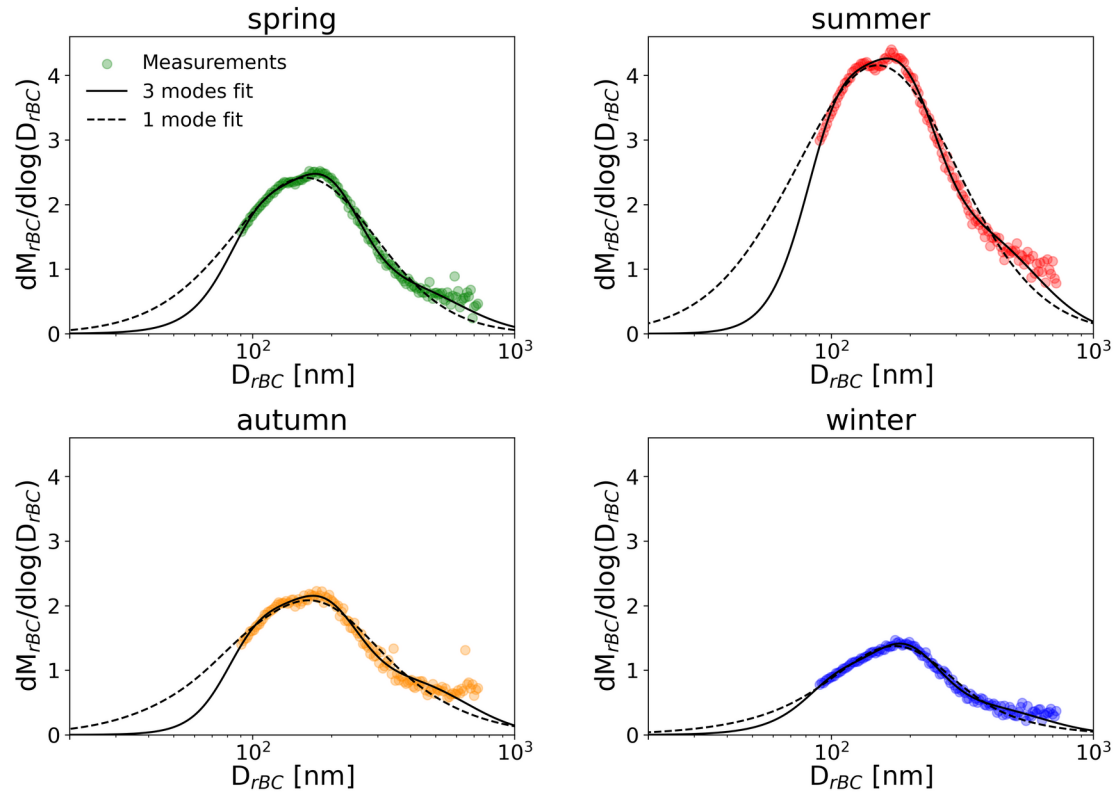*Figure S1: rBC size distribution observed and fitted with one (dashed black line) or three (solid black line) lognormal modes for 2019 and 2020 at the PDM grouped be seasons.*

|  |  | Winter (DJF) | Spring (MAM) | Summer (JJA) | Autumn (SON) | All data |
|---|---|---|---|---|---|---|
| **Mass conc. all data [ng.m$^{-3}$]** | **rBC** median (25th, 75th) | 5.59 (2.12,12.0) | 17.9 (8.42, 43.3) | 55.3 (24.6 85.5 | 16.9 (4.61 156.1) | 21.2 (6.54, 62.0) |
|  | **rBC** mean (stand. dev.) | 17.7 (42.0) | 31.6 (34.7) | 61.4 (48.8) | 33.5 (39.4) | 39.4 (45.7) |
|  | **EC** median (25th, 75th) | 41.0 (36.0, 47.0) | 48.0 (42.0, 66.0) | 59.0 (54.0, 88.0) | 46.0 (39.0, 62.0) | 47.0 (38.0, 63.3) |
|  | **EC** mean (stand. dev.) | 40.1 (12.4) | 49.6 (25.0) | 72.6 (34.0) | 48.2 (13.7) | 52.6 (26.0) |
|  | **eBC** median (25th, 75th) | 20.7 (12.1, 48.3) | 73.4 (31.4, 151) | 124 (37.9, 201) | 18.1 (10.4, 46.2) | 39.0 (16.0, 130) |
|  | **eBC** mean (stand. dev.) | 47.4 (63.4) | 98.4 (78.8) | 127 (89.2) | 42.6 (55.6) | 78.5 (81.7) |
| **Mass conc. (only include data when pairs values are available) [ng.m$^{-3}$]\*** | **rBC** median (25th, 75th) | 11.4 (8.21,18.1) | 32.3 (14.8, 46.3) | 59.1 (37.7,66.6) | 22.6 (8.21,55.2) | 28.6 (14.1,55.5) |
|  | **rBC** mean (stand. dev.) | **17.1** (16.7) | **34.4** (23.8) | **57.4** (24.9) | **35.2** (31.1) | **36.4** (28.4) |
|  | **EC** median (25th, 75th) | 41.0 (37.0 , 47.0) | 50.0 (42.0, 66.0) | 59.0 (54.0 ,89.5) | 45.5 (38.8, 62.3) | 47.0 (39.0, 65.0) |
|  | **EC** mean (stand. dev.) | **42.2** (9.18) | **54.5** (22.6) | **73.5** (35.3) | **47.7** (14.0) | **54.7** (25.3) |
|  | **eBC** median (25th, 75th) | 29.4 (21.8, 35.8) | 66.1 (46.2, 84.3) | 129 (104, 167) | 57.5 (29.3, 105) | 65.5 (32.8, 118) |
|  | **eBC** mean (stand. dev.) | **30.7** (12.2) | **69.7** (31.8) | **138** (48.3) | **70.9** (47.4) | **78.5** (54.3) |

