

Interlinkages between climate change and air pollution

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Abstract

Climate change is arguably the most significant threat facing humanity. The use of fossil fuels is the main cause so far. This climate change is inevitable due to the lack of tangible action taken so far. In addition, future emissions of greenhouse gases, particularly CO₂, CH₄ and N₂O, pose a major threat. The Paris Agreement, although endorsed by many countries, has not produced the expected greenhouse gas emission reductions - CO₂ emissions are not falling to meet the goal of containing the rise of the planet's average temperature well below 2°C compared to pre-industrial levels and even less than the objective of +1.5°C.

The same use of fossil fuels, along with other aggravating factors, has led to deteriorating air quality, first in developed

countries and now in developing countries. The health impact of fossil fuel use due to deteriorating air quality is immense – current estimates point to more than 2 million premature deaths each year, mostly in developing countries. The deterioration of air quality is now most visible in Asia. It is very likely that Africa and Latin America will follow the same pattern of deteriorating air quality if they pursue the same economic ends. And it will certainly endanger other lives in the future.

The present talk will address the interlinkage between Climate Change and Air Quality through a description of the involved chemical mechanisms and a number of examples.

Biography



Dr. A. Mellouki is director of research at the National Center for Scientific Research (CNRS, France), he is the head of the “Atmosphere and Environment” theme at the ICARE laboratory in Orléans. He worked at the Aeronomy Laboratory of the National Oceanic and Atmospheric Administration (NOAA) in Boulder-Colorado (1990-1992) as research assistant before joining the CNRS. He is Distinguish Professor at Shandong University (Jinan/Qingdao-China) and visiting professor at Fudan University (Shanghai) and RCEES-Chinese Academy of Science (Beijing). Dr. A. Mellouki holds a doctorate in atmospheric chemistry from the University of Paris (Paris VII). He is co-author of more than 220 scientific publications in peer-reviewed journals and book chapters dedicated to atmospheric chemistry (air quality and climate change). Dr. Mellouki is the recipient of the 2020 J. Kaufman Outstanding Research and Unselfish Cooperation Award from the American Geophysical Union.

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