

Response to reviewer R3 comments

August 22, 2025

Thank you for your detailed and helpful review. In this document, reviewer comments are in **black** and our comments are in **red**. New text added to the manuscript is in **blue**.

This paper presents an interesting set of observations, in an environment difficult to access. The analysis is solid. It would be good to put these observations in the context of the previous work that has been done around Dotson - I understand that there are little observations in the cavity, but are the conditions along the face 'unusual'? It's hard to tell, and I acknowledge that this is not about long-term observations at Dotson, but it would be useful to put these observations in a broader context.

Thank you for your positive review of our manuscript. We have added a sentence that the ice front properties we observed in 2022 are within the usual range: "The temperature and salinity at the ice front are within the historic range of watermass distributions and properties at DIS (Kim et al., 2021)."

As pointed out by the other reviewers, some of the key results are a bit either overstated, or unclear.

We have addressed the concerns of the other two reviewers in our responses, which includes modifying some of our key points. The precise changes are detailed in the responses to reviewer 1 and 2.

24 For example, on L193, one would be hard-pressed to directly identify the
25 'enhanced mixing at the inflow' and it being over a larger area than that of
26 the outflow from the section alone - it might useful to show a profile or two
27 of dissipation rates. Sampling (station spacing) might be important when
28 talking about "area", which is not discussed here.

29 We have changed the paragraph you refer to. It now reads: "Below 500 m
30 depth, turbulent kinetic energy dissipation is elevated in the inflow (compared
31 with other areas below 500 m along the ice front). Turbulent kinetic energy
32 dissipation is $\approx 10^{-8} \text{ W kg}^{-1}$ in the inflow over an area approximately 7 km
33 wide and 200 m high (Figure 3d; turbulent kinetic energy dissipation rate is
34 elevated between 38 km and 45 km of the ice front and ~ 200 m above the
35 seabed). "

36 Overall, I don't have many comments that were not captured by the other
37 reviewers. This is an interesting paper and it should be published.

38 Thank you for your positive review.

39 References

40 Kim, T., Yang, H. W., Dutrieux, P., Wåhlin, A. K., Jenkins, A., Kim, Y. G.,
41 ... Cho, Y. (2021, December). Interannual Variation of Modified Circum-
42 polar Deep Water in the Dotson-Getz Trough, West Antarctica. *Journal*
43 *of Geophysical Research: Oceans*, 126(12). doi: 10.1029/2021jc017491