson: Jamie Leather, Asian Development Bank Venue: Room 105, 1F, Convention Hall, BEXCO
Managing motorization in Africa: Interim results of a pilot study on vehicle fleet improvement in Ethiopia and Kenya	Roger Gorham, World Bank
Low Carbon and Resilient Transport Systems for Metro Manila	Jose Bienvenido Biona, De La Salle University
Source Apportionment of PM1.0 measured with the Aerosol Mass Spectrometer (AMS)	Wajih U. Rehman, Gwangju Institute of Science and Technology
Managing urban transport in a dynamic environment	Jamie Leather, Asian Development Bank
A broad framework for developing urban road network for a city facilitating green transport system	Rajalakshmi.N, Anna University

Breakout Session Fri 2 Sep 9:00- 10:30	**Case Studies in the Implementation of Actions to Prevent Air Pollution in the Asia-Pacific Region** Organized by: United Nations Environment Programme (UNEP), Institute for Global Environmental Strategies (IGES), Stockholm Environment Institue (SEI), and Clean Air Asia Chair: Frank Murray, Murdoch University Venue: Room 101, 1F, Convention Hall, BEXCO

Most nations in the Asia-Pacific region have implemented a variety of actions to address air pollution. Some have been successful and some less so. The barriers to effective implementation are challenging but many countries have found ways to overcome them. However, there are limited opportunities to share lessons learned for the benefit of others in the region. This session aims to provide a platform to share experiences on the implementation of actions to prevent air pollution in the Asia-Pacific region. The format will be short presentations and discussion.

10:30-11:00	COFFEE BREAK & NETWORKING
Plenary Session Fri 2 Sep 11:00- 12:00	**Closing Ceremony: 17th IUAPPA World Clean Air Congress and 9th CAA Better Air Quality Conference** Chairs: Ji Hyeon Song, KOSAE Venue: Room 205 (Summit Hall), 2F Conference Hall, BEXCO

Recap of key takeaways from the conference sessions	Gangwoong Lee, KOSAE Glynda Bathan, Clean Air Asia
Recognition of Excellent Posters	Yong-Won Jung, KOSAE
Introduction of the next World Clean Air Congress - Istanbul 2019	
Conference Declaration	Richard Mills, IUAPPA Bjarne Pedersen, Clean Air Asia
Closing Remarks	Kil-Choo Moon, IUAPPA

About the Kong Ha Award for Excellence in Air Quality Management

The Clean Air Asia Partnership established a biennial award to honor the memory of the late Kong Ha, who served as the chairperson of Clean Air Asia from December 2004 to April 2007.

The award serves as a tribute to persons who are responsible for the formulation of air quality management related policies and their day-to-day implementation in Asia. This, in the view of the Clean Air Asia Partnership, is the best way to honor Kong Ha, who through his deep commitment and knowledge, relentless enthusiasm, and strong sense of partnership was a key person in shaping and overseeing the implementation of mobile source emission reduction policies in Hong Kong.

Eligible for the Kong Ha Award are persons who are working and excel on day-to-day basis in respect to the formulation and implementation of air quality management policies. All fields of air quality management qualify: mobile, stationary and area sources of pollution. Potential candidates can come from local or national government, civil society or academic or research institutions in developing Asia. Candidates can be nominated by organizations or individuals. Self-nominations will not be accepted. The Kong Ha Award Committee, through its secretariat will also solicit the submissions of applications from worthy candidates.

Past Kong Ha Awardees

The Kong Ha Award was handed out for the first time at the BAQ 2008 conference to Mr. Shi Han Min, director of Beijing's Environmental Protection Bureau, for leading efforts to clean up the capital's air for the 2008 Olympic Games in Beijing. The recipient of the Kong Ha Award 2010 was Mr. Ahmad Safrudin (better known as 'Puput') who was a key figure in the campaign for measures to address air pollution in Jakarta through advocacy programs and stakeholder involvement. In 2012, the Kong Ha Award was presented to Dr. Mukesh Sharma who was instrumental in the inclusion of new parameters (ozone, arsenic, nickel, benzene and benzo(a)pyrene) to India's Revised National Ambient Air Quality Standards in 2009. More recently in 2014, the Award was given to Dr. B.M.S. Batagoda for his work in air quality management which helped Sri Lanka achieve tremendous results in improving air quality through wider and effective stakeholder participation.

Award Incentive

The Kong Ha Award consists of a cash prize of US$ 10,000 and a commemorative plaque and is handed out at the biennial Better Air Quality conferences. Clean Air Asia will furthermore assist the prize winner to identify suitable learning opportunities to enable the winner of the award to deepen his or her knowledge and forge more partnerships.

Criteria

The winner is selected based on the following criteria:

1. Proven track record in getting things done
2. Ability to build strong multi-stakeholder partnerships in support of policy formulation and implementation
3. Technical excellence
4. Demonstrated enthusiasm and commitment to working for better air quality and a role model
5. Creativity and innovation

Dr. Supat Wangwongwatana

2016 Kong Ha Awardee

Dr. Supat Wangwongwatana – a scientist and practitioner who is deeply committed to better air quality and scientific excellence, and who has deep concern and passion for those affected by air pollution – is the winner of the 2016 Kong Ha award!

Dr Supat has been instrumental in, and responsible for, air quality improvements in Thailand and throughout Asia. He has worked tirelessly to institutionalize air quality management in Thailand and is an esteemed role model for air quality management scientists and practitioners in cities and countries across Asia. His commitment to educating and training young people is unparalleled and is based on his personal belief about the need to prepare future generations to safeguard the environment.

Dr Supat served in the Thai government for more than 30 years with the Office of National Environment Board, the Pollution Control Department (PCD), and the Office of Natural Resources and Environmental Quality Policy and Planning (ONEP). He was Director-General of the PCD for five years, and his last government post was Secretary-General of the ONEP.

As Director-General of the PCD, his responsibilities expanded to include not only air pollution, but also all other pollution issues at national and international levels, such as wastewater, solid waste, hazardous waste and chemicals.

Dr Supat has also long been involved in climate change mitigation, representing Thailand in negotiations on the United Nations Framework Convention on Climate Change (UNFCCC) in early 1990. As Secretary-General of the ONEP, he led the Thai delegation to COP17 /CMP7 in 2011 and was a member of the Board of the Thailand Greenhouse Gas Management Organization. He has also been a member of the Scientific Advisory Panel of the Climate and Clean Air Coalition since 2013.

Dr Supat has been involved in a range of international initiatives, networks, programs and conventions. He was Chair of the Clean Air Initiative for Asian Cities (now Clean Air Asia) and Chair of the Asian Environmental Compliance and Enforcement Network. He represented Thailand in a number of multilateral environmental agreements, including the Stockholm Convention, the Rotterdam Convention, the Basel Convention, the Strategic Approach to International Chemicals Management, the UNFCCC, the ASEAN Haze Agreement, the Acid Deposition Monitoring Network in East Asia (EANET), and the Regional Forum on Environment and Health in East and Southeast Asian Countries. He is currently Co-Chair of the Asian Co-benefits Partnership.

Dr Supat joined the Regional Resources Centre for Asia and the Pacific (RRC.AP) in 2012 as EANET Secretariat Coordinator. He is presently RRC.AP's Senior Policy and Technical Advisor. In 2015, he was awarded an EANET Award of Recognition for his involvement in and contribution to EANET since its inception in early 1990.

With his unbridled enthusiasm, relentless commitment, extensive knowledge and strong sense of partnership, Dr Supat truly embodies the spirit of the Kong Ha award and is a worthy recipient of this honor.

Poster ID	Title	Authors
PA Session) Aerosol chemical composition and physical properties		
PA1	Physicochemical and optical properties of particles from ship diesel engines emission according to the combustion conditions	Seongcheol Jeong*[1], Hwajin Kim[1], Jin Young Kim[1], Hyoun Cher Jin[1], Thao Thi Le[1] [1] Korea Institute of Science and Technology, South Korea
PA2	Chemical Compositions and Acidity of $PM_{2.5}$ Aerosol in Zagreb Air, CROATIA	Mirjana Čačković*[1], Krešimir Šega[1], and Ivan Bešlić[1] [1] Institute for Medical Research and Occupational Health, Croatia
PA3	Seasonal variation of plant-derived carbonaceous components in $PM_{2.5}$ in Kazo, Japan	Kouki Sasaka*[1], Qingyue Wang[2], and Kazuhiko Sakamoto[3] [1] Center for Environmental Science in Saitama, Japan [2] Saitama University, Japan [3] Asia Center for Air Pollution Research, Japan
PA4	Surface Chemistry Composition Analysis of Atmospheric Aerosol Particles in a Typical Urban Area of Beijing during a heavy pollution process in October 2014	Wenjun LI*[1,2], Hong LI*[1,3], Jinjuan LI[2], Zhengzheng ZHANG[1,2], Xueli CHENG[4], Hao ZHANG[5], Ting YANG[6], Fang BI[1], Pengli DUAN[7] [1] Chinese Research Academy of Environmental Sciences, China [2] Guizhou University, China [3] Nanjing University of Information Science and Technology, China [4] SAE Technology Development (Dongguan) Co. Ltd., China [5] Shandong University, China [6] Jilin University, China [7] Shaanxi University, China
PA5	Optical Characteristics of Ambient Aerosol in Daejeon area during the winter of 2014-2015	JeongAh Yu*[1], Youngsook Lyu[1], TaeKyung Hwang[1], MinHee Lee[1], YuDeok Hong[1] and JiHyeong Hong[1] [1] National Institute of Environmental Research, South Korea
PA6	Aerosol Optical Properties during smog and Asian dust events: Comparison of the calculated optical properties with Aeronet data	Chang H. Jung*[1], Ji Yi Lee[2] and Yong Pyo Kim[3] [1] Kyungin Women's University, South Korea [2] Chosun University, South Korea [3] Ewha Womans University, South Korea
PA7	Analysis of Amino Acid on WSOC Using a LC-MS/MS	Jihye Lim*[1], Jinseok Han[1], Sangwoo Han[1], Joonyoung Ahn[2], Hyejung Shin[2] [1] Anyang University, Anyang, South Korea [2] National Institute of Environmental Research, South Korea
PA8	Carbon and nitrogen isotopic composition of PM2.5 at periurban Taehwa Research Forest and over the Yellow Sea	Taekyu Joo[1], Saehee Lim[1], Inae Kwon*[1], Meehye Lee[1], Claudia I. Czimczik[2], Sandra R. Holden[2], Gergana O. Mouteva[2], Guaciara M. Santos[2,5], Xiaomei Xu[2,5], Saewung Kim[2], Youngjae Lee[3], Beomcheol Shin[4], Sangboom Ryoo[4] [1] Korea University, South Korea [2] University of California, United States [3] National Institute of Environmental Research (NIER), South Korea [4] National Institute of Meteorological Research (NIMR), South Korea [5] University of California, United States
PA9	Chemical Characteristics of PM2.5 during haze episodes and Asian dust in urban Ulsan, Korea	Mikyung Park*[1], Hyun-jung Kang[1], Hyo-sun Kim[1], You-deog Hong[1], Ji-hyung Hong[1] [1] National Institute of Environmental Research, South Korea
PA10	Seasonal and spatial distribution of PM2.5 mass concentrations observed from air pollution monitoring campaigns in Seoul, Korea	Gyu-Lim Oh*[1], Jong-Bae Heo[2], Seung-Muk Yi[1] and Sun-Young Kim[2] [1] Seoul National University, South Korea [2] Seoul National University, South Korea
PA11	Optical properties of severe haze episodes under Asian continental outflow (Daejeon, Korea) during winter, 2014	Jinsang Jung*[1], JeongAh Yu[2], Minhee Lee[2], Taekyung Hwang[2], Youdeok Hong[2], Jihyung Hong[2], Sangil Lee[1], JiHwan Kang[1], MiEon Kim[1] [1] Korea Research Institute of Standards and Science (KRISS), South Korea [2] National Institute of Environmental Research (NIER), South Korea
PA12	Mass Spectrometric Identification of the Nascent Product from the Heterogeneous Reaction of OH with NaCl	Jong-Ho Park*[1,2], Andrey V. Ivanov[1] and Mario J. Molina[1] [1] University of California San Diego, USA [2] Korea Atomic Energy Research Institute, South Korea

