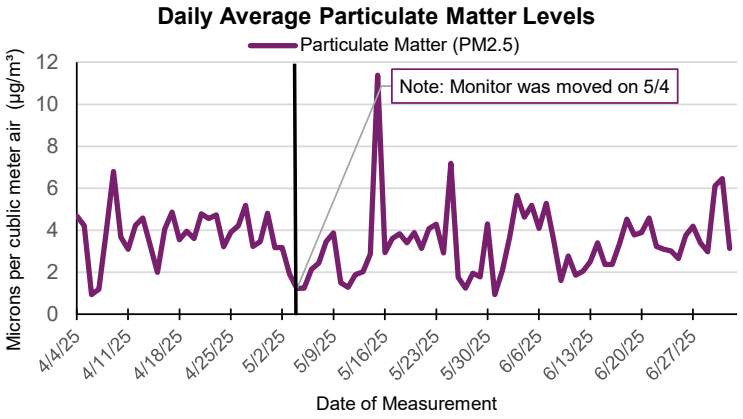
Air Quality Report: Gloster, Mississippi

April 4-July 2, 2025



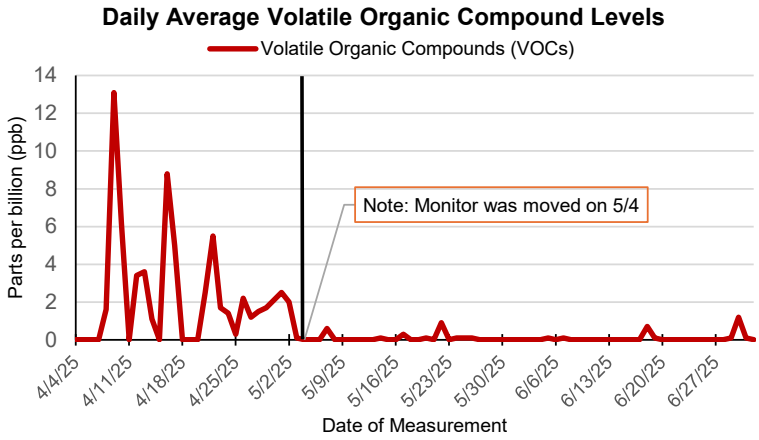
Particulate matter (PM2.5)

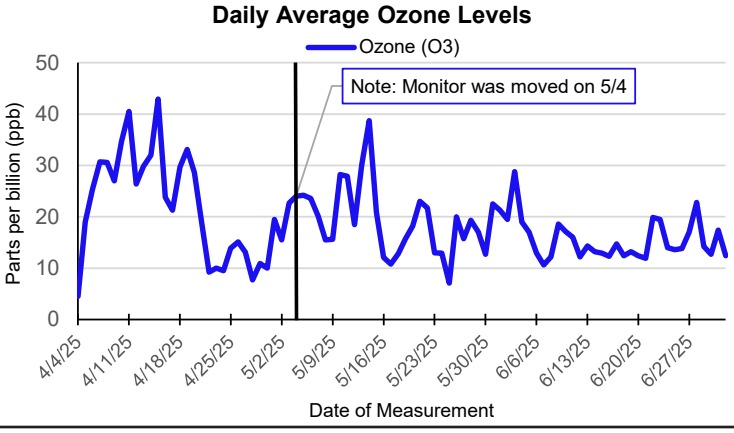
In general, particulate matter are microscopic solid or liquid particles that are suspended in the air. PM includes a wide range of substances, such as: dust, smoke, pollen, ash, bacteria, and viruses. We measure PM size 2.5 micrograms per cubic meter of air. We are interested in particles of this size because they can travel deep into the lungs, enter the bloodstream, and be distributed to various parts of our body.

Total volatile organic compounds (VOCs)

VOCs are organic chemical compounds that easily evaporate at room temperature, meaning they turn into a gas. VOCs can be found in both indoor and outdoor environments. They can be released from furniture, everyday cleaning products, vehicles, and industrial processes.

VOC emissions include benzene, toluene, ethylbenzene, and xylene, which can be emitted during the wood pellet combustion process (especially when green wood is being dried). Aldehydes acetaldehyde, formaldehyde) can also be emitted if additives or binding agents are used in the wood pellet production process.





Ozone (O3)

Ozone (O3) is a highly reactive gas composed of three oxygen atoms. It is both a natural and a man-made product that occurs in the Earth's upper atmosphere. Man-made ozone (Tropospheric or ground-level ozone) is what we breathe. It is formed primarily from photochemical reactions between VOCS and nitrogen oxides (NOx), depending upon the presence of heat and sunlight.

Because green wood contains significant amounts of VOCs, when applying heat or mechanical energy to dry the wood during pellet production, these VOCs (along with nitrogen dioxide) react with sunlight to produce ground-level ozone.

Meteorological conditions, such as temperature, relative humidity, air pressure, precipitation, wind speed, and wind direction, are also important to gather as they impact the distribution of pollutants into the community.
For example, wind can carry pollutants further, while certain precipitation like rain can act as a natural air scrubber.

Coming Soon: We will release our community noise reports, which will consist of A-, C-, and Z-weighting sound levels, as well as spectral analysis across the 1/3 octave band.

Contact information:
Data collection and analysis for this report is provided by Community Noise Lab at Brown University (communitynoiselab.org). You can contact Dr. Erica Walker at erica_walker@brown.edu if you have any questions. Funding for this project is provided by the National Institute of Health (1R01ES036565-01) and Robert Wood Johnson Foundation.

Download all air quality reports for Mississippi and Alabama at https://communitynoiselab.org/community-air-and-noise-monitoring-network/