

## ***Interactive comment on “African Dust Particles over the Western Caribbean Part I: Impact on air quality over the Yucatan Peninsula” by Carolina Ramirez-Romero et al.***

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Received and published: 4 November 2020

General:

This paper quantifies the intrusion of African dust in the Yucatan peninsula for the first time and quantifies the impact of this dust intrusion on air quality. This paper is very well-written and should be considered for publication after consideration of my minor comments.

Specific Comments

Introduction:

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1. Line 45-49: also cite [J. M.; Prospero et al., 2014]
2. Line 55-56: also cite [Barkley et al., 2019; J. M.; Prospero et al., 1981]
3. Line 76: please replace Prospero et al 2005 with [J. M. Prospero et al., 2002]
4. Paragraph starting on Line 96, a recent study by Prospero et al 2020 also shows the value of MERRA-2 for tracking African dust transport.

Methods

1. Line 158: Define GoM
2. Line 229: HYSPLIT trajectories below 200 m are usually not advised due to the effects of terrain. The authors should provide justification for the 50 m HYSPLIT analysis.

Results and Discussion

1. Line 304: define pPAHs and NOx.

REFERENCES CITED

Barkley, A., et al. (2019), African biomass burning is a substantial source of phosphorus deposition to the Amazon, Tropical Atlantic Ocean, and Southern Ocean, PNAS, DOI:10.1073/pnas.1906091116.

Prospero, J. M., F.-X. Collard, J. Molinie, and A. Jeannot (2014), Characterizing the annual cycle of African dust transport to the Caribbean Basin and South America and its impact on the environment and air quality, Glob. Biogeochem. Cy., 29, 757-773.

Prospero, J. M., P. Ginoux, O. Torres, S. E. Nicholson, and T. E. Gill (2002), Environmental characterization of global sources of atmospheric soil dust identified with the Nimbus 7 Total Ozone Mapping Spectrometer (TOMS) absorbing aerosol product, Reviews of Geophysics, 40(1).

Prospero, J. M., R. A. Glaccum, and R. T. Nees (1981), Atmospheric transport of soil dust from Africa to South America, Nature, 289, 570-572.

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