

We would like to thank the reviewer for taking the time to read our manuscript and giving detailed feedback, which helped us to improve the manuscript. Please find our answers to the comments (*in italics*) in the following. Citations from the paper are marked **in blue**, and **blue bold** refers to text added/changed in the revised manuscript.

## 1 Technical corrections

- a) *Page 2, line 24: Unless you think that this is obvious, I recommend the authors add that  $R(\text{VSMOW2})$  is multiplied by 2 for the two possible positions of the isotope within the water molecule.*

Thank you for pointing this out. We added the proposed information:

**“... (VSMOW2; with  ${}^2\text{RVSMOW2} = 1.5576 \cdot 10^{-4}$  and  ${}^{18}\text{RVSMOW2} = 2.0052 \cdot 10^{-3}$ ;  **${}^2\text{RVSMOW2}$  is multiplied by two due to the two possible positions of  ${}^2\text{H}$  within the water molecule).**”**

- b) *Page 2, line 26: Equilibrium fractionation is not the only type of isotopic fractionation. Non-equilibrium fractionation by diffusion is also isotopic fractionation. I recommend the authors modify as follows: ‘The difference in saturation vapor pressure between heavy and light isotopologues causes one type of isotopic fractionation . . .’*

Changed to:

**“The difference in saturation vapour pressure between heavy and light isotopes causes **one type of isotopic fractionation**, ...”**

- c) *Page 9, line 14: The authors state that horizontal differences between SWI-8-sb and SWI-8-ps sensors are smaller than vertical differences, but Figure 5 seems to indicate that  $d$  has large horizontal differences comparable to vertical differences in  $d$ .*

Yes, the horizontal SWI differences can be as large as the vertical differences for short periods, but during most of the time, the horizontal differences are smaller than the vertical differences. The mean horizontal differences (with 65% confidence range) are 0.8 [-1.6...3.2]‰ for  $\delta^2\text{H}$ , -0.04 [-0.41...0.38]‰ for  $\delta^{18}\text{O}$  and 1.2[-0.2...2.4] ‰ for  $d$  (see also Appendix Fig. A1) compared to -2.6 [-4.8...-0.2]‰ for  $\delta^2\text{H}$ , -0.55 [-0.90...-0.14]‰ for  $\delta^{18}\text{O}$  and 1.8 [0.5...3.2] ‰ for  $d$  for the vertical differences.

- d) *Page 13, line 23 incorrect figure citation, should be: ‘The meridional distribution of  $d$  (Fig. 6c) . . .’*

Changed as suggested

- e) *Page 14, line 17 incorrect figure citation, should be: Fig. 6 a,b,c.*

Changed as suggested

- f) *Page 15, line 25 incorrect figure citation, should be: Fig. 6f.*

Changed to Fig. 6c,f to refer to both,  $d_{IQR}$  and  $h_{SST,IQR}$

- g) *Figure 1, page 26: I suggest that the authors add latitude labels on Figure 1, it would help with interpretation.*

Changed as suggested

## 2 Spelling/Typos

- a) *Page 6, line 12 (also lines 19, 20, 33): Is apostrophe 12'000 standard Swiss notation for 12 000? I recommend no apostrophe to avoid confusion.*

Changed as suggested

- b) *Page 13, line 6: change 'warmer T' to 'higher T'.*

Changed as suggested

- c) *Page 13, line 12: spelling typo, should be 'meridional'.*

Changed as suggested

- d) *Page 13, line 33: spelling typo, should be 'Agulhas'.*

Changed as suggested

- e) *Figure 4, page 29: add abscissa (x-axis) label: "Date (dd-mm)".*

Changed as suggested

- f) *Figure 5, page 30: add abscissa (x-axis) label: "Date (dd-mm)".*

Changed as suggested

- g) *Figure 6, page 31: the letters 6a, 6b, etc. in the text do not appear to match the order of figures in Figures 6. Please recheck.*

Checked and changed where needed.

- h) *Figure 6 caption, page 31, and Page 18, line 32: I recommend changing 'site' to 'location' because site implies a fixed location whereas you are measuring at many latitudes along the ship track.*

Changed as suggested

- i) *Figure 10 caption, page 35: in the next-to-last sentence change 'Less points' to 'Fewer points. . .'*

Changed as suggested