

## News

# Scientists discuss the state of air quality research in Africa during the First International Conference on Air Quality in Africa – ICAQ’AFRICA2022

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## INTERNATIONAL CONFERENCE ON AIR QUALITY IN AFRICA (ICAQ’Africa 2022)

11-14 October, 2022 (VIRTUAL EVENT)



The African Society for Air Quality (ASAQ) was constituted on the 1<sup>st</sup> of June 2021 to bring together all specialists and researchers whose work aims to improve air quality in Africa. This year the ASAQ organized its first annual conference, which took place on 11-14 October 2022 in a virtual format.

The conference program included technical sessions, keynote talks, special sessions, and roundtable discussions. A total of 66 talks were presented in different sessions organized around several topics. Half of the talks were on pollutants covering topics such as, sources, characterization, monitoring, and forecasting models. Plenary talks were given on diversified topics which included, particulate matter from biomass fuels, microplastics, the impact of atmospheric pollution on climate, remote sensing, air pollution and health effects, the impact of air pollution on development, the urban heat island and mitigation strategies, in-kitchen and in-car aerosol exposure in global cities, and air quality community of practice.

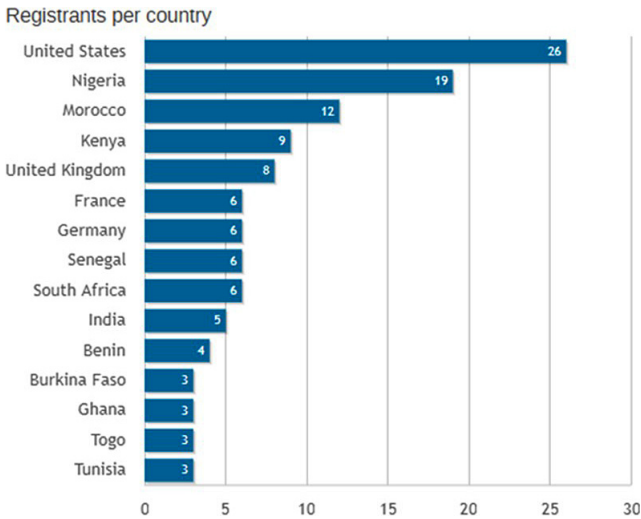
Four roundtable discussions were made to interact with the audience: (1) Air Pollution in Africa: Pollutants, Sources and Data, (2) How Does Air Pollution Affect Africans?, (3) How do Governments Protect Clean Air in Africa? and (4) How to Provide Training and Strengthen Research and Collaboration in the Field of Air Quality. Special sessions, three in total were organised to allow our sponsors (IQAir, CAMS-Net, Clarity Movement, Health Effects Institute) to introduce their respective organizations to the audience.

**Table 1:** Breakdown on the different contributions in the various topics within the program

Technical sessions	Number
Sources and characterization of air pollutants	11
Ambient and indoor air quality measurements	9
Materials for sensing devices	2
Data, Modelling and forecasting	7
Air pollution and health effects	5
Policy, regulation and public awareness	6
Research, collaboration and innovation	4
Poster	6
Plenary	13

There were 160 participants from 47 countries registered with the highest number of online participants recorded at around 85 on the first day. The USA had the highest number of registrants (26) followed by Nigeria (19).

Through this conference, ASAQ achieved an important goal, bringing together researchers to discuss air pollution in Africa. At the end of the conference a number of conclusions can be drawn. There is a lot of ongoing work in Africa with contributions received at the conference from the following countries Ghana, South Africa, Kenya, Malawi, Angola, Senegal, Togo, Ethiopia,



**Figure 1:** Distribution of registrants by country totalling 160 registrants from 47 countries

Rwanda, Cameroon, Nigeria, Morocco, Algeria, Tunisia, Cabo Verde. Most of the presentations showed that air quality is poor in most major African cities. However, there are still some places where no data are published or were presented like Somalia, South Sudan, Guinea, and Mauritania. The lack of data is due to several factors, including, the high upfront cost of monitors and their poor maintenance where they exist, low awareness among decision makers and the general public, and lack of well-trained personnel. A good number of studies were presented around low-cost sensors which are being considered as a potential solution to overcome the lack of data in Africa. IQAir offered the possibility of collaboration with ASAQ to increase the number of monitoring stations in Africa. A few presentations were on air quality data retrievals via remote sensing using satellites. This was a discovery for most participants, who didn't have experience with satellite data.

