

This dataset collection provides equivalent black carbon mass concentration (eBC) at Monte Cimone, Italy, between the years 2007 and 2024.

eBC is derived from the aerosol absorption coefficient measured at a wavelength of 637 nm with a filter-based absorption photometer (Multi Angle Absorption Photometer, MAAP-5012, Thermo) using a mass absorption cross-section of 10 m²/g (Zanatta et al., 2016; <http://dx.doi.org/10.1016/j.atmosenv.2016.09.035>).

Conditions of the sampling line, including temperature (K), pressure (hPa) and relative humidity (%) are reported as hourly arithmetic mean.

eBC mass concentration is reported at standard pressure (1013.25hPa) and temperature (273.15K). Due to noise at low concentration zero and negative values are possible.

eBC mass concentration is reported in µg/m³ as hourly arithmetic mean, standard deviation, 10th percentile, 16th percentile, 25th percentile, 50th percentile, 75th percentile, 84th percentile, 90th percentile, minimum and maximum.

The hourly fraction of valid data is reported as percentage, where 100% indicates 60 minutes of valid measurement in one hour and 0% indicates 60 minutes of invalid data.

The last column reports a flag whether the respective hour is considered to be: valid (0); irregular data checked and accepted by data originator, valid (111); instrument internal relative humidity above 40%, valid (640); missing measurement unspecified reason, invalid (999).