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# of Aerosols over five cities of Angola Based on MERRA–2 Reanalysis Data

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The use of aerosol optical depth (AOD) has been proven as an alternative to the traditional ground level monitoring of air quality in many countries across the world. Therefore, this study based on MERRA-2 data aims: (i) to characterize the spatiotemporal and component variations of aerosols in the atmosphere over the capital cities (Luanda, Sumbe, Benguela, Huambo and Lubango) of the five most densely populated provinces of Angola from 2010 to 2020 and (ii) to assess the influence of emissions from the Nyamuragira volcano (Democratic Republic of Congo) on the air quality at the five cities. The most significant contribution to the total AOD was derived from organic carbon, in all the cities, whereby the highest values (0.19 - 0.23) were in Luanda. Ranges of sulphates across the coastal cities were higher when compared to the interior cities caused by the emissions inventory data. The HYSPLIT model showed that air masses from Nyamuragira at various heights in November 2011 reached Luanda and Sumbe, and CALIPSO could confirm the existence of volcanic aerosols in this same period. This study allowed to conclude that the variability of AOD loading depends on seasons and regions, thus providing a little more information about the matter.

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## Promotional text

This study ascertains the influence of emissions from the Nyamuragira volcano, located in the Democratic Republic of Congo, on the air quality at the five Angolan cities selected, which fits in the scope of the CTBT: Science and Technology 2023 Conference (SnT2023).

## Oral preference format

in-person

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