PA13	Characteristics of Atmospheric PM2.5 and Its Carbonaceous compounds in a Small City of Korea	Jong-Min Park*[1], Young-Ji Han[1], Sung-Hwan Cho[1], Jin-Yeo Byun[1] [1] Kangwon National University, South Korea
PA14	A Study on the Characteristics of metallic components of atmospheric PM2.5 in Chuncheon	Jin-Yeo. Byun*[1], Young-Ji. Han[1], Sung-Hwan. Jo[1], Jong-Min. Park[1] [1] Kangwon National University, South Korea
PA15	Flow reactor for studying physicochemical, aging, and optical properties of SOA	Zaeem Bin Babar[1], Jun-Hyun Park[1], Ji-a Kang[1] and Ho-Jin Lim[1] [1] Kyungpook National University, South Korea
PA16	Evaluation of the association between airborne real-time concentrations of black carbon and fine particulate matter (PM2.5) in urban hotspots of South Korea	Dongjae Lee[1], Sol Yu[1], Seonyup Lee[1], Sujung Park[1], Kyungae Park[1], Sungroul Kim[1], [1] Soonchunhyang University, South Korea
PA17	Relative humidity-dependent viscosities of biogenic and anthropogenic secondary organic aerosols and atmospheric implications	Mijung Song*[1], Sarah J. Hanna[2], Pengfei F. Liu[3], Yuan You[2], Saeid Kamal[2], Scot T. Martin[3] and Allan K. Bertram[2] [1] Chonbuk National University, South Korea [2] University of British Columbia, Canada [3] Harvard University, USA
PA18	Chemical and light absorption characteristics of humic-like substances in PM2.5 from biomass burning emissions	Jaemyeong Yu[1] and Seungshik Park*[1] [1] Chonnam National University, South Korea
PB Session) Air Pollution and their source apportionment		
PB1	Trend analysis and Source identification of PM2.5 in Niigata, Japan	Li Ping[1], Sato Keiichi[2], Hasegawa Hideo[1], Huo Minqun[2], Minoura Hiroaki[2], Akie Yuba[2], Futami Mari[2], Takahashi Tsukasa[2] [1] Niigata University, Japan [2] Asia Center for Air Pollution Research, Japan
PB2	Characteristics and Source Apportionment of PM2.5 in Seoul, Nagasaki, and Beijing	EunHa Park[1], Jongbae Heo[2], Masahiro Hashizume[4], Furong Deng[5], Ho Kim[2,3] and Seung-Muk Yi*[1, 2] [1] Seoul National University, South Korea [2] Seoul National University, South Korea [3] Seoul National University, South Korea [4] Nagasaki University, Japan [5] Peking University, China
PB3	Source Apportionment of PM2.5 Real Time Monitoring Data by PMF Model at the Baekryeong Island, Korea	Min-Bin Park[1], Eun-Sun Lee[1], Tae-Jung Lee[1], and Dong-Sool Kim*[1] [1] Kyung Hee University, South Korea
PB4	Chemical characteristics and source apportionment of hourly PM2.5 from intensive air quality monitoring station in Daejeon	Jinhee Jeong*[1], Jeongah Yu[2], Minhee Lee[2], Taekyung Hwang[2], Yudeok Hong[2], Sangil Lee[3], Jinsang Jeong[3] and Jinhong Lee[1] [1] Chungnma National University, South Korea [2] National Institute of Environmental Research, South Korea [3] Korea Research Institute of Standards and Science, South Korea
PB5	Characteristics of total gaseous mercury (TGM) concentrations and identification of local sources using receptor models	Youngeun Gim*[1], Yong-Seok Seo[2], Dae Gun Park[1], Jung Eun Lee[1] and Seung-Muk Yi[1] [1] Seoul National University, South Korea [2] Kangwon National University, South Korea
PB6	Source Contribution Assessment of PM2.5 Simulated Atmospheric Constituents	Min-Sung Kang[1] [1] Pusan National University, South Korea
PB7	Meteorological analysis associated with source apportionment of PM2.5 using receptor and chemistry transport models in Busan, Korea	Min-Kyeong Kim*[1], Gee-Hyeong Park[1] and Woo-Sik Jung[2] [1] Busan Metropolitan City of Institute of Health and Environment Busan, South Korea [2] Inje University, South Korea
PB8	Study on Sources of high PM10 concentration in Northern Area of Gyeonggido	Kwang-Joo Moon*[1], Jeong-Min Park[1], Ji-Hoon Park[1], Yoo-Duk Hong[1], Ji-Hyeong Hong[1] [1] National Institute of Environmental Research, South Korea
PB9	The Air Particulate Matter analysis and its Source Apportionment	Gunchin Gerelmaa[1], Dagva Shagjjamba[1], Sereeter Lodoysamba[2] [1] Nuclear Research Centre of the National University of Mongolia [2] German-Mongolian Institute for Resources and Technology
PB10	A yearlong source contributions of size-segregated water-soluble organic carbon in an urban site	Seungshik Park*[1], Geun-Hye Yu[1] and Kwon-Ho Lee[2] [1] Chonnam National University, South Korea [2] Gangneung-Wonju National University, South Korea

PB11	The Analysis of PM10 Concentrations Using Stochastic Boosted Regression Trees: Comparison between Two Industrial Cities in Malaysia	N.Z. Yahaya[1], Z.F. Ibrahim*[1] [1] Universiti Malaysia Terengganu
PC Session) Air pollution measurement techniques		
PC1	Evaluation on the detectability in the different wavelength light sources for biological components of the aerosol in the air	Eugene Chong*[1], Jong Min Lee[1], Young Su Jeong[1] and Kibong Choi[1] [1] Agency for Defence Development, South Korea
PC2	Development of On-line Heavy Metal Analyzer using X-ray Fluorescence Spectrometry	Gwanhoon Yoon*[1], Yongsil Choi[1], Geunsung Park[1], Mijin Choi[1], Seonghyun Kim[1] and Kyungmin Ban[1] [1] APM Engineering Co., Ltd., South Korea
PC3	Evaluation of performance of a low-cost air quality sensor, 'AirBeam'	Yelim Jang*[1], Kiyoung Lee[1] [1] Seoul National University, South Korea
PC4	A study on potential SOA mass fraction from vehicle emission using HR-ToF-AMS coupled with Potential Aerosol Mass reactor	Gyutae Park*[1], Jihwan Son[2], Jounghwa Kim[2], Jeong Soo Kim[2], Sunmoon Kim[2], Kijae Sung[2], Taehyun Park[1], Ho-Jin Lim[3], Zaeem Bin Babar[3], Seokwon Kang[1], KyungHoon Kim[1], Ban Ji Hee[1] and Taehyoung Lee[1] [1] Hankuk University of Foreign Studies, South Korea [2] National Institute of Environmental Research, South Korea [3] Kyungpook University, South Korea
PC5	Calibration of a Dylos monitor in coal and biomass combustion	Hyunkyung Ban*[1], Boram Lee[1], Kiyoung Lee[1] [1] Seoul National University, South Korea
PC6	Evaluations and comparisons of the gravimetric and continuous method (beta attenuation monitor (BAM)) for the measurement of PM 2.5 mass concentration in South Korea	Thao Thi Le*[1], Jongbae Heo[2], Hwajin Kim[1] [1] Korea Institute of Science and Technology, South Korea [2] Seoul National University, South Korea
PC7	Effect of optical path length and air flow rate on a NDIR analyzer	Yong-Hwan Oh*[1], Trieu-Vuong Dinh[1], Ji-Won Ahn[1], In-Young Choi[1], Gao Bo[1], Joo-Yeon Lee[1], Dong-June Kim[1], Jo-Chun Kim[1] [1] Konkuk University, South Korea
PC8	Short-term and long-term stability of dimethyl sulfide primary standard gas mixtures at nanomole per mole levels in cylinders with different internal wall treatment	Ji Hwan Kang*[1, 2], Mi Eon Kim[1], Yong Doo Kim[1], Sangil Lee[1] [1] Korea Research Institute of Standards and Science, South Korea [2] Chungnam National University, Republic of Korea
PC9	Spectral Resposivity and Wavelength Calibration of High Resolution FTIR System for Atmospheric Gas Measurement	Aditya Achmadi*[1, 2], Jeongsoon Lee[1, 2], Yun-seong Park[1, 2] , and Seung-nam Park[1, 2] [1] Center of Gas Analysisi, KRISS, South Korea [2] Universities of Science and Technology, KRISS, South Korea
PC10	A Study on particle size distribution of PM and methods of the effective evaluation	Na Rae Kim*[1], Shin Do Kim[2] [1] Korea Expressway Corporation Research Institute, South Korea [2] The University of Seoul, South Korea
PC11	Development of Outdoor Dust Collector using Soap Bubble	Jeongmin Kim*[1], Hyeon-Jeong Choi[2] [1] Korea Science Academy of Kaist, South Korea [2] Korea Science Academy of KAIST, South Korea
PC12	White plume opacity measurement using digital photography-based technique	H.K.Son*[1], Na Rae Lee[1] [1] Kosin University, South Korea
PC13	Development and Evaluation of an In-situ Analyzer for Gaseous CO2 Absorbent	Bo-mi Choi*[1], Afzal Aqeel[1] and Ho-Jin Lim[1] [1] Kyungpook National University, South Korea
PC14	Performance evaluation of real-time light scattering fine particle dust monitor in indoor and outdoor environments Instructions	Seungshik Park*[1] and Joon-Ho Ryu[2] [1] Chonnam National University, South Korea [2] LABCO Ltd, South Korea
PC15	An experiment of Infrared source selection for a non-dispersive infrared analyzer	Gao Bo*[1], Trieu-Vuong Dinh[1], In-Young Choi[1], Ji-Won Ahn[1], Yong-Hwan Oh[1], Joo-Yeon Lee[1], Dong-June Kim[1], Jo-Chun Kim[1] [1] Konkuk University, South Korea
PC16	Effects of tube material on the performance of a desolvator	Joo-Yeon Lee*[1], Trieu-Vuong Dinh[1], Ji-Won Ahn[1], In-Young Choi[1], Yong-Hwan Oh[1], Gao Bo[1], Dong-June Kim[1], Jo-Chun Kim[1] [1] Konkuk University, South Korea

PC17	Fog Monitoring Using an IP Camera	Kyungwon Kim[1] [1] Gyeongju University, South Korea
PC18	Measurement of an Image Visual Range with Altitude Using an IP Camera	Kyungwon Kim[1] [1] Gyeongju University, South Korea
PC19	Statistical results of the EANET Inter-Laboratory Comparison project according to ISO13528	Takashi Kaminoyama*[1], Kumiko Nakamura*[1], Keiichi Sato*[1], Ken Yamashita*[1] [1] Asia Center for Air Pollution Research, South Korea
PD Session) Air quality and Health		
PD1	Comparison of Phytoncide Concentrations by Forest Type in Forest Recreation Areas	Yongki Lee*[1] [1] Gyeonggi-do Institute of Health & Environment, South Korea
PD2	Obesity strengthens effects of long-term ambient air pollution on lung function in Korean adults	Hyun-Jin Kim*[1], Yong-Seok Seo[2], Jin-young Min[1], Kyoung-bok Min[3], Jin-Ho Park[4], Jae Moon Yun[4], Hyuktae Kwon[4], Jong-Il Kim[5] and Belong Cho[4] [1] Seoul National University, South Korea [2] Kangwon National University, South Korea [3] Seoul National University, South Korea [4] Seoul National University Hospital, South Korea [5] Seoul National University Graduate School, South Korea
PD3	Detoxification of Particulate Matter 2.5 (PM2.5) by photocatalyst supported on quartz fiber filter	Kazuhiro Misawa[1], Yuki Kumai[1] and Yoshika Sekine[1] [1] Tokai University, Japan
PD4	Simple and rapid measurement of oxidative potential of PM2.5 by DTT assay employing Flow Injection Analysis	Yuki Kumai*[1], Kazuhiro Misawa[1] and Yoshika Sekine[1] [1] Tokai University, Japan
PD5	Relationship between Secondhand Smoke Incursion and Allergic Diseases of Children at Homes without Smokers	Jeonghoon Kim*[1,2], Eunsun Lee[1], Kiyoung Lee[2,3], KyooSang Kim[1] [1] Seoul Medical Center, South Korea [2] Seoul National University, South Korea [3] Seoul National University, South Korea
PD6	Seasonal difference of time activity pattern characteristics in Korean population	Sewon Lee*[1], Yelim Jang*[1], Kiyoung Lee*[1] [1] Seoul National University, South korea
PD7	Concentration response functions for health risk assessment of particulate matter in South Korea	Jongsik. Ha*[1], Woong. Jeon[2] [1] Korea Environment Institute, South Korea [2] Seoul National University, South Korea
PD8	Health effects of the interaction of high temperature and ozone in summer: The case of Seoul	Okjin Jung*[1], Jongsik Ha[1] [1] Korea Environmental Institute, Sejong-si, South Korea
PD9	Development of Simulation Personal Exposure Model for PM2.5 Using Time Activity Patterns of Seoul Population	Yunhyung Hwang*[1], Yelim Jang[1] and Kiyoung Lee[1] [1] Seoul National University, South Korea
PD10	A Public Opinion Survey to Identify Odor Perception Differences by Ages	Hyojin Lee*[1], Daekeun Kim[1] [1] Seoul National University of Science and Technology, South Korea
PD11	Fungal Communities in House Dust Associated with the Development of Atopic Dermatitis in Infant	Kil Yong Choi[1], Song-I Yang[2], Mi-Jin Kang[3], Yean Jung Choi[3], Ki-Won Lee[3], Eun Lee[4], Jisun Yoon[5], Hyun-Ju Cho[5], Soo-Jong Hong, MD[5], KyooSang Kim[1] [1] Seoul Medical Center, South Korea [2] Hallym University College of Medicine, South Korea [3] University of Ulsan College of Medicine, South Korea [4] Inje University Haeundae Paik Hospital, South Korea [5] University of Ulsan College of Medicine, South Korea
PD12	Multi-scale assessment of urban population exposure to air pollution in Madrid (Spain)	Rafael Borge*[1], Julio Lumberas[1], Miguel Picornell[2], Pedro García-Albertos[2], Christina Quaassdorff [1], David de la Paz [1], Manuel Álvarez[2] [1] Technical University of Madrid, Spain [2] Nommon Solutions and Technologies, Spain