The third day of the conference was dedicated to air pollution and associated health risks. Atmospheric pollutants, such as particulate matter (PM), and gaseous pollutants (nitrogen oxides, ozone, sulphur dioxide, volatile organic compounds, etc.) are responsible for a number of diseases (asthma, cancer, stroke, dementia, etc.) leading to morbidity and premature mortality. Five recognized leaders in this topic gave very informative talks: Prof. Philip Landrigan (Boston College - USA and Centre Scientifique de Monaco – MC), Dr. Pallavi Pant (Health Effects Institute, USA), Dr. Patrick Katoto (Catholic University of Bukavu (DR Congo) and University of Cape Town (South Africa)), Prof. Christina Isaxon (Lund University, Sweden), Prof. Kevin Cromar (New York University, USA), Prof. John Balmes (University of California, San Francisco (UCSF), USA), and Dr. Nonvignon Marius Kèdotè (University of Abomey-Calavi, Benin).

The last day saw a wealth of talks on policy, public awareness, and legislation. Weak government actions on air pollution mitigation were highlighted. In most places, legislation related to air pollution exists but is not enforced. Unfortunately, the participation of policy and law makers was limited, reducing the



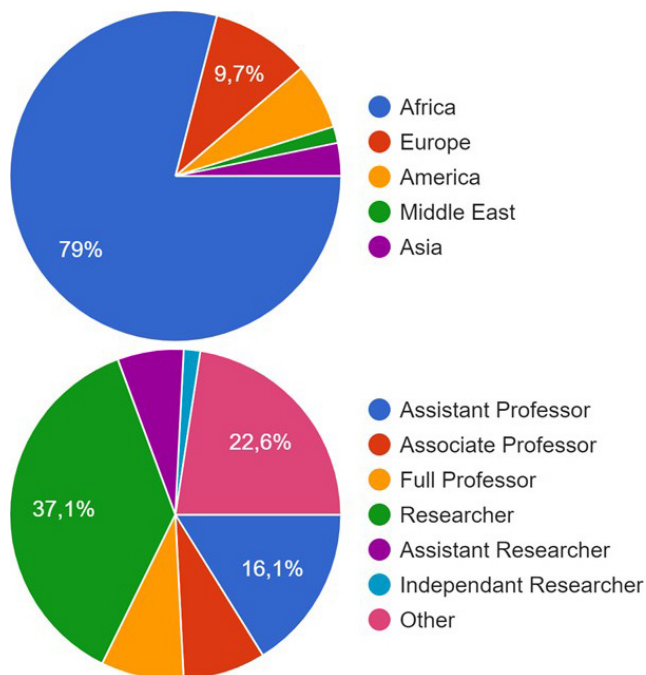
**Figure 2:** Installation of low-cost monitors in the campus of the University of Douala, Cameroon (credit: LCS-WACA project)

impact of discussion on low public awareness, weaknesses in the creation of new policy, and the obstacles to the implementation of existing legislation. Prof. Matheos Santamouris, from the University of New South Wales (Australia) during his talk emphasized on the need for African researchers to study the urban heat island effects in African cities and adopt newly developed cool roofs. He also stressed the negative impact of heat islands on productivity and the economy in most African cities, inviting governments to take action.

The conference was also an occasion for networking, and discussion took place around training, research, and collaboration. Most participants pointed out the lack of south-south collaboration and the need to organize trainings in the field of air quality. Proposals were formulated to strengthen collaboration with the North, foster collaboration with the African diaspora, and organize more workshops for capacity building.

The conference was attended mostly by students and researchers who heard about ASAQ activities for the first time. The number of ASAQ members by the end of the event doubled. The majority of the audience recommended a follow-up event but in the in-person meeting format. The committee announced the next conference is planned in Morocco, in 2023.

The ASAQ is open to all researchers and specialists working in the field of air quality and those interested in joining us can send their application at [afs4aq@gmail.com](mailto:afs4aq@gmail.com).



**Figure 3:** Distribution of ASAQ members (61) by region and by job title, of which 79% are within Africa

The conference gave awards to the following:

### Best presentation award

#### Impact of urban emissions on regional air quality in Fez city area, Morocco

Deabji Nabil<sup>1,2</sup>, Fomba Khanneh Wadinga<sup>1</sup>, Poulain Laurent<sup>1</sup>, dos Santos Souza Eduardo José<sup>1</sup>, Mellouki Abdelwahid<sup>3</sup>, and Herrmann Hartmut<sup>1</sup>

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<sup>2</sup>Faculty of Science, Mohammed V University in Rabat, 4 Avenue Ibn Battouta, B.P. 1040, 10100 Rabat, Morocco

<sup>3</sup>Institut de Combustion Aérothermique Réactivité et Environnement, OSUC-CNRS, 1C Avenue de la Recherche Scientifique, 45071 Orléans CEDEX 2, France

### Best poster award

#### Relationship between meteorological parameters and PM<sub>2.5</sub> in Accra

Victoria Owusu-Tawiah<sup>1</sup>, Daniel M. Westervelt<sup>2</sup> and Thompson Annor<sup>1</sup>

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