Supporting Information: African Smoke Acts as Cloud Condensation Nuclei in the Wintertime Tropical North Atlantic Boundary Layer over Barbados

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Figure S1 – Active fires (red shading) present between January 29\textsuperscript{th} through February 20\textsuperscript{th} of 2020 plotted using NASA’s Fire Information for Resource Management System (FIRMS) model. Red shading is produced using NOAA’s Visible Infrared Imaging Radiometer Suite (VIIRS NOAA-20), which shows active fire detections and thermal anomalies.
II. CO Column Density Measurements during EUREC⁴A/ATOMIC

Figure S2 – Carbon monoxide (CO) column density measurements and total aerosol optical depth collected from July 2018 through January 2022 at BACO. Region outlined in blue box indicates time period for EUREC⁴A/ATOMIC campaigns.
Figure S3 – Monthly averages for carbon monoxide (CO; a proxy for smoke), aerosol optical depth, and aerosol optical thickness collected at Barbados from 2018 – 2022, 2016 – 2022, and 1983 – 2022, respectively.

III. Size-Resolved Chemistry During EUREC4A/ATOMIC
Figure S4 – Number fractions of 6 main submicron particle types plotted as a fraction of aerodynamic diameter (Da). CAT Event 2 and 3 includes size-resolved chemical data from the 2nd (2/10/2020 0:00 – 2/12/2020 6:00 GMT) and 3rd (2/15/2020 12:00 – 2/20/2020 18:00 GMT) period in which dust and wildfire smoke were observed over Barbados, respectively. Particle counts in bins for CAT Event 2 range from 9 to 476 particles, with an average bin size of 253 particles. Particle counts in bins for CAT Event 3 range from 22 to 792 particles, with an average bin size of 266 particles.