1 General comments

The paper studied turbulent mixing in the northern and southern Patagonian regions using measurements of improved spatial and temporal coverage. The methods used for calculating relevant variables are stated, but assumptions are often neglected. Most of the results and conclusions are supported by the data. However, I think the presentation of the manuscript can be improved by using a better structure.

2 Specific comments

1. Equation (1)

$$\varepsilon = 7.5\nu \left(\frac{\partial u}{\partial z}\right)^2$$

   is under isotropic turbulence assumption, but this assumption is not stated. Since the paper studies turbulence in stratified environment, isotropic turbulence assumption introduced error in strongly stratified regions.

2. Section 4.1 and 4.2 mainly discuss previous studies and explain the motivation and relevancy of this study, so I suggest summarizing section 4.1 and 4.2, and moving the summarization to Introduction.

3. There are overlaps between Results and Discussion. Section 3 Results mainly discuss results without connecting the dots. Section 4 Discussion show consistent and similar results as in Section 3, and is strongly connected to Results section. For example, when discussing tidal mixing and wind speed in section 3.3, the reason putting the the results on tidal mixing and wind speed together is not explained but rather stated in Discussion section. I think the flow of the presentation will be more natural if Section 3 Results and Section 4 Discussion are merged.

4. The Section 3.3 showed averaged wind patterns in northern and southern Patagonian and section 4.4.2 tries to establish a link between wind energy and energy dissipation rate. However, because of the lack of quantitative results, it is unclear that to what degree wind contributes to the energy budget of the region and how much it accounts for observed dissipation rate.

5. Figure 9 is confusing. Is it plotting the tidal mixing parameter or total tidal energy dissipation?

   A comparison of spatial pattern of ε and tidal energy dissipation rate $C_d U^3/h$ will illustrate the relationship between energy released due to bottom friction and local dissipation rate ε. Given that velocity profiles are only available in a few places, I think having a line plot of both ε and $C_d u^3/h$ will provide valuable information.

3 Technical corrections

1. In the abstract line 26, should the unit of dissipation rate be $W kg^{-1}$?

2. Equation (5) has a typo.

3. In equation (6) and (7), should h be same as H?

4. In figure 3 and figure 4, the caption mislabeled the years of the data. It should be '2023/2024' rather than '2024/2025'. Also, it will be easier to compare if sub-figures of the same season are aligned horizontally.

5. The figure supporting lines 232-236 seems to be figure A3, but it's not mentioned in the paper. I think it is helpful to move Figure A3 to the main text. The second sentence of the caption of figure A3 should be 'The along-fjord distance is referenced to Parry Fjord'.

6. The second paragraph of section 4.5 refers figure A1 and A2, but does not point out that. I think it's good to state that explicitly in the paragraph.

7. Line 261, 262, and 263 mention location Desertores Passage and Queullin Passage, but they are not labeled in the figure 7. It will be easier for readers to understand those lines if the locations are labeled in the figure 7. Similarly, Seno Almirantazgo is not labeled in figure 8.

8. Figure A1 and A2 uses the notation $\log_{10}(K_z)$ but the text uses the notation $\log_{10}(K_{shear})$. Also, what is changed from panel a) to panel g) in Figure A2?