Editor comments are in red.
Authors' comments are in black.
Revised texts are in Italic.

Comments to the author:
I would like to thank the authors for incorporating the suggestions made by the reviewers. The revised version looks pretty good and it is almost ready for publication; however, I have the following additional and final comments before I can accept the manuscript.

Author Comments: We appreciate your handling our manuscript and providing suggestions to improve it. We have revised the manuscript, followed by the comments.

Minor/Technical Comments:
1. Line 59: Add a reference after "spring"
We added references here.
The Arctic atmosphere is heavily influenced by anthropogenic emissions from low- and mid-latitudes during winter and early spring ***(Schmale et al., 2021; Willis et al., 2018)****.*

2. Line 60: Add a reference after "summer"
We added a reference here.
In contrast, the influence of long-range transport is weakened in summer ***(Willis et al., 2018)****.*

3. Line 135: Add the model and manufacturer of the used visibility sensor.
We added the information.
The CVI was activated during cloud periods of < 1 km visibility as measured using a visibility sensor ***(Belfort Instrument, USA, Model 6400)****.*

4. Line 258: I think "-10°C ± 7, 2°C ± 4, -4°C ± 5, and -11°C ± 6" could be changed to "-10 ± 7°C, ± 4°C, -4 ± 5°C, and -11 ± 6°C"
We revised the sentence as suggested.

Original: *The average temperatures with standard deviations were* ***-10°C ± 7, 2°C ± 4, -4°C ± 5, and -11°C ± 6*** *for spring, summer, fall, and winter, respectively (Table S2),*

Revised: *The average temperatures with standard deviations were* ***-10 ± 7°C, 2 ± 4°C, -4 ± 5°C, and -11 ± 6°C*** *for spring, summer, fall, and winter, respectively (Table S2),*

5. Line 343: It is unclear to me what the authors mean with "the substantial mineral dust particles"

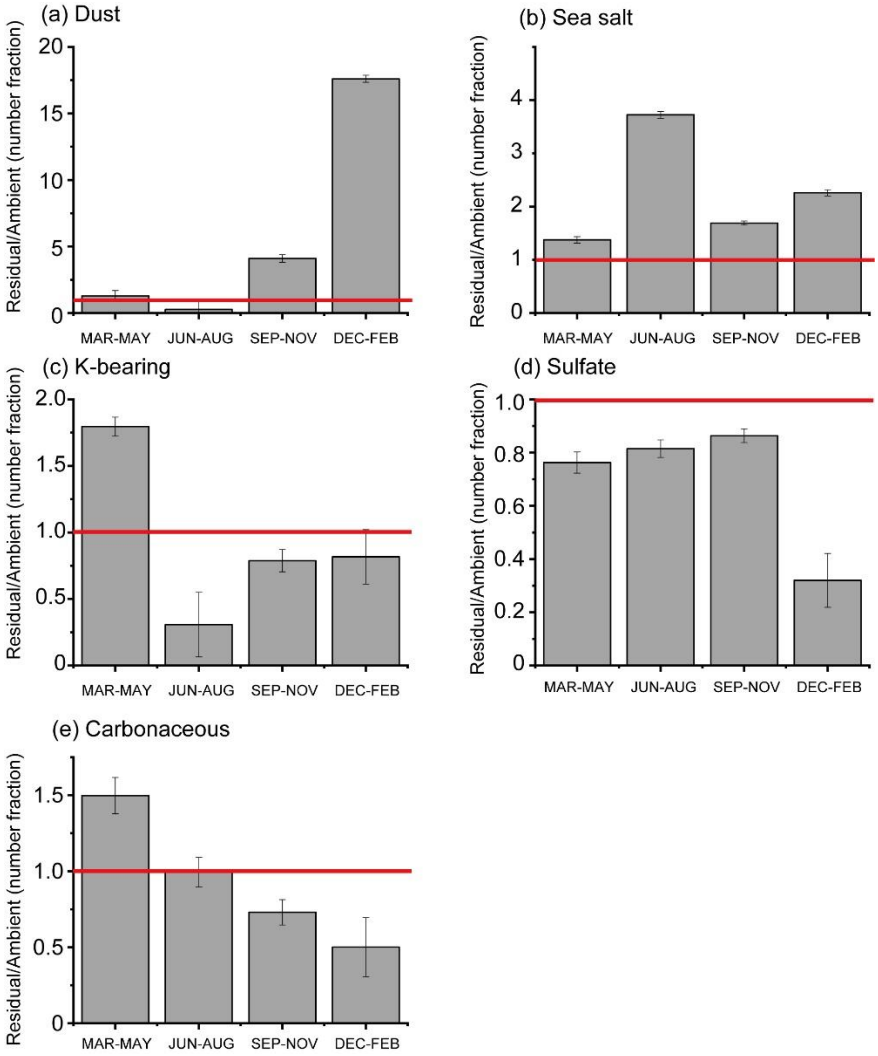
We revised the sentence to indicate our meaning.

Original: *The TEM measurements indicate that the* ***substantial*** *mineral dust particles are mixed with sea salt components (Fig. 2 and Table S1).*

Revised: *The TEM measurements indicate that* ***many*** *mineral dust particles are mixed with sea salt components (Fig. 2 and Table S1).*

6. Figure 9. The red line is slightly misplaced in panels b and e

Thank you for pointing out the mistake. We have revised the figure.



7. Table 1. Given that two different sets of temperatures are shown in the Table, I suggest adding a few more details to make a clear distinction between the two sets of temperatures.

We added footnotes to Table 1 and explained the temperatures.

Table 1. Detailed information of all samples used in this study

Sample classification	Sample subclassification*	Sampling periods MM/DD YYYY–MM/DD YYYY	No. of TEM samples	Analyzed particles	Temparature range (°C)** (Highest/Lowest)
Ambient aerosol samples	PM_{10} inlet	03/08 2017–03/28 2017	35	6231	-6/-24
	PM_{10} inlet	09/08 2017–09/12 2017	7	1039	6/1
	PM_{10} inlet	03/12 2018–03/22 2018	20	4495	-4/-16
	PM_{10} inlet	08/02 2018–08/12 2018	16	2782	12/1
	PM_{10} inlet	01/08 2019–01/13 2019	8	1559	-9/-17
	PM_{10} inlet	03/11 2019–03/13 2019	4	589	-13/-16
	PM_{10} inlet	07/29 2019–07/31 2019	4	887	8/3
	PM_{10} inlet	11/10 2019–11/14 2019	6	655	-4/-14
	Whole-air inlet	09/09 2017–02/08 2021	94	15415	9/-20
Cloud residual samples	>0°C	09/09 2017–09/11 2020	20	3193	6/0
	0 to -4°C	09/19 2017–05/14 2019	21	3443	0/-4
	<-4°C	10/26 2017–11/12 2018	4	502	-4/-12
Total		03/08 2017–02/08 2021	239	40790	12/-24

*** Samples were classified based on the inlets (ambient aerosol samples) and ambient air temperature when sampled (cloud residual samples).**

**** The highest and lowest temperatures during each sampling period.**