PD13	Calculation of Specific Pollutants Exposure according to the Local Meteorological Patterns using WRF/HYSPLIT modeling	Hye Yeon An*[1] , Yoon-Hee Kang[2] , Sang-Keun Song[3] and Yoo-Keun Kim[4] [1] Pusan National University, South Korea [2] Pusan National University, South Korea [3] National University, South Korea [4] Pusan National University, South Korea
PD14	Study on Characteristics by Aerodynamic Diameter and Health Risk Assessment and Source Estimation of Airborne Suspended Particulate Matters	Seong Cheon Kim[1] [1] Kunsan National University, South Korea
PD15	A comparative evaluation of the in vitro biological toxicity on fine air pollutant particles	Cho Hyun Ki*[1], Park Chang Kyun[1], Lee Seung Min[1], Shin Han Jae[2], Park Ki Hong[3], Lim Heung Bin[1] [1] Chungbuk National University, South Korea [2] KT&G Research Institute, South Korea [3] Gwangju Institute of Science and Technology, South Korea
PD16	A comparative of in vitro biological toxicity on various ultra fine particles	Cho Hyun Ki*[1], Park Chang Gyun[1], Lee Seung Min[1], Shin Han Jae[2], Park Ki Hong[3], Lim Heung Bin[1] [1] Chungbuk National University, South Korea [2] KT&G Research Institute, South Korea [3] Gwangju Institute of Science and Technology, South Korea
PD17	The mutagenicity comparison of a various ultra-fine particles	Park Chang Gyun*[1], Cho Hyun Ki[1], Lee Seung Min[1], Shin Han Jae[2], Park Ki Hong[3], Lim Heung Bin[1] [1] Chungbuk National University, South Korea [2] KT&G Research Institute, South Korea [3] Gwangju Institute of Science and Technology, South Korea
PD18	Study on Respiratory Effects of Aldehydes from Indoor Residence Measurements	Seong-Min Jeong [1] *, Yoo Jung Kim [1], Ki-Ho Hong [1] and Young Sunwoo [1] [1] Konkuk University, South Korea
PD19	Geographical distribution and Correlation between Asthma death and Concentration of PM10 and PM2.5 at Seoul Metropolitan City in Korea	Woo-Sik Jung[1], Yun-Jeong Choi[1], Eun-Byul Kim[2] and Jong-Kil Park*[1] [1] Atmospheric Environment Information Research Center, South Korea [2] Atmospheric Environment Information Research Center, South Korea
PD20	Study on the identification of mechanism in environmental eye disease caused by airborne particulate matter (PM10, PM 2.5)	Sehyun Han*[1], Soon-Jo Kwon[2], Hyun-Soo Lee[3], Jungwon Seo[4] and Ki-Joon Jeon[1] [1] Inha University, South Korea [2] Inha University, South Korea [3] The Catholic University of Korea, South Korea [4] Hallym University, South Korea
PD21	Industrial Air Pollutants and Its Association with Airway Inflammation (FeNO) among Primary School Children in Kemaman, Terengganu	Anis Syafiqah Kamaruddin[1], Juliana Jalaludin*[1], Titi Rahmawati Hamedon[2] [1] Universiti Putra Malaysia [2] Universiti Putra Malaysia
PD22	The Application Of Biomarker In Determining Genotoxic Potencies Of Poly Aromatic Hydrocarbon (PAHs) Exposure Among Children	Asrul Supu[1], Juliana Jalaludin* [1] and Siti Aishah Muhamad Daud[1] [1] Universiti Putra Malaysia
PE Session) Air quality management		
PE1	TEMP – artists and scientists collaborate for the environment	Elizabeth R. Somervell*[1], Sue Jowsey[2], Marcus Williams[3], Gustavo Olivares[1], Guy Coulson[1], Ian D. Longley[1] and Diane Blomfield [1] National Institute of Water and Atmospheric Research, New Zealand [2] Auckland University of Technology, New Zealand [3] Unitec Institute of Technology, New Zealand
PE2	The effect of Air Quality Management Plan in Seoul Metropolitan Area based on PM10 emission	Hyuk Han*[1], Chang H. Jung[2], Hyunsub Kum[1] and Yong Pyo Kim[3] [1] Seoul National University, South Korea [2] Kyungin Women's University, South Korea [3] Ewha Womans University, South Korea

PE3	Bougainvillea spectabilis and Calotropis procera: Biological tools for phyto-remediation of atmospheric Pb at the roadside environment	Mani Singh*[1] and Nandan[2] [1] Awadhesh Pratap Singh University, India [2] Indian Institute of Technology, India
PE4	Variations of PM10 background concentrations over Korean Peninsula according to the emission reduction scenarios of Northeast Asia	Geum-Hee Yang[1], Cheol-Hee Kim*[1] [1] Pusan National University, South Korea
PE5	Impact of the local government's capabilities on Air Quality of the Region	Hye Yeon Kwon[1], Chang H. Jung[2] and Yong Pyo Kim[3] [1] Seoul National University, South Korea [2] Kyungin Women's University, South Korea [3] Ewha Womans University, South Korea
PE6	Air Quality Improvement and Co-Benefit Analysis on Climate Policies using GAINS-Korea	Jinsu Kim*[1], Jinseok Kim[1], Jung-Hun Woo[1,2†], Younha Kim[2], Ki-Chul Choi[2], Chanjong Bu[2], Yungu Lee[2], Young-Hwan Ahn[3], Sangkyun Kim[4], Daekon Kim[4] [1] Konkuk University, South Korea [2] Konkuk University, South Korea [3] Korea Energy Economic Institute, South Korea [4] National Institute of Environmental Research, South Korea
PE7	Estimating of air quality- climate change co-benefits from carbon free island Jeju	Sang Hoo Song*[1], Yoo Jung Kim[2] Young Sunwoo[3] [1] Konkuk University, South Korea [2] Konkuk University, South Korea [3] Konkuk University, South Korea
PE8	Development of an Integrated Modeling Framework for Greenhouse gas – Air pollutant Management : GAINS-Korea	Jung-Hun Woo*[1,2], Younha Kim[1], Ki-Chul Choi[1], Jinsu Kim[2], Jinseok Kim[2], Chanjong Bu[1], Yungu Lee[1], Young-Hwan Ahn[3] [1] Konkuk University, South Korea [2] Konkuk University, South Korea [3] Korea Energy Economic Institute, South Korea
PE9	GHGs and Air pollutants Unified Information Design System for Environment (GUIDE): An Initial Framework and Function Design	Jung-Hun Woo*[1,2], Younha Kim[1], Ki-Chul Choi[1], Jinsu Kim[2], Jinseok Kim[2], Chanjong Bu[1], Yungu Lee[1], Seungjick Yoo[3], Yoonkwan Kim[4] [1] Konkuk University, South Korea [2] Konkuk University, South Korea [3] Sookmyung Women's University, South Korea [4] GreenEcos, Seoul, South Korea
PE10	Assessment of Crowdedness in Public Transportation in Colombo City, Sri Lanka	Ashoka Samanmali[1], Dr.Barbara Siu Wing Yee[2] [1] Sri Lanka Vehicular Emission Testing Programme. [2] The Hong Kong Polytechnic University
PE11	Health impact cost of containership emissions in Shanghai Yangshan port	Su Song*[1,2] [1] World Resources Institute, China [2] YCC Transport & Climate Change Center, China
PF Session) Air quality modeling and forecasting		
PF1	Atmospheric simulation of flue gas flow from an urban power station	Mi Jeong Park[1], Young Min Jo*[1] and Young Koo Park[2] [1] Kyunghee University, South Korea [2] Kangwon Uninversity, South Korea
PF2	A Numerical Study on the Effects of Building—roof Cooling on Dispersion of Reactive Pollutants in urban street canyons	Soo-Jin Park[1], Wonsik Choi[1], Jae-Jin Kim[1] [1] Pukyong National University, South Korea
PF3	A real-time emergency response plan for accidental exposure of HNS on the sea near Korean peninsula - sensitivity analysis on weather conditions	Jiwon Oh*[1], Sinil Yang[1], Jaiho Oh[1] and Moonjin Lee[2] [1] Pukyung National University, South Korea [2] Korea Research Institute of Ships & Ocean Engineering, South Korea
PF4	Risk Assessment of roadside PM2.5 air quality modeling by hybrid approach of CMAQ and CARPUFF in Seoul, S.Korea	Seung-han Hong[1], Soo-hwan Kim[1], Sang-gyu Lee[1], Dong-chun Shin[2], Young-wook Lim[1] , Yong-jin Lee[1] [1] Yonsei University, College of Medicine, South Korea [2] Department of Preventive Medicine, Yonsei University, South Korea
PF5	A study on evaluation of CFD reliability by using model experiment	Jung-Eun Oh*[1], Kyoung-Eun Kim[1], Yong-Gu Kim[1] and Choon-Keun Bong[1] [1] GREENSOLUS CO.,LTD, South Korea

PF6	Trends in Korean domestic radon research and characteristics of radon concentration distribution in various environments	Cheol-Min Lee*[1], Dong-Hyeon Lee*[2], Jae-Wook Choi*[3], Sul-Bee Lee*[4] [1] Seokyeong University, South Korea [2] EHS Technical Research Center, South Korea [3] Korea University, South Korea [4] Korea Radon Association, South Korea
PF7	Transport/Transformation of Chinese air pollutants using airborne measurements and regional model simulations	Hyo-Jung Lee*[1], Hyun-young Jo[1], jeong-Eon Kang[1], Yu-Jin Jo[1], Geum Hee Yang[1], Shin-Young Park[1], Taehyoung Lee[2], Si-Wan Kim[3,4] and Cheol-Hee Kim[1] [1]Department of Atmospheric Science, Pusan National University, Busan, South Korea [2]Department of Environmental Science, HanKuk University of Foreign Studies, Yongin, South Korea [3]Earth System Research Laboratory, National Oceanic and Atmospheirc Adminstration, Boulder, CO, United States. [4]CIRES, U. of Colorado, Boulder, CO, United States
PF8	Sensitivity of Particulate Matters in the Seoul Metropolitan Area to Emission Reduction from Source Sectors	Changhan Bae[1], Byeong-Uk Kim[2], Hyun Cheol Kim[3,4], Chul Yoo[5] and Soontae Kim*[1] [1] Ajou University, South Korea [2] Georgia Environmental Protection Division, USA [3] NOAA/Air Resources Laboratory, College Park, MD [4] UMD/Cooperative Institute for Climate and Satellites, College Park, MD [5] Climate and Air Quality Research Department Air Quality Forecasting Center, South Korea
PF9	Characterization of air pollutants over North-Eastern India: A regional chemical modeling perspective	Arshini Saikia[1,2], Bhupesh Adhikary[1], Binita Pathak[2], P.S. Praveen[1], Arnico K. Panday[1], Pradip Kumar Bhuyan[2] [1] ICIMOD, International Centre for Integrated Mountain Development [2] Centre for Atmospheric Studies, Dibrugarh University
PG Session) Climate Forcers		
PG1	Long-term variation of global sea spray aerosol flux during 1998-2015	Sang-Keun Song[1], Zang-Ho Shon*[2], Ju-Hee Jeong[3], Minsung Kang[2,3], Youngbaek Son[4], Yeon-Hee Park[1], Seung-Bum Han[1] and Yu-Na Choi[1] [1] Jeju National University, South Korea [2] Dong-Eui University, South Korea [3] Pusan National University, South Korea [4] Jeju International Marine Science Research KIOST, South Korea
PG2	Temporal Variations of CO2 Concentrations and their Impact on Radiative Forcing at Urban Center and Background Sites in Jeju Area	Soo-Jeong Lee*[1], Sang-Keun Song[1], Seung-Bum Han[1] and Ju-Hee Jeong[2] [1] Jeju National University, South Korea [2] Pusan National University, South Korea
PG3	Usability of CO2 flux sites for Vegetation Photosynthesis and Respiration Model over Mixed Vegetation Areas in a Megacity	Changhyoun Park*[1], Hwa Woon Lee[1], and Christoph Gerbig[2] [1] Pusan National University, South Korea [2] Max Plank Institute for Biogeochemistry, Germany PG4
PG4	Measurements of Energy, Water, and Carbon Exchanges in an Artificially Constructed Urban Forest in Korea	Keunmin Lee*[1], Je-Woo Hong[1], Jinkyu Hong[1] [1] Yonsei University, South Korea
PG5	Impacts of Urbanization on Energy, Water, and Carbon Exchanges between the Land and Atmosphere	Je-Woo Hong*[1], Keunmin Lee[1], Sojeong Lee[1], Sang-Dae Lee[1], Jinkyu Hong[1], Yeon-Sik Bong[2], Woo-Jin Shin[2], Kee Wook Yi[2], and Junghwa Chun[3] [1] Yonsei University, South Korea [2] Korea Basic Science Institute, South Korea [3] Korea Forest Research Institute, South Korea

