

Answer to referee #2

We would like to thank the reviewer for the comments and suggestions that were provided. In the following paragraphs we report Reviewer's suggestion in blue and author's answer in black

line 78: add word “and [is] part of...”

We corrected the sentence.

line 161: another citation style is used here

The manuscript reports citations using Copernicus bibliographic style. The in-text citation in line 161 reports the author's name as part of the sentence, and for this reason only the year is reported in parenthesis, in accordance with in-text citations guidelines.

line 179ff: to avoid confusion throughout the paper, please use also in the following the wording “truncated Julian Day”, since “Julian Day” is a well-defined and maybe a reader will not read this line. As abbreviations you could use “tJul”

We thank the referee for the suggestion and we removed the line 179 where we indicated that the manuscript would have used Julian Day to indicate truncated Julian day. Table 1, Table 2, Figure 4, Figure 5, Figure 7 were modified to use the correct wording (“truncated Julian Day” or “tJul”).

table 1: please check the row of BLH

Table 1 was corrected

Additional changes

We noticed a typo in the abstract, that reads:”

“the transport of air masses from western Europe and northern Russia”. The sentence is corrected as follows: “the transport of air masses from Europe and northern Russia”.

We added to the acknowledge section a thank to the Svalbard Integrated Observing System (SIOS) network, for promoting collaboration and discussion at Ny-Ålesund.

Data availability section was modified as follows, to add the links to download daily time series used in the analysis presented in the manuscript.

“Hourly eBC and meteorological data time series from the Gruvebadet observatory are available at <https://iadc.cnr.it/cnr/index.php>. eBC daily data are available at

https://data.iadc.cnr.it/erddap/tabledap/gilardoni_acp_ebc_2023.html, while daily meteorological data can be found at https://data.iadc.cnr.it/erddap/tabledap/gilardoni_acp_met_2023.html”

Line 168. “ ε_i is the residual for the i-th observation” was modified as “ ε is the residual” to be consistent with the formula, where the index i was removed after the first round of revision.