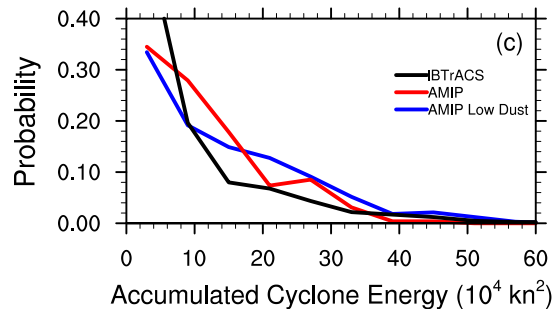
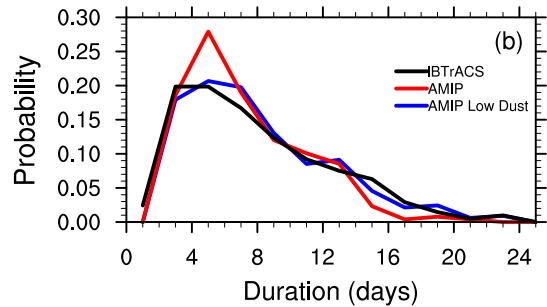
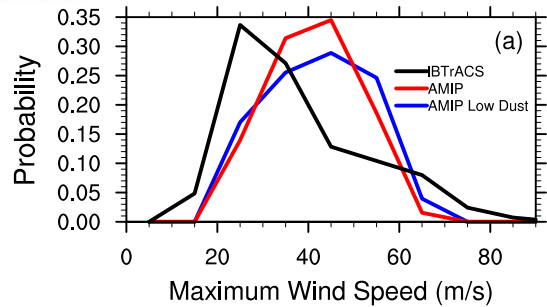


Exploring the Impact of Dust on North Atlantic Hurricanes in a High-Resolution Climate Model



Scientific Achievement

The impact of African dust on the climatology of tropical cyclones (TCs) is explored using the high-resolution Community Atmosphere Model version 5 at a global horizontal resolution of 28 km, with a focus on the North Atlantic ocean basin.

Significance and Impact

- Increased understanding on how dust impacts hurricanes in high-resolution climate models has implications for future projections and risk associated with resulting changes in hurricane activity.
- The results call for future research on the mechanisms behind these interactions, such as parameterized convection and microphysics.

Research Details

- TC statistics and environments from two simulations, with aerosol models yielding standard and reduced amounts of dust, are compared.
- In the reduced-dust simulation, TCs become more frequent globally, with the the North Atlantic basin seeing the largest increase.
- In the reduced-dust simulation, North Atlantic TCs are more frequent (27%) and on average significantly longer lived (13%) but only slightly stronger (3%). The combined effect is an increase of 57% in accumulated cyclone energy per hurricane season.

Reed, K. A., Bacmeister, J. T., Huff, J. J. A., Wu, X., Bates, S. C., & Rosenbloom, N. A. (2019). Exploring the impact of dust on North Atlantic hurricanes in a high-resolution climate model. *Geophysical Research Letters*, 46. <https://doi.org/10.1029/2018GL080642>



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