PG6	Characteristics of Greenhouse Gas and Air Pollutant on Small-Medium Ships	Jae D. Cha*[1,2], Chan G. Park[1], Joo Y. Lee[2,3] and Byung H. Park[3] [1] Enviromental Division, Korea Testing Laboratory, South Korea [2] Kyung Hee University, South Korea [3] Anytech Co.,Ltd., South Korea
PG7	Characteristic variations of PM2.5, O3, and greenhouse gases observed at Ocean Research Stations in the Yellow Sea	Hojoon Lee*[1], Hyunjin An[1], Woochul Choi[1], Meehye Lee[1], Jinyong Jung[2], Jongmin Jung[2], Jaesul Shim[2] [1] Korea University, South Korea [2] Korea Ocean Research Development Institute
PG8	Real-time Assessment of Short Lived Climate Pollutants (SLCPs): Indo-Gangetic Plains, India	Mohammad Arif[1], Ramesh Kumar[1], Rajesh Kumar[1*] and Zusman Eric[2] [1] Sharda University, India [2] Institute for Global Environmental Strategies, Japan
PH Session) Contribution of volcanic emission to air quality		
PH1	Volcanic Eruption Worst-case Scenarios near The Korean Peninsula Using Air Parcel Trajectory Analysis	Doyoon Kim [1] *, Yoo Jung Kim [2] , Ki-Ho Hong [3] , Jae Eun Park [4] , and Young Sunwoo [5] [1] * Konkuk University, South Korea [2] Konkuk University, South Korea [3] Konkuk University, South Korea [4] National Disaster Management Research Institute, South Korea [5] Konkuk University, South Korea
PI Session) Emission control and management		
PI1	Quantifying Dry Deposition Flux of Gaseous Oxidized Mercury (GOM)	Pyung-Rae Kim[1], Young-Ji Han[1] [1] Kangwon National University, South Korea
PI2	Mercury emission from Major Source Facilities and Modeling of Atmospheric Movement in Korea and Neighbor Countries	Jin-Ho Sung*[1], Joo-Sung Oh[1], Seung-Ki Back[1], A H M Mojammal[1], En-Song Lee[1], Ha-Na Jang[1], Seong-Heon Kim[1], Yong-Chil Seo[1], Chang-Han Bae[2], Soon-Tae Kim[2] [1] Yonsei University, South Korea [2] Ajou University, South Korea
PI3	Estimation of Trend and Characteristics for Particulate Matter Emission at Air Pollution Sources in the Capital Region	InJo Hwang*[1], SoYoung Kim[1], JaeYeon Ju[1], KyeongMin Kim[1], JongHo Kim[2] [1] Daegu University, South Korea [2] Hanseo University, South Korea
PI4	Air Emission from the Ocean Going Vessels and its Dispersion in a Coastal Area	JungHyun Hong[1], Rajib Pokhrel*[1] and Heekwan Lee[1] [1] Incheon National University, South Korea
PI5	A Study on the Particulate Matter (PM) Ratio of Flue Gas from Large-Scale Stationary Sources	Keewon Jang[1], Jongho Kim[1], Daeil Kang[1], Jungmin Park[1], Seungyoung Lim[1], Sunhwa Heo[1], Hyungcheon Kim[1] and Sangbo Lee[1] [1] Hanseo University, South Korea
PI6	Methodologies to Estimate of NOx Emission from mobile Sources in South Korea	Na Kyung Kim*[1], Ji-Hyung Hong[2] and Yong Pyo Kim[3] [1] Konyang University, South Korea [2] National Institute of Environmental Research, South Korea [3] Ewha Womans University, South Korea
PI7	Future scenario emission inventory for China by various control policy	Younha Kim*[1], Jung-Hun Woo[1, 2]†, Jun LIU [3], Jinsu Kim[2], Ki-Chul Choi[1], Chanjong Bu[1], Jinseok Kim[2], Yungu Lee[1], Sangkyun Kim[4], Jaebum Lee[4] [1] Konkuk University, South Korea [2] Konkuk University, South Korea [3] International Institute for Applied Systems Analysis (IIASA), South Korea [4] National Institute of Environmental Research (NIER), South Korea
PI8	Emission and Control of Particulate Matters for Iron and Steel Industry in China	Xuying Wang *[1,2] and Li Yan[1] [1] Chinese Academy for Environmental Planning, South Korea [2] Tsinghua University, South Korea
PJ Session) Indoor air pollution		
PJ1	Effect of Fans to Minimize the Air Pollution during Door Opening in Winter Season for a Train Cabin	Youngmin Cho* [1] , Duckshin Park [1] , Won-Hee Park [1] , and Soon-Bark Kwon [1] [1] Korea Railroad Research Institute, South Korea

PJ2	Annual determination of indoor temperature, relative humidity, carbon dioxide, noise and illuminance levels in two health care facilities	Boram Lee*[1], Kiyoung Lee[1] [1] Seoul national university, South Korea
PJ3	Difference of Indoor Air Quality in Gers of Mongolia by Two Stove Types	Miyoung Lim*[1], Boram Lee[1], Kiyoung Lee[1] [1] Seoul National University, South Korea
PJ4	Association between Indoor PM2.5 Concentrations in Bars and Different Smoke-free Policies	Jeonghoon Kim*[1,2], Hyunkyung Ban[1,3], Yunhyung Hwang[1,3], Kwonchul Ha[4], Kiyoung Lee[1,3] [1] Seoul National University, South Korea [2] Seoul Medical Center, South Korea [3] Seoul National University, South Korea [4] Changwon National University, South Korea
PJ5	The adverse effect of ventilation facilities on indoor air quality of residential building	Ji-Hoon Seo*[1], Johee Won[1] and Jong-Ryeul Sohn[2] [1] Korea University, South Korea [2] Korea University, South Korea
PJ6	Legal Impact on Indoor Air Quality in Sensitive Population Facilities	Jeong Gyu Moon*[1], Min-Jun Kim[1] and Jong-Ryeul Sohn[2] [1] Korea University, South Korea [2] Korea University, South Korea
PJ7	A Study on Distribution of PM10 and PM2.5 Concentrations in Elderly Care Facilities, Seoul	Hye-Won Lee*[1], Na-Na Jeong[1] and Jong-Ryeul Sohn[1] [1] Korea University, South Korea
PJ8	The analysis of bioaerosols occurrence tendency in dwelling places during winter	Suyeon Lee*[1], Daekeun Kim[1] [1] Seoul National University of Science and Technology, South Korea
PJ9	Indoor air quality management method when using candles	Il Ho Yun [1] , Kyung Bin Lee [1] , Shin Do Kim [1] [1] University of Seoul, South Korea
PJ10	A study on the appropriate location of supply and exhaust for efficient ventilation	Jung-Eun Oh*[1], Kyong-Eun Kim[1], Yong-Gu Kim[1] and Choon-Keun Bong[1] [1] GREENSOLUS CO.,LTD, South Korea
PJ11	A Preliminary Study on Indoor Air Quality for the Development of Risk Assessment Methods for CNS Disturbances	Cheol Min Lee[1], Dong Hyun Lee[2], Jung Il Lee[3] [1] Korea Radon Association, South Korea [2] Hanyang University, South Korea [3] Korea Testing & Research Institute, South Korea
PK Session) Linking air pollution and climate		
PK1	Temporal and Spatial Variations in PM10 aerosol and the Impact of PM2.5 Chemical Components on Direct Radiative Forcing in Jeju Area	Yeon-Hee Park*[1], Sang-Keun Song[1], Yu-Na Choi[1], Soo-Jeong Lee[1] [1] Jeju National University, South Korea
PK2	Temporal Characteristics of Optical Properties and Direct Radiative Forcing due to Different Aerosol Components in Seoul Megacity	Sang-Keun Song*[1], Zang-Ho Shon[2] and Yeon-Hee Park[1] [1] Jeju National University, South Korea [2] Dong-Eui University, South Korea
PK3	Climatic impact of future emissions from Arctic shipping in a coupled chemistry-climate model	Jihoon Seo*[1], Jin Young Kim[1] and Daeok Youn[2] [1] Korea Institute of Science and Technology, South Korea [2] Chungbuk National University, South Korea
PK4	Impact of Climate Change on Regional Air Quality in the Korean Peninsula	Nankyoung Moon*[1], Song-you Hong[2] and Soontae Kim[3] [1] Korea Environment Institute, South Korea [2] Yonsei University, South Korea [3] Ajou University, South Korea
PK5	Tendency of Urban Climate Change and Relation with Urban Forms Using ENVI-met Model	Alvin Jinsung Choi*[1], Hyun-Jeong Choi[2] [1] Korea Science Academy of Kaist, South Korea [2] Korea Science Academy of KAIST, South Korea
PK6	Analysis of the El niño effects and ultra-fine dust	Hye-ji Yang*[1], Sang-woo Cha*[1] and Hyun-jeong Choi[2] [1] Korea Science Academy of KAIST, Busan, South Korea [2] Korea Science Academy of KAIST, Dept. of Physics and Earth Science, South Korea
PL Session) Long-range transport of air pollution		
PL1	New Insight Into Sahara Dust Transport to Croatia	Krešimir Šega*[1], Ivan Bešlić[1] and Silvije Davila[1] [1] Institute for Medical Research and Occupational Health, Croatia

