EDI Metadata Template (2022)[[1]](#footnote-2)

## Dataset Title

## Prescribed Burn Single-Particle Mass Spectra, University of Michigan Biological Station October 2017

## Abstract

This dataset corresponds to 5,500 single-particle, dual-polarity mass spectra of biomass burning particles measured from a mobile laboratory during the 2017 prescribed burn at the University of Michigan Biological Station near Pellston, Michigan. Size-resolved chemical composition of individual particles, primarily ranging from 0.15 - 0.60 μm in vacuum aerodynamic diameter, was measured using an aerosol time-of-flight mass spectrometer (ATOFMS).

## Creators

|  |  |  |  |  |  |
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## Other personnel names and roles

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## License

CCBY 4.0

## Keywords

Aerosol chemistry, prescribed burn, time of flight mass spectrometry

## Funding of this work:

List only the **main PI of a grant** that supported this project, starting with the main grant first. Add rows to the table if several grants were involved.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| PI First Name | PI Middle Initial | PI Last Name | PI ORCID ID (optional) | Title of Grant | Funding Agency | Funding Identification Number |
| Kerri |  | Pratt | [0000-0003-4707-2290](https://orcid.org/0000-0003-4707-2290) |  | NOAA | NA16OAR4310104 |

## Timeframe

* Begin date: 2017-10-10
* End date: 2017-10-10
* Data collection ongoing/completed: complete

## Geographic location

* Verbal description: University of Michigan Biological Station, Burn Plots (https://mfield.umich.edu/umbs-burn-plots)
* North bounding coordinate: 45.558741677314
* South bounding coordinate: 45.556475260659
* East bounding coordinate: -84.697008600924
* West bounding coordinate: -84.703110990522

## Methods

A prescribed burn was conducted in October 2017 at the University of Michigan Biological Station located in Pellston, Michigan. Approximately 0.025 km2 of a temperate forest, primarily composed of red and white pine, red oak, big tooth aspen, and red maple, were burned. The resulting smoke was sampled with a combination of real-time trace gas and aerosol instrumentation aboard the Aerodyne Mobile Laboratory. The resulting data were segmented into six plume periods, and the gas and particle concentration and composition measurements were characterized relative to modified combustion efficiency (MCE), which reflected both smoldering and flaming combustion.

For more information see Pratt, et al 2009 : Real-Time, Single-Particle Volatility, Size, and Chemical Composition Measurements of Aged Urban Aerosols (https://pubmed.ncbi.nlm.nih.gov/19924956/)

## Data Table

**Table name:** ATOFMS\_UMBS2017\_BiomassBurningParticlesSpectra\_DeepBlue.csv

**Table description:** the table corresponds to 5,500 single-particle, dual-polarity mass spectra of biomass burning particles measured from a mobile laboratory during the 2017 prescribed burn at the University of Michigan Biological Station near Pellston, MI.

|  |  |  |  |
| --- | --- | --- | --- |
| **Column name** | **Description** | **Unit or** **code explanation or date format** | **Missing value code** |
| Biomass Burning Particle Number | Individual particle number | Nominal | None |
| ATOFMS Time (EDT) | Time of ATOFMS observation in Eastern Daylight Time | Date/Time (MM/DD/YYYY hh:mm:ss | None |
| Plume Number | Particle measurement observed during with plume period described in Lee et al. 2022 | Nominal | None |
| Particle Vacuum Aerodynamic Diameter (m) | Particle vacuum aerodynamic diameter measured with the ATOFMS | micromoles | none |
| Relative Peak Area at each m/z | For each particle in that row, the relative peak observed at a specified unit mass-to-charge is provided. Each column corresponds to a mass-to-charge listed. Measurements were made between m/z -350 and +350. | Nominal | none |

## Articles

(List articles citing this dataset)

|  |  |  |
| --- | --- | --- |
| **Article DOI or URL (DOI is preferred)** | **Article title** | **Journal title** |
| submitted | Chemical Characterization of Prescribed Burn Emissions from a Mixed Forest in Northern Michigan | [Environmental Science: Atmospheres](https://www.rsc.org/journals-books-databases/about-journals/environmental-science-atmospheres/) |

1. [↑](#footnote-ref-2)