**Table S1. rBC, EC and eBC mean and median mass concentrations grouped by season and over the campaign. Standard deviations and 25$^{th}$ and 75$^{th}$ percentiles are given in parenthesis. \*Statistics are given for pairwise data (i. e. data when all variables were available) in order to compare the results of the different measurement methods.**
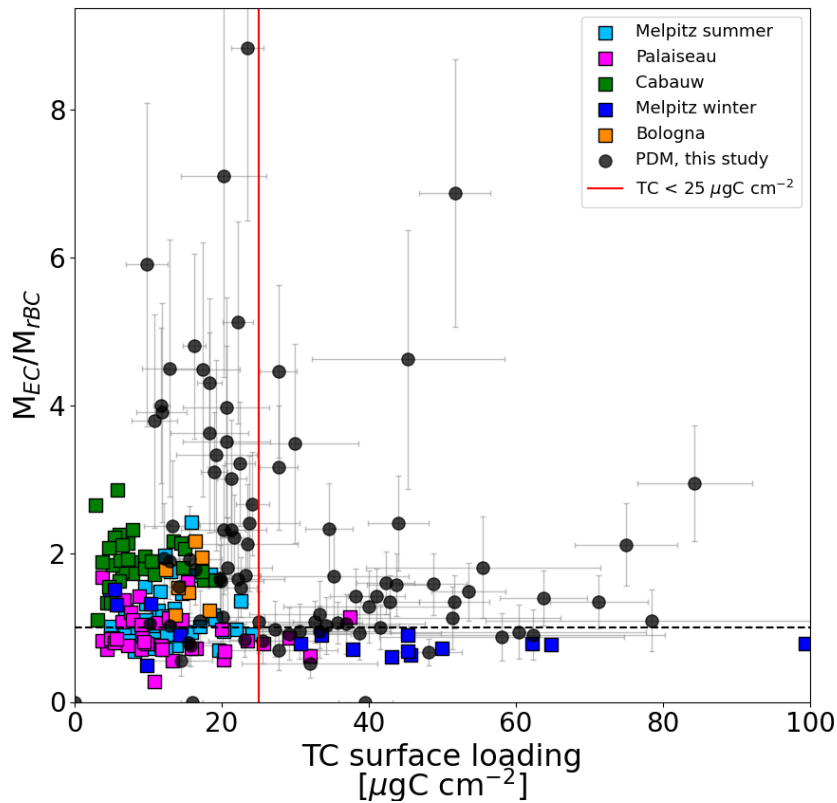
*Figure S2: $M_{EC}/M_{rBC}$ ratios as a function of the TC surface loading on the filter. The red line correspond to a TC surface loading of 25 ugC cm⁻², which is the threshold below which $M_{EC}$ values were invalidated. The colored points are from Pileci et al. (2021) and the black dots are the PDM data.*
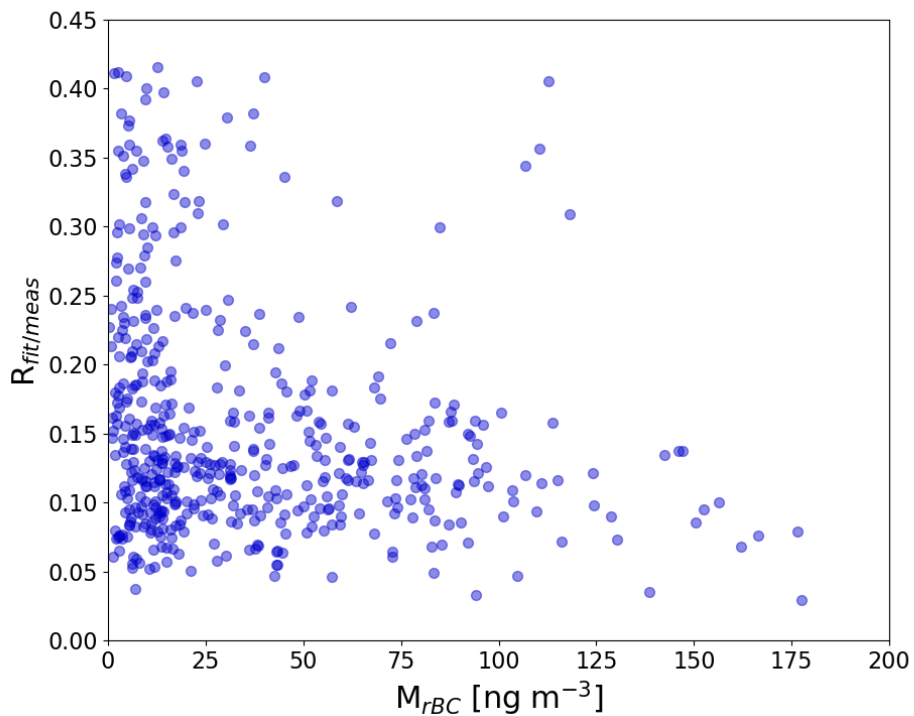


*Figure S3: $R_{fit/meas}$ as a function of $M_{rBC}$. Data are in a 1-day time resolution.*