PL2	Analysis of Domestic and Foreign Contributions of PM2.5 High-Concentration Episode in Jeju	Mi-suk Jung*, Kwon-ho Jeon, Hyun-ju Park and Han-sol Lee, Chang-keun Song [1] National Institute of Environmental Research, South Korea [2] National Institute of Environmental Research, Environmental Research Complex, South Korea
PL3	Temporal Variability of Atmospheric Radon-222 Concentrations at Gosan Site of Jeju Island, Korea in 2015	Chang-Hee Kang*[1], Jung-Min Song[1], Jun-Oh Bu[1], S. Chambers[2], [1] Jeju National University, South Korea [2] Australian Nuclear Science and Technology Organisation, Australia
PL4	Assessment of Inner- and Trans- Boundary Air Pollution Impacts by National Emission Control Policy Scenario using the GAINS-Korea	Younha Kim*[1], Jung-Hun Woo[1,2]†, Ki-Chul Choi[1], Jinsu Kim[2], Jinseok Kim[2], Chanjong Bu[1], Yungu Lee[1], Young-Hwan Ahn[3], Sangkyun Kim[4], Daegon Kim[4] [1] Konkuk University, South Korea [2] Konkuk University, South Korea [3] Korea Energy Economic Institute, South Korea [4] National Institute of Environmental Research, South Korea
PL5	Shipboard and ground measurements of atmospheric particulate mercury and total mercury in precipitation over the Yellow Sea region	Duc Luong Nguyen*[1], Jin Young Kim*[2], Shang-Gyoo Shim[2], Young Sung Ghim[3], Xiao-Shan Zhang[4] [1] National University of Civil Engineering (NUCE), Vietnam. [2] Green City Technology Institute, Korea Institute of Science and Technology (KIST), South Korea [3] Hankuk University of Foreign Studies, South Korea [4] Chinese Academy of Sciences, China
PM Session) MAPS 2016		
PM1	Measurement of atmospheric HONO and H2O2 using QC-TILDAS during MAPS-Seoul	Jeonghwan Kim[1], Gangwoong Lee[1], Mark Zahniser[2], Scott Herndon[2], Joon Young Ahn[3] [1] Hankuk University of Foreign Studies, South Korea [2] Aerodyne Research Inc, United States [3] National Institute of Environmental Research, South Korea
PM2	Preliminary Result of MAPS-Seoul Intensive monitoring campaign at Seoul, KOREA (The characteristics of VOCs measured by PTR-TOF-MS)	Hyung-Bae Lim[1], Hye-Jung Shin[1], Jong-Sung Park[1], In-Ho Song[1], Seung-Myung Park[1] and You-Deog Hong[1] [1] National Institute of Environmental Research, South Korea
PM3	Preliminary Result of MAPS-Seoul Intensive monitoring campaign at Seoul, Korea (SMA organic aerosol and their source contribution characterized by AMS measurements)	Hye-Jung Shin[1], Jong-Sung Park[1], In-ho Song[1], Seung-Myung Park[1], Hyung-Bae Lim[1], You-Deog Hong[1] [1] National Institute of Environmental Research, South Korea
PM4	Continuous Monitoring for gases in the Atmosphere by Using High Efficiency Diffusion Scrubber Coupled Ion Chromatography	Jihye Lim*[1], Jinseok Han[1], Dongsoo Lee[2], Jiwon Eom[2], Youdeog Hong[3], Hyejung Shin[3] [1] Anyang University, South Korea [2] Yonsei University, South Korea [3] National Institute of Environmental Research, South Korea
PM5	Neal real time retrieval of aerosol optical properties from the geostationary ocean color imager (GOCI) and its application to the air quality modelings during the MAPS-Seoul campaign	Myungje Choi*[1], Jhoon Kim[1] and Jaehwa Lee[2] [1] Yonsei University, South Korea [2] NASA Goddard Space Flight Center, USA
PM6	Inter-Comparision Measurement of Ambient Ozone Concentration during MAPS-Seoul	Jae Hong Lee[1], Jae Ho Lee[1], Gangwoong Lee[3], Jeonghwan Kim[3] [1] Harim Engineering, Inc., South Korea [2] Harim Engineering, Inc., South Korea [3] Hankuk University of Foreign Studies, South Korea
PM7	Characteristics of organic compounds in PM2.5 at urban and remote areas in Korea during MAPS-Seoul campaign	Ayoung Choi*[1], Hyejeong Shin[2], Mindo Lee[2], Seokwon Kang[3] and JiYi Yi[1,4] [1] Chosun University, South Korea [2] National Institute of Environmental Research, South Korea [3] Hankuk University of Foreign Studies, South Korea [4] Chosun University, South Korea
PM8	PAMs and VOCs monitoring in ambient Air, using SIFT-MS	Ji-Hoon.Lee*[1], Romertta.Kim[1] [1] ATFrontier, South Korea

PM9	Characteristic behavior of Peroxyacetyl nitrate(PAN) in Urban City	Hyeonjeong An [1] , Jeonghwan Kim [1] , Jiseon Lee [1] , Hojoon Lee [2] , Gangwoong Lee* [1] [1] 1 Hankuk University of Foreign Studies, South Korea [2] Korea University, South Korea
PM10	Improvement of VOCs emission speciation profiles for CREATE emissions inventory: Focus on MAPS-Seoul period	Chanjong Bu*[1], Yungu Lee[1], Jinseok Kim[2], Ki-Chul Choi[1], Younha Kim[1], Jinsu Kim[2], Young-Kee Jang[3], Soontae Kim[4], Jung-Hun Woo[1,2]† [1] Department of Advanced Technology Fusion, Konkuk University, South Korea [2] Division of Interdisciplinary Studies, Konkuk University, South Korea [3] Suwon University, South Korea [4] Ajou University, South Korea
PM11	A Comparison between the Concentration Understanding and the Measurement Method of the Nitrogenous Compound (NO, NO_2, NOx, NOy) in Seoul Metropolitan during the MAPS-Seoul 2016	S.H.Park*[1], D.S.Kim[1], S.H. Kim[1], J.D. Kim[1], J.Y.Ahn[2] [1] Kunsan National University, South Korea [2] National Institute of Environmental Reaserch, South Korea
PM12	Measurement and analysis of NO, NO2, NOy and O3 at an urban site during megacity air pollution study at Seoul (MAPS-Seoul), Korea	Deug-Soo Kim*[1], J.-Y. Ahn[2] [1] Kunsan National University, South Korea [2] National Institute of Environmental Engineering, South Korea
PM13	Preliminary Results of H2O2 and HONO measured at Olympic Park during MAPS-Seoul 2016	[1] Korea University, South Korea [2] National Institute of Environmental Research, South Korea
PM14	Study on characteristics of heavy metals in the ambient fine particles (PM2.5) of Seoul, South Korea	Yunseok Im*[1], Seungphil Kim[1], Seogju Cho[1], Soomi Eo[1] and Kwon Jung[1] [1] Seoul Metropolitan Government Research Institute of Public Health and Environment, South Korea
PM15	Optical remote sensing of NO2 and SO2 with a ground-based MAX-DOAS instrument near the Pyeongtaek power plant during MAPS-Seoul 2016 Campaign	Jihyo Chong[1], Young J. Kim[1], J. H. Kim[2], and Jhoon Kim[3] [1] Advance Environmental Monitoring Research Center, GISTSouth Korea [2] Pusan National University, South Korea [3] Yonsei University, South Korea
PM16	Study of New Particle Formation and Growth Downwind of Seoul during MAPS-Seoul 2016	Pilho Kim*[1], Yongjoo Choi[1], and Young sung Ghim[1] [1] Hankuk University of Foreign Studies, South Korea
PM17	MAPS-Seoul: Distributions real time Black Carbon and PM2.5 Concentrations	Dongjae Lee1, Hyoyoung Lee[2], Jiwon Min[1], Yujin Jung[1], Enbee Shin[1], Jiwoong Lee[1], Yehoon Lee[1], Sungroul Kim[1] [1] Soonchunhyang University, South Korea [2] SCINCO, South Korea
PM18	Semi-continuous measurement and characteristics of water-soluble organic carbon and ions of PM2.5 aerosol with PILS-TOC-IC in Baengnyeong island during MAPS-Seoul 2016	Seokwon Kang*[1], Dajeong Park[2], Min-Suk Bae[2], Hyejung Shin[3], Mindo Lee[3], Youngkyo Seo[3], Jinyoung Choi[3], Donghee Jung[3], Seokjun Seo[3], Kyunghoon Kim[1], Gyutae Park[1], Jihee Ban[1] and Taehyoung Lee[1] [1] Hankuk University of Foreign Studies, South Korea [2] Mokpo National University, South Korea [3] National Institute of Environmental Research, South Korea
PM19	Chemical composition of aerosol measurements in the air pollution plume during MAPS-Seoul	Taehyun Park*[1], Yury Desyaterik[2], Jaebum Lee[3], Yongjae Lim[3], Junyoung Ahn[4], Jinsoo Park[4], Jongho Kim[5], Soobog Park[6], Jeffrey Collett[2], and Taehyoung Lee[1] [1] Hankuk University of Foreign Studies, South Korea [2] Colorado State University, United States [3] Air Quality Forecasting Center, National Institute of Environmental Research, South Korea [4] Climate & Air Quality Research Department, National Institute of Environmental Research, South Korea [5] Department of Environmental Engineering, Hanseo University [6] Department of Flight Operation, Hanseo University

PM20	Development of the Comprehensive Inventory for Anthropogenic Emissions in support of the MAPS-Seoul Field Campaigns	Jung-Hun Woo*[1,2], Younha Kim[1], Ki-Chul Choi[1], Chanjong Bu[1], Yungu Lee[1], Jinseok Kim[2], Jinsu Kim[2] [1] Department of Advanced Technology Fusion (DATF), Konkuk University, South Korea [2] Division of Interdisciplinary Studies, Konkuk University, South Korea
PM21	High Time-Resolution Variations of Inorganic Ion and Black Carbon Concentrations of PM2.5 Downwind of Seoul	Jisoo Park*[1], Yongjoo Choi[1] and Young Sung Ghim[1] [1] Hankuk University of Foreign Studies, South Korea
PM22	An analysis of AERONET aerosol optical depth and Pandora O3 and NO2 over Korea during the MAPS campaign	Woogyung Kim*[1], Myungje Choi[1], Jhoon Kim[1], Hana Lee[1], Heesung Chong[1], Hyunkwang Lim[1], Seoyoung Lee[1] [1] Yonsei University, South Korea
PN Session) Mega-city Air Quality - current status and prospects		
PN1	Influence of a heavily polluted atmosphere on abundance of Fluorescent Bioaerosol. A case study in Beijing	Oscar A. Fajardo*[1], Jingkun Jiang[1,2], Weizhuo Yan[1] and Jiming G. Hao[1,2] [1] Tsinghua University, China. [2] State Environmental Protection Key Laboratory of Sources and Control of Air Pollution Complex, China
PN2	Levels of benzo(a)pyrene in the air of Zagreb, Croatia	Gordana Pehnec*[1], Ivana Jakovljević[1], Anica Šišović[1] and Vladimira Vađić[1] [1] Institute for Medical Research and Occupational Health, Croatia
PN3	Trends of nickel, arsenic, cadmium and lead in PM10 in Zagreb, Croatia	Jasmina Rinkovec*[1], Silva Žužul[1] and Gordana Pehnec[1] [1] Environmental Hygiene Unit, Institute for Medical Research and Occupational Health, Croatia
PN4	Analysis of high concentration of SO2 at 300m agl over Tokyo in December 2015	Kiyotaka. Tanaka*[1], Hiroshi. Hayami[1, 2], Kazuhiko. Miura[1], Syuichi. Itahashi[2], Hiroyuki. Saino[1] and Shinji. Saito[3] [1] Tokyo University of Science, Japan [2] Central Research Institute of Electric Power Industry, Japan [3] Tokyo Metropolitan Research Institute for Environmental Protection, Japan
PN5	High Concentration Episodes of Particulate Matter in Daejeon area during the spring of 2016	JeongAh Yu*[1], MinHee Lee[1], Taekyung Hwang[1], Youngsook Lyu[1], YuDeok Hong[1] and JiHyeong Hong[1] [1] National Institute of Environmental Research, South Korea
PN6	Innovative technologies for the assessment and improvement of urban air quality (TECNAIRE-CM)	Rafael Borge*[1], Adolfo Narros[1], Fernando Martín[2], Begoña Artíñano[2], Francisco José Gómez-Moreno[2], Carlos Yagüe[3], Alfonso Saiz-López[4] [1] Technical University of Madrid, Spain [2] Center for Energy, Environment and Technology (CIEMAT), Spain [3] University Complutense of Madrid, Spain [4] Institute of Physical-Chemistry "Rocasolano". Spanish National Research Council (CSIC), Spain
PN7	Analysis of Long Term Trends of PM10 and Ozone from 2001 to 2015 using KZ filter in Busan, Korea	Woogon Do*[1], Woosik Jung[2] [1] Busan Metropolitan City Institute of Health and Environment, South Korea [2] Inje University, South Korea
PN8	Assessment of air pollution exposures in slums of Mumbai, India	Abhay Anand*[1], Saurabh Lohe[1], Darwin Verghese[1], Harish C. Phuleria[1,2] [1] Centre for Environmental Science and Engineering, IIT Bombay, India [2] Interdisciplinary Programme in Climate Studies, IIT Bombay, India
PN9	The distribution characteristics of respirable fine particles matter in Busan, Korea	Yongsik Hwang*[1], Dongmug Kang[2], Dongwan Kim[3] and Byung-il Jeon[4] [1] Medical Research Institute, Pusan National University, South Korea [2] Dept. Preventive & Occupational Medicine, School of Medicine, Pusan National University, South Korea [3] Silla Environmental Consulting Co., Ltd., South Korea [4] Silla University, South Korea

