

PM_{2.5}
piano

4 minutes

Brooke Joyce (2023)

Commissioned by the Wisconsin Music Teachers Association

Premiered by Michael Mizrahi, October 2023

Program Note:

"Particle pollution, also called particulate matter or PM, consists of solid particles or liquid droplets suspended in the air. Fine particles (PM_{2.5}, which have an aerodynamic diameter of 2.5 microns or less) may be emitted directly into the atmosphere but are more commonly created by reactions of other pollutants, such as nitrogen oxides (NO_x), sulfur dioxide (SO₂), organic carbon and ammonia. Sources of fine particle emissions include forest fires and wood stoves. Sources of the precursor pollutants that chemically react to form fine particles include power plants, industries and automobiles. Wind can carry these particles hundreds of miles from their sources. Fine particle levels typically peak in winter but concentrations can also be high in summer." (dnr.wisconsin.gov)

This composition uses 30 data points gathered during the month of June in 2023 when smoke from Canadian wildfires drifted into the northern US. Each data point, representing the average measurement of PM_{2.5} in the atmosphere of Madison, WI on a particular day in June, were scaled and then mapped onto the pitches and dynamic range of the piano. Lower and louder pitches were derived from the higher PM_{2.5} values.

PM_{2.5} was commissioned by the Wisconsin Music Teachers Association in 2023 and is available, free of charge, to WMTA members and their students.