

1 Dear editor, dear referee,

2 Thank you for your valuable time to check our manuscript, and we apologize for the errors in
3 the revised manuscript. We have reviewed and revised thoroughly according to your comments.

4 Sincerely,

5 Bojiang Su on behalf of all the authors

6

7 In this document, the review comments are shown in black. The author's response is shown in
8 blue. The revision is shown in red.

9

10 **Responses to Technical comments by Editor**

11 1) line 94. Please write 34th with "th" in superscript.

12 Author's Response: Thanks for the technical comment. It has been revised accordingly.

13

14 2) line 136. .. the legs I and II.

15 Author's Response: Thanks for the technical comment. It has been revised accordingly.

16

17 3) line 151. Please remove China for the IGAC.

18 Author's Response: Thanks for the technical comment. It has been revised as suggested. We also
19 removed the countries of all the manufacturer information for consistency.

20

21 4) line 208. Please add USA or remove the countries in the all the manufacturer information for
22 consistency.

23 Author's Response: Thanks for the technical comment. It has been revised as suggested.

24

25 5) line 513-514. Please write "th" in superscript.

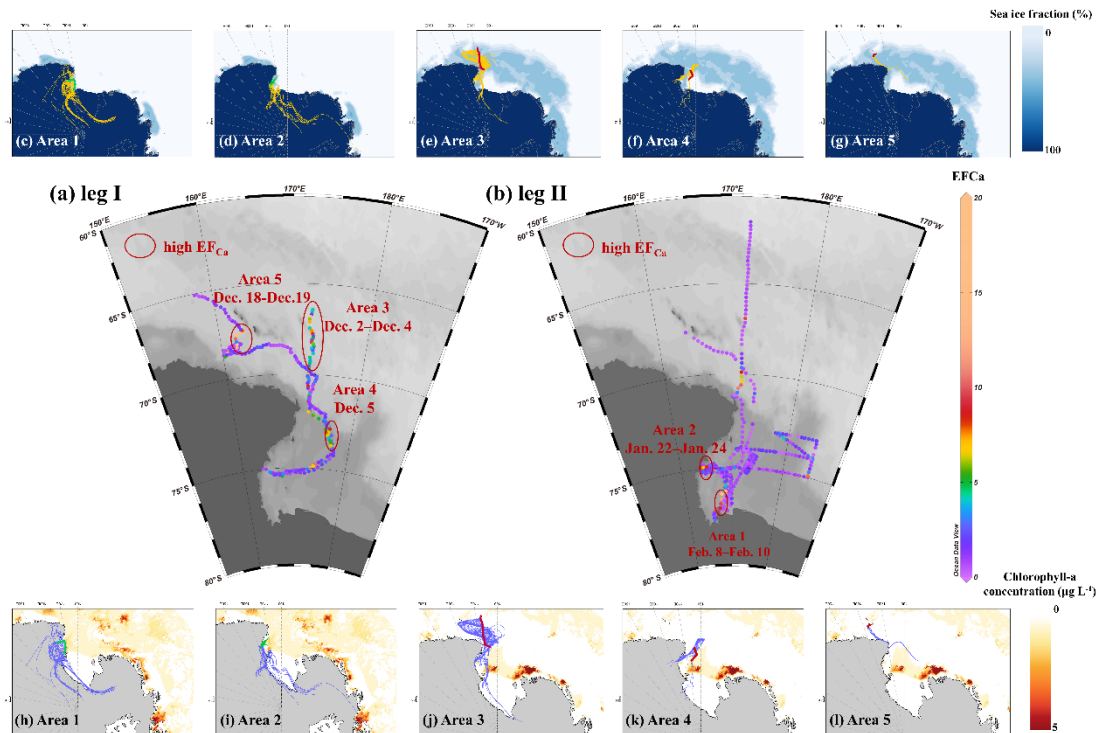
26 Author's Response: Thanks for the technical comment. It has been revised accordingly.

27

28 **Responses to Technical comments by Referee 2#**

29 - Maps in Fig 5: Please rotate the maps (c) to (l) in Fig 5 by 180 degrees, such that the orientation
30 is similar to the maps in Fig 5(a,b).

31 Author's Response: Thanks for the reviewer's constructive suggestion. We replotted the Figure 5
32 as suggested.



33

34 **Figure 5**

35

36 - line 38: Antarctic summer

37 [Author's Response](#): Thanks for the technical comment. It has been revised accordingly.

38

39 - line 206: bi-polar, not bio-polar

40 [Author's Response](#): Thanks for the technical comment. It has been revised accordingly.

41

42 - line 252 "the absence of no sea ice" -> "the absence of sea ice"

43 [Author's Response](#): Thanks for the technical comment. It has been revised accordingly.

44

45 - line 282 I suggest "...we set a threshold for the ion count rate of m/z 40..."

46 [Author's Response](#): Many thanks for the reviewer's constructive suggestion. It has been revised accordingly.

47

48 - line 389: "Furthermore, they are likely to be present ..."

49 [Author's Response](#): Thanks for the technical comment. It has been revised accordingly.

50