PO Session) Chemistry of photo-oxidants		
PO1	Comparison of air pollutant concentration in relation to NOX-VOC-O3 sensitivity in urban environment of Sri Lanka	Perera G.B.S.*[1], Manthilake M.M.I.D.[1], Sugathapala A.G.T. [1], and Lee C.S.[2] [1] University of Moratuwa, Sri Lanka [2] Hong Kong Polytechnic University, Hong Kong
PO2	A Study of High Ozone Episodes in Seoul as a Function of Meteorological Conditions by CMAQ "Process Analysis"	Jun-Sup Sin*[1], Yoo-Jung Kim[2], Young Sunwoo[1] [1] Department of Environmental Engineering, Konkuk University, South Korea [2] Social Eco-Tech Institute Konkuk University, Korea
PO3	Long-term trend of ozone concentration in South Korea inferred from ground and satellite observation data	Cho Ara[1], Kim Seungyeon[1], Chang Limseok[1], Kim Jiyoung[1], Choi Wonjun[1], Moon Kyung-jung[1], Kim Deokrae[1], Kim Sangkyun[1], Hong Jihyung[1] [1] National Institute of Environmental Research, South Korea
PO4	Temporal and spatial characteristics of ozone and ozone precursors in a downwind area of Seoul Metropolitan	Jin Soo Park[2], Jiseon Lee*[1], Gangwoong Lee[1] [1] Hankuk University of Foreign Studies, South Korea [2] National Institute of Environmental Research, South Korea
PO5	Seasonal and Vertical Distribution of PAN at Taehwa Research Forest during 2012~2013	Junsu Gil*[1], Meehye Lee[1], Bomi Yoon[1], Sohyun Park[1] [1] Korea University, South Korea
PO6	Determination of Peroxyacetyl Nitrate (PAN) onboard R/V Gisang1 in the Yellow sea and its implication for ship emissions	Bomi Yoon[1], Sohyun Park[1], Meehye Lee[1], Minsu Park[2], Seong Soo Yum[2], Gangwoong Lee[3], Beomcheol Shin[4], Sangbum Ryu[4] [1] Korea University, South Korea [2] Yonsei University, South Korea [3] Hankuk University of Foreign Studies, South Korea [4] National Institute of Meteorological Sciences, South Korea
PO7	Measurement of nitrous acid (HONO) at Taehwa Research Forest and implication on heterogeneous formation of HONO and O3 formation	Yonghyun Kim*[1], Hyunjin An[1], Junsu Gil[1], Meehye Lee[1] [1] Korea University, South Korea
PP Session) Remote sensing to measure the air quality		
PP1	Estimation of surface nitrogen dioxide mixing ratio in America using the OMI NO2 column data	J. Yeo*[1], H. Lee[2] and D. Kim[1] [1] Division of Earth Environmental System Science, Pukyong National University, South Korea [2] Department of Spatial Information Engineering, Pukyong National University, South Korea
PP2	Estimation of ground-level nitrogen dioxide mixing ratio from the OMI satellite data in South Korea	D. Kim*[1], H. Lee[2] and J. Yeo[1] [1] Division of Earth Environmental System Science, Pukyong National University, South Korea [2] Department of Spatial Information Engineering, Pukyong National University, South Korea
PQ Session) Renewable energy and air quality		
PQ1	Seasonal Comparison of Generating Efficiencies in 2 Different Photovoltaic Systems	Shin-Young Kim*[1], Hyun-Goo Kim[1], Gil-Soo Jang[2], Chang-Yeol Yun[1], Yong-Heack Kang[1], Hyun-Jin Lee[3], Hyeong-Dong Park[4] and Da-Eun Yun[4] [1] Korea Institute of Energy Research, South Korea [2] Korea University, South Korea [3] Kookmin University, South Korea [4] Seoul National University, South Korea
PQ2	New and Renewable Energy Resource Map of Korea	Hyun-Goo Kim*[1], Yong-Heack Kang[1], Chang-Yeol Yun[1], Chang-Ki Kim[1] and Jin-Young Kim[1] [1] Korea Institute of Energy Research, South Korea
PQ3	Establishment Study on Construction and Evaluation of A Simple Ensemble Prediction System for Wind Power Forecasting	Jin-Young Kim[1], Hyun-Goo Kim*[1], Yong-Heack Kang[1] and Chang-Yeol Yun[1] [1] Korea Institute of Energy Research, South Korea
PQ4	A derivation of correction factor to solar irradiance for clear sky	Chang K. Kim*[1], Hyun-Goo Kim[1] and Yong-Heack Kang[1] [1] Korea Institute of Energy Research, South Korea

PQ5	Optimized NOx Emission Factor and Ozone Initial State through Variational Data Assimilation and Its Impact on Air Quality Prediction	Soon-Young Park*[1], Dong-Hyeok Kim[1], Soon-Hwan Lee[2] and Hwa Woon Lee[3] [1] Institute of Environmental Studies, Pusan National University, South Korea [2] Department of Earth Science Education, Pusan National University, South Korea [3] Division of Earth Environmental System, Pusan National University, South Korea
PQ6	High performance dye-sensitized solar cells with Cu/N-doped TiO2 photoelectrode	Tae-Oh Kim*[1], Jun-Yong Park[1] and Min-Jun Lee[1] [1] Kumoh National Institute of Technology, South Korea
PQ7	High production of Re-newable energy sources by reducing PET waste water using a electrochemical method	Tae-Oh Kim*[1], Min-Ho Han[1] and Yong-Hoo Kim[1] [1] Kumoh National Institute of Technology, South Korea
PR Session) Emission source measurement		
PR1	Assessment of dominant sources of air pollution in the vicinity of an oil-refinery	Ivan Bešlić[1], Krešimir Šega[1], Silvije Davila[1], Ranka Godec[1], Mirjana Čačković[1], Ivana Jakovljević[1] [1] Institute for Medical Research and Occupational Health, Croatia
PR2	Physical and chemical properties and toxicity of fine particles generated from coal combustion	HungSoo Joo[1], Tsatsa Batmunkh[1], Jiyi Lee[2], Kwangyul Lee[1], Lucille Joanna S. Borlaza[1] and Kihong Park*[1] [1] Gwangju Institute of Science and Technology (GIST), South Korea [2] Chosun University, South Korea
PR3	Woodburner research in New Zealand	Elizabeth R. Somervell*[1], Guy Coulson[1] and Richard Bian[1] [1] National Institute of Water and Atmospheric Research, New Zealand
PR4	Air Quality Assessment for Operation of Power Plants in South Korea	Nankyoung Moon*[1], Jihyun Seo[1], Jongsik Ha[1], and Soontae Kim[2] [1] Korea Environment Institute, South Korea [2] Ajou University, South Korea
PR5	Characteristics of PM2.5 produced from Biomass burning aerosols	Kwangyul Lee*[1], Shila Maskey[1], Arom Seo[1], Lucille Borlaza[1], Min-Suk Bae[2], and Kihong Park[1] [1] School of Earth Sciences and Environmental Engineering, South Korea [2] Mokpo National University, South Korea
PR6	Influencing Factors on Air-Surface Exchange Flux of Mercury from Forest soils	Jae-In LEE*[1], Pyung-Rae KIM[1], Soo-Hyeon LEE[1], Young-Ji HAN[1] [1] Kangwon National University, South Korea
PR7	Impact Analysis of Air Pollution Emitted from Large Stationary Emission Sources	Seungmin Lee*[1] and Greem Lee[2] [1] Korea Environment Institute, South Korea [2] Seoul National University, South Korea
PR8	A Study on the Development of Advanced Test Method for Mercury Compounds in Flue Gas	Jeonghun Kim[1], Daeil Kang[1], Jungmin Park[1], Hyungchun Kim[1], Heejin Kim[1], Jonghyeon Kim[1], Junghwa Cho[1], Sangbo Lee[1] [1] National Institute of Environmental Research, South Korea
PR9	Emission characteristics of particulate matter (TPM, PM10, PM2.5) from bituminous coal-fired power plant in Korea	Sehyun Han*[1], Young-Ho Kim[1], Je-Ah Woo[1], Ki-Joon Jeon[1] and Yong-Won Jung[1] [1] Inha University, South Korea
PR10	The Concentration of PM10, PM2.5 from Stationary Source	Jeonghun Yu[1], Seulgi Lim[1], Jongho Kim[1], Jeongjoo Lee[2] [1] Hanseo University, South Korea [2] Yong-In University, South Korea
PR11	Characteristics of carbonaceous aerosol composition in PM2.5 collected at smoke from coal and diesel engine combustion	Yu Woon Chang[1], Min Han Park[2], Hung Soo Joo[2], Ki Hong Park[2], Ji Yi Lee*[1] [1] Chosun University, South Korea [2] Gwangju Institute of Science and Technology, South Korea
PR12	Analytic Study on VOCs Content in Consumer Products	Jun-Min Jeon*[1,4], Sae-Bom Park[1], Jeong-Seok Chae[1], Kyung-Chul Oh[1], Sung-Cheol Hwang[1], Ok-Ju Song[1], Mi-Kyung Jang[1], Jin-Seok Han[2], Jeong-Eun Oh[3], Choon-Keun Bong[3] [1] Green Environment Complex Center [2] Anyang University, South Korea [3] Greensolus Co. Ltd. [4] Kyung Hee University

PS Session) The air quality monitoring and characteristics of urban air pollutions		
PS1	Development of lightning scattering method correct equation for reliability of particulate matter (PM10) concentration measurement results in subways	Kim Ho Hyun*[1,3], Kang Dae Ryong[2], Gwak Yoon Kyung[3], Yang Seon Hee[3], Kim Hong-Gi[4], Yoon Seung-Wook[4] [1] Pyeongtaek University, South Korea [2] Ajou University Medical Center, South Korea [3] Pyeongtaek University, South Korea [4] Green Environment Industrial Institute, South Korea
PS2	The Potential of Wireless Sensor Networks for Monitoring Air Pollution at high temporal and spatial Resolution with high Accuracy	Philipp Breitegger*[1] and Prof. Alexander Bergmann[1] [1] Institute of Electronic Sensor Systems, TU Graz, Austria
PS3	A Study on the Data Quality Control Program for the Ambient Air Monitoring System in Korea	Sun-Hye Kim*[1], Tae Young Kim[1], Dae Gun Park[1], Eun-Hwa Choi[2], Seung-Muk Yi[1] and Jong-Bae Heo[3] [1] Department of Environmental Health, School of Public Health, Seoul National University, South Korea [2] Asian Institute for Energy, Environment & Sustainability, Seoul National University, South Korea [3] Institute of Health and Environment, Seoul National University, South Korea
PS4	Characteristics of carbonaceous aerosols in PM2.5 at a background site in Korea	Jong Sik Lee*[1], Eun Sil Kim[2], Yong Pyo Kim[3], Chang Hoon Jung[4], Yu Woon Jang[1], Ji Yi Lee[1,5] [1] Chosun University, South Korea [2] National Institute of Meteorological Sciences Anmyeondo Global Atmosphere Watch Station, South Korea [3] Ewha Womans University, South Korea [4] Kyungin Women's College, South Korea [5] Chosun University, South Korea
PS5	Classification method and its scale analysis of Severe Haze observed from 2011 to 2013 in Korea	Wen-Ting Zhang[1], Kyu-Min Lee[1], Seung-Hee Eun[1], Byung-Gon Kim*[1], Sang-woo Kim[2], Jin-Soo Park[3] [1] Gangneung-Wonju National University, South Korea [2] Seoul National University, South Korea [3] National Institute of Environmental Research, South Korea
PS6	Analysis of Trends in Air Quality and of South Asian Haze in Klang Valley, Malaysia	Md. Masud Rana, Norela Sulaiman[1] [1] University Kebangsaan Malaysia
PT Session) The influences of air quality to urban weather		
PT1	Diffusion Simulation of the Pollutant According to the Surface and Vertical Observation Data Assimilation in the Planetary Boundary Layer	Hyun-Jeong CHOI [1] [1] Korea Science Academy of KAIST, South Korea
PT2	The Impact of Trees on Flow and Pollutant Dispersion in an Street Canyon	Geon Kang[1], Jae-Jin Kim[1] [1] Pukyong National University, South Korea
PT3	Effects of Turbulent Schmidt number and Inflow Wind Speed on Pollutant Dispersion in a Street Canyon	Jang-Woon Wang[1], Jae-Jin Kim[1] and Won-Sik Choi[1] [1] Pukyong National University, South Korea
PT4	Analysis of aerosol feedback effects of the two-way coupled WRF-CMAQ system on meteorological fields in the Korean Peninsula	JungWoo Yoo*[1], DongHyeok Kim[2], SoonYoung Park[2] and HwaWoon Lee[1] [1] Div. of Earth Environmental System, Pusan National University, South Korea [2] Instituted of Environment Studies, Pusan National University, South Korea
PT5	Estimation of Source Areas of PM2.5 According to The Airflow Patterns in Busan, Korea	Woogon Do*[1], Woosik Jung[2] [1] Busan Metropolitan City Institute of Health and Environment, South Korea [2] Inje University, South Korea

