Response to Editor Comments

Dear Editor,
we very much appreciate your constructive comments on our revised manuscript. We considered your remarks/highlighted sections and especially focused on the improvement of the English. Below, you will find our responses to your comments.

line 106: Please check if first time use of sympagic. Definition must be presented at first use.
Reply: We now present definition at first use (line 38).

line 176: moieties???
Reply: A moiety is a functional group of a molecule (OH in this case).

line 311: Fig 2 does not present decadal changes, but stationary means. Add 1-2 references instead.
Reply: We now added two references: Vaughan et al. (2003) and Parkinson and Cavalieri (2012).

line 462: GDGT-3
Reply: Thanks for spotting this mistake, we corrected it.

line 550: 2013
Reply: We corrected it to World Ocean Atlas 2013.

lines 630-633: Sentence impossible to understand because of too many "and". Please cut in two or rephrase.
Reply: We changed the sentence to: Highest $IPSO_{25}$ concentrations are observed in samples of the northern Bransfield Strait. Here, the inflow of waters from the Weddell Sea transports sea ice into Bransfield Strait (Vorrath et al., 2019).

lines 1516-1519: To long and complicated. Cut in two or rephrase.
Reply: We changed the sentence to: This is also supported by Langhorne et al. (2015), who stated that platelet ice formation is not observed in areas where basal ice-shelf melting is considerable, such as on the West Antarctic continental shelf in the eastern Pacific sector of the Southern Ocean (Thompson et al., 2018).

line 1651: significant??
Reply: We replaced "distinct" with "significant".

References:

Parkinson, C. L., and Cavalieri, D. J.: Antarctic sea ice variability and trends, 1979-2010, The Cryosphere, 6, 871-880, 2012.

Vaughan, D. G., Marshall, G. J., Connolley, W. M., Parkinson, C., Mulvaney, R., Hodgson, D. A., King, J. C., Pudsey, C. J., and Turner, J.: Recent rapid regional climate warming on the Antarctic Peninsula, Climatic change, 60, 243-274, 2003.