

**Title:** Carlsbad Caverns National Park Air Quality Study 2019

**Abstract:** Carlsbad Caverns National Park in southeastern New Mexico is adjacent to the Permian Basin, one of the most productive oil and gas regions in the country. The 2019 Carlsbad Caverns Air Quality Study (CarCavAQS) was designed to examine the influence of regional sources, including urban emissions, oil and gas development, wildfires, and soil dust on air quality in the park. Field measurements of aerosols, trace gases, and deposition were conducted from 25 July through 5 September 2019. This data set includes fine particle and gas precursor measurements from Carlsbad Caverns National Park. The study was designed to examine the influence of regional sources, including urban emissions, oil and gas development, wildfires, and soil dust on air quality in the park. Field measurements of aerosols, trace gases and deposition were conducted from 25 July through 5 September 2019.

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**Associated article citations:**

Marsavin, A., Pan, D., Pollack, I. B., Zhou, Y., Sullivan, A. P., Naimie, L. E., Benedict, K. B., Juncosa Calahoranno, J. F., Fischer, E. V., Prenni, A. J., Schichtel, B. A., Sive, B. C., and Collett Jr., J. L.: Summertime Ozone Production at Carlsbad Caverns National Park, New Mexico: Influence of Oil and Natural Gas Development, *Journal of Geophysical Research: Atmospheres*, 129, e2024JD040877, <https://doi.org/10.1029/2024JD040877>, 2024.

Naimie, L. E., Sullivan, A. P., Benedict, K. B., Prenni, A. J., Sive, B. C., Schichtel, B. A., Fischer, E. V., Pollack, I., and Collett, J.: PM<sub>2.5</sub> in Carlsbad Caverns National Park: Composition, sources, and visibility impacts, *Journal of the Air & Waste Management Association*, 72, 1201–1218, <https://doi.org/10.1080/10962247.2022.2081634>, 2022.

Pan, D., Pollack, I. B., Sive, B. C., Marsavin, A., Naimie, L. E., Benedict, K. B., Zhou, Y., Sullivan, A. P., Prenni, A. J., Cope, E. J., Juncosa Calahorrano, J. F., Fischer, E. V., Schichtel, B. A., and Collett, J. L.: Source characterization of volatile organic compounds at Carlsbad Caverns

National Park, Journal of the Air & Waste Management Association, 73, 914–929, <https://doi.org/10.1080/10962247.2023.2266696>, 2023.

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**Format of data files:** .csv, .xlsx

**Location where data were collected:** Carlsbad Caverns National Park

**Time period during which data were collected:** 2019-07-25 - 2019-09-05

**File Information:** This data set includes 3 Excel (.xlsx) files, 10 Comma-delimited (.csv) files, and 9 ReadMe (.pdf) files, including this file. For details about each data file, please see the associated documentation file:

<b>Data file(s)</b>	<b>Documentation file</b>
CAVE2019_Aethalometer_final.csv	CAVE_Aethalometer_ReadMe.pdf
CAVE2019_NOxyPAN_R1_final_data.xlsx CAVE_NOxyPAN_R1_final_data_1-hour_average_NOxyPAN.csv CAVE_NOxyPAN_R1_final_data_10-min_average_NOxy.csv CAVE_NOxyPAN_R1_final_data_10-min_Collected_PAN.csv CAVE_NOxyPAN_R1_final_data_1-min_unflagged_NOxy_data.csv	CAVE_NOxyPAN_ReadMe.pdf
CAVE2019_Picarro_final.csv	CAVE_Picarro_ReadMe.pdf
CAVE2019_PILS-TOC_Data_with_LOD.csv	CAVE_PILS-TOC_ReadMe.pdf
CAVE2019_PILS-IC_Data_with_LOD.csv	CAVE_PILS-IC_ReadMe.pdf
CAVE2019_TEOM_final.csv	CAVE_TEOM_ReadMe.pdf
CAVE2019_URG_final.csv	CAVE_URG_ReadMe.pdf

CAVE2019_VOCs_GC.xlsx CAVE2019_VOCs_PTRMS.xlsx	CAVE_VOCs_ReadMe.pdf
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