PT6	Characteristics of Heavy Snowfall and Snow Crystal Habits in the ESSAY (Experiment on Snow Storms At Yeongdong) Campaign in Korea	Dae-Hong Koh[1], Dae-Kyeong Seong[1], Won-Seok Seo[1,2], Seung-Hee Eun[1], Byung-Gon Kim*[1], A-Reum Ko[1,3], Byeong-Cheol Choi[4] [1] Gangneung-Wonju National University, South Korea [2] Korea Polar Research Institute, South Korea [3] Applied Meteorology Research Division, National Institute of Meteorological Sciences, South Korea [4] High Impact Weather Research Center, National Institute of Meteorological Research, South Korea
PT7	A Case Study on Inversion Layers in Busan, Korea: Generation and their Impact on Air Quality	Seo Pyosuk*[1], Juhee Lee[2] [1] Yonsei University, South Korea [2] Seoul National University, South Korea
PT8	Changes in visibility with the meteorological parameters and PM2.5, Busan, Korea	Gee-Hyeong Park*[1], Eun-Chul Yoo[1], Dae-Young Jeon, Jeong-Goo Cho[1] and Byeong-Kyu Lee[2] [1] Busan Institute of Health and Environment, South Korea [2] University of Ulsan, South Korea
PU Session) The progress in air pollution control technologies		
PU1	Reducing Traditional brick kiln Emission in Pakistan	Sajid Mahmood[1] [1] Chemist (Air), Pakistan Environmental Protection Agency
PU2	Improved and Selective removal of CO2 using nitrogen doped biochar beads as a green adsorbent	Minh-Viet Nguyen[1], Byeong-Kyu Lee*[1]
PU3	Treatment of hydrogen fluoride generated from the SF6 decomposition process using an electron beam	Jun-Hyeong Park[1], Tae-Hun Kim[1], Chang Yong Choi[2], Seungho Yu[1], Youn-Suk Son*[1] [1] Korea Atomic Energy Research Institute, South Korea [2] Sam Won Electric Power Co., Ltd., South Korea
PU4	Alternative Micro Solution to Diminish Air Pollution Using Zeolith and Active Carbon as Filter	Adistya Maulidya*[1], Ervita Shelvia A[1], Fauziah HB[1], M Andrew R[1], Rizqa Dhafiningtia[1], Ruth Naomi[1] [1] University of Indonesia, Indonesia
PU5	Antimicrobial Activity on Circulation Water of Wet ESP Using Air Ion, Grapefruit Seed Extract and Non-Thermal Plasma	Chang Gyu Woo*[1], Bangwoo Han[1], Hak-Joon Kim[1] and Yong-Jin Kim[1] [1] Korea Institute of Machinery and Materials, South Korea
PU6	Observation of droplet size in electrospray system by various visualization methods	Min-Jeong Oh[1,2], Sung-Hyun Kim[2], Myong-Hwa Lee[1†] [1] Korea Institute of Industrial Technology, South Korea [2] Korea University, South Korea
PU7	Study of PM10, 2.5 reduction associated with the use of the air purifier	Seung-han Hong[1], Hye-rim Son[1], Se-hyung Kim[1], Dong-chun Shin[2], Young-wook Lim[1] [1] Institute for Environmental Research, Yonsei University, South Korea [2] Department of Preventive Medicine, Yonsei University, South Korea
PU8	Charge decay of electret filter by ethanol and isopropyl alcohol exposures	Eun-Seon Park[1, 2], Han-Bin Kim[1], Taesung Kim[2], Myong-Hwa Lee[1†] [1] Korea Institute of Industrial Technology, South Korea [2] Sungkyunkwan University, South Korea
PU9	Decontamination Factor for Pool Scrubbing of Polydisperse Aerosol Particles	Sung Hoon Park[1] [1] Sunchon National University, South Korea
PU10	Comparison of Filtration Properties Between Cartridge Filters and Round Filter Bags	Yun-Haeng Joe*[1], Hyun-Seol Park[1] and Joonmok Shim[1] [1] Korea Institute of Energy Research, South Korea
PU11	Filter Cleaning Performance of Pulse-Jet Baghouse Using Long Filter Bags	Joonmok Shim*[1], Yun Haeng Joe[1] and Hyun-Seol Park[1] [1] Korea Institute of Energy Research, South Korea
PU12	Filtration Characteristics of Low Pressure Drop Cyclone and Bag Filter Hybrid System	Hyun-Seol Park*[1], Yun-Haeng Joe[1] and Joonmok Shim[1] [1] Korea Institute of Energy Research, South Korea
PU13	Field application evaluation for simultaneous reduction of methane and odor from landfill using biocover/biofilter	Jun-Min Jeon*[1,4], Jeong-Seok Chae[1], Kyung-Chul Oh[1], Sung-Cheol Hwang[1], Hee-Wook Ryu, Kyung-Suk Cho[3] [1] Green Environment Complex Center, South Korea [2] Soongsil University, South Korea [3] Ewha Womans University, South Korea [4] Kyung Hee University, South Korea

PU14	Analysis of Applicability of Urea Reducing Agent in the SCR Process at the Thermal Power Plant Operation Condition	Won June Lee[1], Sang Gu Yeo[1], Eui Taek Jeong[1], Nguyen Thi Huong Nhai[1], Jae Rang Youn[1], Jong In Dong*[1] [1] University of Seoul, South Korea
PU15	The comparison of SNCR experiments between urea only and urea-wastewater mixture	Won Hyeon Eom*[1], Seok Ku Jeon[1], Kyung Seun Yoo[1] [1] Kwangwoon University, South Korea
PU16	The Reaction Characteristics of NOx/N2O in SCR Process with Load Variation	Eui-Taek Jeong[1], Won-June Lee[1], Sang-Gu Yeo[1], Geon-Su Na[1], Jong-In Dong*[1] [1] University of Seoul, South Korea
PU17	A New Type of Solution to Removing the Sulfur Trioxide in Flue Gas	Seung-Min Park[1], Eun-young Jo[1], In-seol Yeo[1], Yu-Deuk Kim[2], Chan-gyu Park* [1] Environmental Convergence Technology Center, Korea Testing Laboratory, South Korea [2] HAELIM ENGINEERING, South Korea
PU18	A study on the removal of PM10, PM2.5, CO2 and VOCs using Bio System technology (II)	JongHyung Park*[1], Rajib Pokhrel[2], Heekwan Lee[1] [1] Department of Environmental Engineering, Incheon National University, South Korea [2] Asian Institute for Environmental Research and energy, Incheon National University, South Korea
PU19	Reduction of VOCs in the air using TiO_2	Ye Seul Seong[1], Jin Sik Kim[1], Shin Do Kim[1] [1] The University of Seoul, South Korea
PU20	Effect of pH on UV Photodegradation of N-Nitrosamines in Water	Afzal Aqeel*[1], Bo-mi Choi[1] and Ho-Jin Lim[1] [1] Kyungpook National University, South Korea
PU21	Application of Corona-Discharge Wet-Plasma for the Removals of Odorous Compounds in a Foodwaste Container	Jeonghee Kang[1], Junpyo Cho[1], Youngkwon Park[2] and Jihyeon Song*[1] [1] Sejong University, South Korea [2] University of Seoul, South Korea
PU22	Effects of Curing Temperature of Geopolymer Concrete using Blast-furnace Slag on Absorption Capacity of Carbon Dioxide and Chemical Characteristics	Haeyoung Ahn[1], JiHyeon Song*[1] [1] Sejong University, South Korea
PU23	Improved of CO2 capture by using Fe-nano-zeolite synthesized	Pham -Thi Huong, Byeong-Kyu Lee*, Jitae Kim
PU24	Continuous measurement and biofiltration of VOCs from shipyard painting operation	H.K.Son*[1], Na Rae Lee[2], Kyoung Ha Noh[2] [1] Kosin University, South Korea [2] World Innotech Co. LTD, South Korea
PU25	Adsorption removal and uniform desorption of VOCs from large-scale painting operation	H.K.Son*[1], Na Rae Lee[2] [1] Kosin University, South Korea [2] World innotech Co. LTD, South Korea
PV Session) Traffic related air pollution		
PV1	Characterizing PM in Seoul Subway Tunnels and Developing a Fine Particle Pollution Map	Eun-Sun Lee[1], Min-Bin Park[1], Tae-Jung Lee[1], and Dong-Sool Kim*[1] [1] Kyung Hee University, South Korea
PV2	Re- Introduce of Agricultural Transportation Scheme in Promoting Agricultural Production in The Rural Areas	Michael Adedotun Oke*[1] [1] International Development, Federal Capital Territory [2] Michael Adedotun Oke Foundation, Nigeria
PV3	Tunnel Ventilation Design Guideline on the Korean Expressway	Chulhwan KIM*[1], Hyejin KANG[1] [1] Korea Expressway Corporation Research Institute, South Korea
PV4	Expressway Noise Mitigation Measures used in Korea	Chulhwan KIM*[1], Hyejin KANG[1], Taesum CHANG[1] [1] Korea Expressway Corporation Research Institute, South Korea
PV5	Evaluating Method for Noise Reducing Devices on the Noise Barrier of Korean Expressway	Chulhwan KIM*[1], Hyejin KANG[1], Taesun CHANG[1] [1] Korea Expressway Corporation Research Institute, South Korea
PV6	Suggestions for Reducing Claims with Road Traffic Noise in Korea	Chulhwan KIM*[1], Heeman KANG[1], Taesun CHANG[1] [1] Korea Expressway Corporation Research Institute, South Korea
PV7	Road Traffic Noise Calculation Model used in Korea Expressway	Chulhwan KIM*[1], Taesun CHANG[1], Hyejin KANG[1] [1] Korea Expressway Corporation Research Institute, South Korea

PV8	A study on the PM monitoring and mapping of subway tunnel	Sung Min Ryu[1], Il Ho Yoon[1], Kyong Bin Lee[2], Shin Do Kim[1] [1] Department of Environmental Engineering, University of Seoul, South Korea [2] The Institute of Urban Science, University of Seoul, South Korea
PV9	The Effects of Traffic Growth and Urban Construction on Particulate Matter in Sejong	Hyeji Ju*[1], Gyuwon Shin[1], Jinok Choi[1], Seulgi Kwon[1], Changhan Bae[1], Nankyoung Moon[2] and Soontae Kim[1] [1] Dept. of Enviromental Engineering, Ajou university, Suwon,Korea [2] Environmental Assessment Research Division, KEI, Sejong, South Korea
PV10	Concentrations of Air Pollutants with Change in Traffic Volume in Expressway Tunnels	Hyejin Kang*[1] and Chulhwan Kim[1] [1] Korea Expressway Corporation Research Institute, South Korea
PV11	Effects of Traffic Characteristics on Roadside Air Pollution	Hyejin Kang*[1], Chulhwan Kim[1] and Heeman Kang[1] [1] Korea Expressway Corporation Research Institute, South Korea
PV12	Management Status of Reference Air Pollutants (CO, NOx) for Ventilation in Expressway Tunnels	Hyejin Kang*[1] and Chulhwan Kim[1] [1] Korea Expressway Corporation Research Institute, South Korea
PV13	Development of Mobile Road Dust Monitoring System in Korea	Keewon Jang[1], Kijun Jeon[2], Yongwon Jung[2], Sehyun Han[2], Daeil Kang[1], Seungyoung Lim[1], Sunhwa Heo[1], Sangbo Lee[1] and Jihyung Hong[1] [1] National Institute of Environmental Research, South Korea [2] Inha University, South Korea
PV14	$PM_{2.5}$ Emissions from Jeepneys and Tricycles tested under a wind tunnel setup	Enrique Mikhael R. Cosep[1], and Mylene G. Cayetano*[1,2] [1] University of the Philippines-Diliman, Philippines [2] Department of Science and Technology, Philippines
PV15	Characteristics of PM10 Concentrations in Expressway Tunnels	Hyejin Kang[1] and Chulhwan Kim[1] [1] Korea Expressway Corporation Research Institute, South Korea
PW Session) Other		
PW1	Socio-Economic Status and Environmental Problems Affecting The Fisherfolks Along the River Tributaries of Dagupan City	Dr. Sally A. Jarin, Dr. Rosie S. Abalos and Dr. Nova E. Arquillano

