

UCAR Africa Initiative Seminar

Investigating expanding air pollution and climate change on the African continent

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Webcast: <https://operations.ucar.edu/live-africa-initiative>

ABSTRACT

In the next few decades a large increase in population is expected to occur on the African continent, leading to a doubling of the current population, which will reach 2.5 billion by 2050. At the same time, Africa is experiencing substantial economic growth. As a result, air pollution and greenhouse gas emissions will increase considerably with significant health impacts to people in Africa. In the decades ahead, Africa's contribution to climate change and air pollution will become increasingly important. The time has come to determine the evolving role of Africa in global environmental change.

We are building an Atmospheric Composition Virtual Constellation, as envisioned by the Committee on Earth Observation Satellites (CEOS), by adding to our polar satellites, geostationary satellites in the Northern Hemisphere: GEMS over Asia (launch 2022); TEMPO over the USA (launch 2023) and Sentinel 4 over Europe to be launched in the 2024 timeframe. However, there are currently no geostationary satellites envisioned over the Global South, which includes Africa, where we expect the largest increase in emissions in the decades to come.

In this paper the scientific need for geostationary satellite measurements over Africa will be described, partly based on several recent research achievements related to Africa using space observations and modeling approaches, as well as first assessments using the GEMS data over Asia, and TEMPO over the USA. Our ambition is to develop an integrated community effort to better characterize air quality and climate-related processes on the African continent.

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