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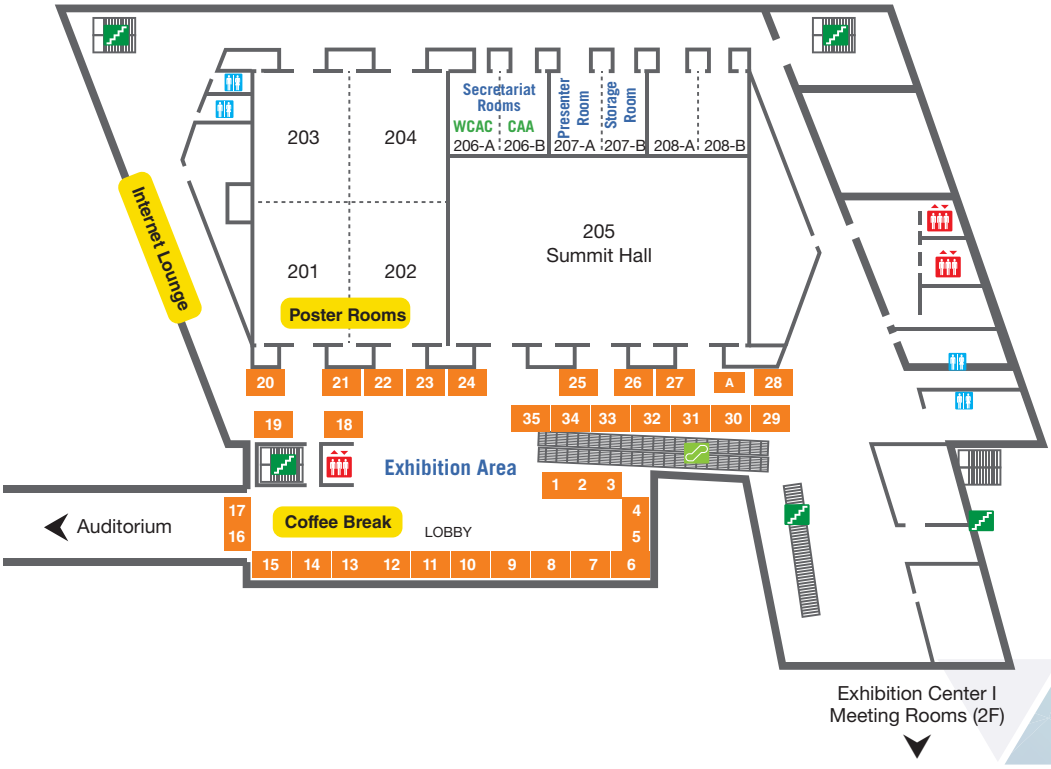
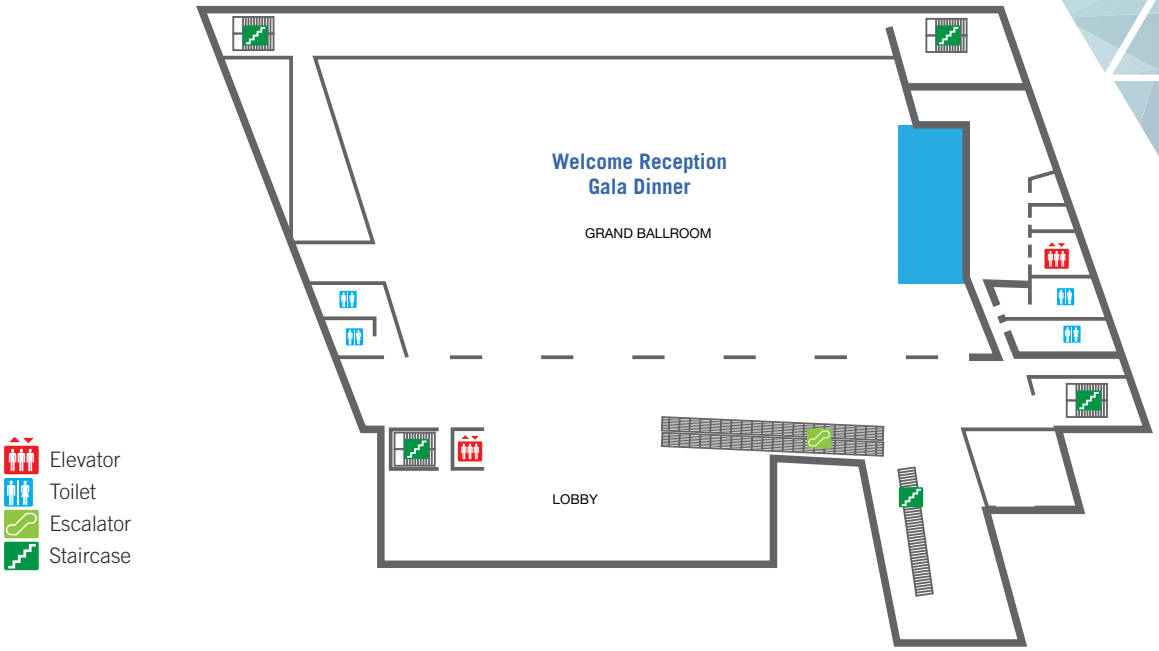
BEXCO MAP

CONVENTION HALL FIRST FLOOR

CONVENTION HALL SECOND FLOOR



CONVENTION HALL THIRD FLOOR



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C : Renault Samsung Motors
D : Faurecia
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1-4 : APM Engineering Co, Ltd
5 : Magee Scientific Corporation
6 : Sunset Laboratory Inc.
7 : EN Instrument Co.,Ltd
8 : TSI Incorporated
9 : Origins Technology
10-11 : PARKOR KOREA INDUS Co., Ltd.
12 : MAHA Maschinenbau Haldenwang GmbH & Co. KG
13-17 : KNJ ENGINEERING, INC.
18 : ACEN Co., Ltd
19 : MAT Co., Ltd.
20 : Harim Engineering,Inc.
21 : ABC Trading
22 : Shinhan Technologies
23 : HCTM.CO.LTD
24 : SCINCO CO.,LTD
25 : Clean Air Asia
26 : Asia Pacific Mercury Monitoring Network
27 : United States Environmental Protection Agency
28 : Hanyang University
29 : KOREA AIR CLEANING ASSOCIATION
30 : National Institute of Environmental Research
31 : Korea Institute of Science and Technology
32 : PM2.5 research consortium supported by MSIP and NRF of Korea (GIST, Gwangju Institute of Science and Technology)
33 : UST (University of Science & Technology)
34 : GREEN TECHNOLOGY CENTER
35 : Sonoma Technology
A : World Clean Air Congress 2018


Centum City Station
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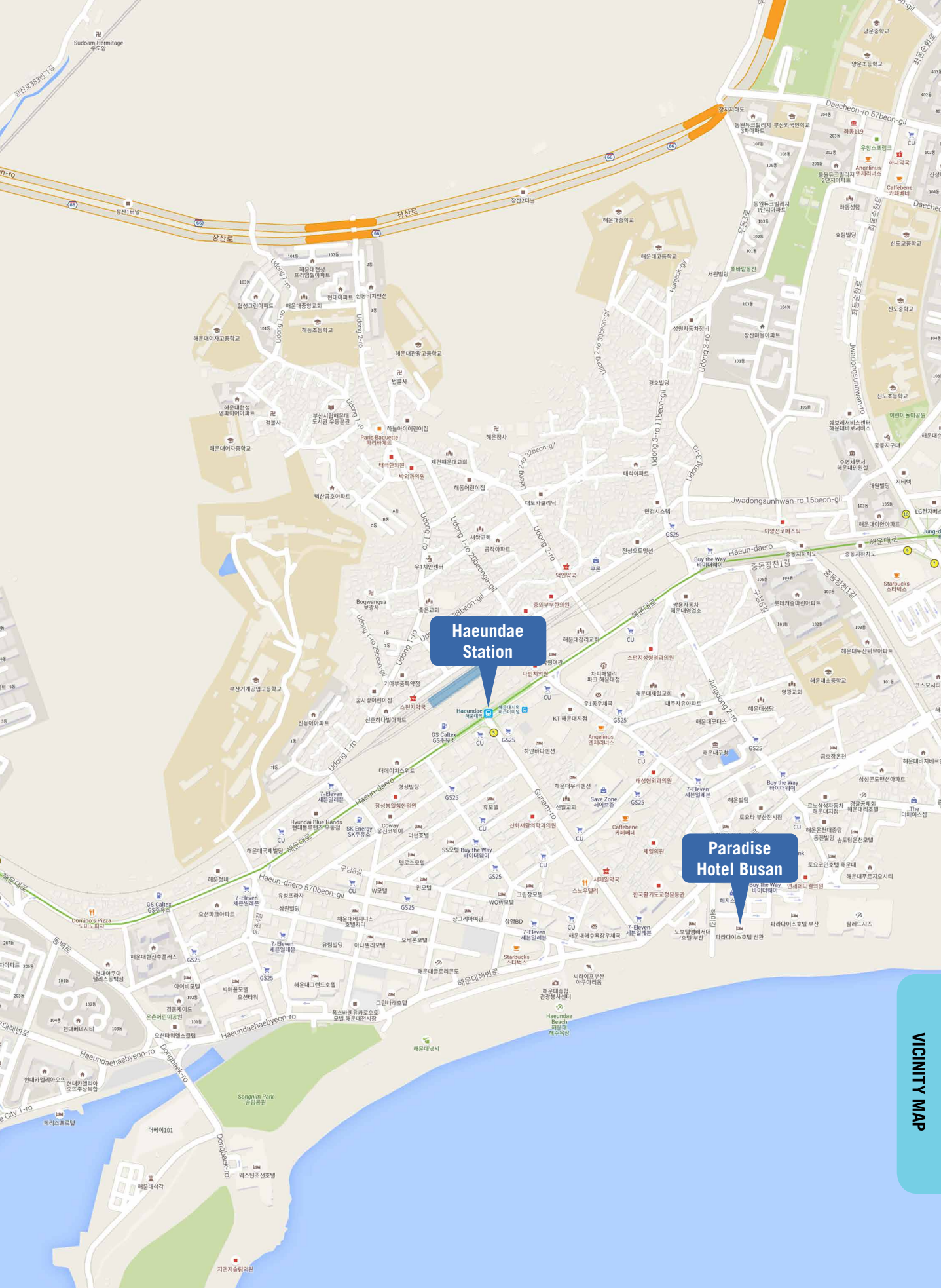
VICINITY MAP


Haeundae Station
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VICINITY MAP

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TOYOTA ENVIRONMENTAL CHALLENGE 2050

To go beyond zero environmental impact and achieve a net positive impact, Toyota has set itself six challenges. All these challenges, whether in climate change or resource and water recycling, are beset with difficulties, however we are committed to continuing toward the year 2050 with steady initiatives in order to realize sustainable development together with society.

CHALLENGE 1

New Vehicle Zero CO_2 Emissions Challenge

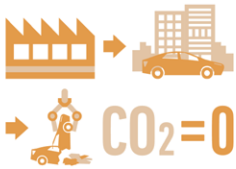
CO_2 0

Toyota has decided to challenge itself to reduce vehicle CO_2 emissions by 90 percent in comparison with 2010 levels, by 2050. We will promote the development of next-generation vehicles and further accelerate the spread of these vehicles.

CHALLENGE 2

Life Cycle Zero CO_2 Emissions Challenge

CO_2 0

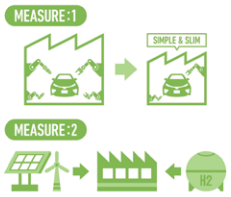


Toyota efforts to reduce to zero not simply the CO_2 emissions produced in traveling and manufacturing, but all CO_2 emissions including in the processes of materials production, and disposal and recycling of vehicles.

CHALLENGE 3

Plant Zero CO_2 Emissions Challenge

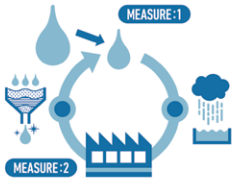
CO_2 0



The two main pillars of our strategy to achieve zero CO_2 emissions at our plants are 1) developing and introducing low-CO_2 technologies with ongoing Kaizen 2) adopting renewable energy sources and utilizing hydrogen energy.

CHALLENGE 4

Challenge of Minimizing and Optimizing Water Usage



In automobile manufacturing, water is used in painting and other processes. Therefore, even a small reduction of its impact on the water environment is important. Our two measures to achieve this are comprehensive reduction of the amount of water used and comprehensive water purification and returning it to the earth.

CHALLENGE 5

Challenge of Establishing a Recycling-based Society and Systems

Toyota has been working for 40 years on the challenge of resource recycling. Going forward, by rolling out to the world the technology and systems evolved in Japan, we will continue working on the challenge of establishing a recycling-based society.

CHALLENGE 6

Challenge of Establishing a Future Society in Harmony with Nature

Toyota has engaged in planting trees at plants, environmental conservation activities in our surrounding area. To establish a society where humans and nature coexist in harmony, we are promoting several activities to connect regions, the world and the future.

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