

## ***Interactive comment on “Malvinas-slope water intrusions on the northern Patagonia continental shelf” by A. R. Piola et al.***

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We thank Referee #1 for his thorough review and for pointing out several typos in the original manuscript and suggesting better phrasing of some sentences. Below we address the reviewer’s comments and suggestions:

- 1) Page 2944: - Line 13: “are shown in Fig. 1a” Corrected
- 2) Line 20: “at the shelf break” Corrected
- 3) Page 2945: - Clarify sentence: “Slope Waters. . .as mixtures. . .near the bottom (Fig. 2)” The sentence was rewritten as follows: Vertical salinity stratification increases towards the shelf break, where mixtures of cold-salty ( $\sim 6^{\circ}\text{C S} > 34$ ) slope water intrude near the bottom (e.g. station 34, Figures 2 and 3)

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- 4) Line 9: “about 2.5°C-34.1” Corrected
- 5) Page 2946: - Line 11:  $61 \pm 74$  or  $61 \pm 7.4$ ?  $61 \pm 74$  W.m-2 is correct. The large standard deviation is associated with the relatively large decrease of heat flux into the ocean between late February ( $\sim 120$  W.m-2) and late March ( $\sim 30$  W.m-2).
- 6) Page 2947: - Line 1: “due to a variety of processes” Corrected
- 7) Line 7: “over the region III limited by. . .” Corrected
- 8) Page 2948: - Lines 22-23: Clarify the sentence: “As expected for winter,..., this was actually a moderate event” The sentence was rewritten as follows: Since during winter the cross-shelf-break SST gradients and the thermal stratification are weak, the July 1996 event was moderate in terms of  $\Delta$ SSTa, with lowest values reaching -0.6°C (Figure 6).
- 9) Page 2949: - Line 3: “distributions in July 1996 (not shown),. . .to the surface pattern.” The near bottom T and S distributions are included in the revised manuscript.
- 10) Line 11: “continental shelf, only. . .” Corrected
- 11) Line 11: “continental shelf, only. . .” Corrected
- 12) Line 29: “region I (Fig. 8): first. . .” Corrected
- 13) Page 2951: - Line 18: “westerly winds as predicted. . .” Corrected
- 14) Page 2953: - Line 9: “The latter resembles. . .” Corrected
- 15) Page 2954: - Line 9: “potential vorticity (f/H, where. . .) equal to. . . Corrected
- 16) Line 19: “near 41°S (Fig. 10b), which. . .” Corrected
- 17) References There is a reference in the text (page 2955) which is missing from the list of references: - Spadone and Provost, 2009 Reference added
- 18) Figure captions Fig.1 –“. . .is higher than 0.018\_C/km in (a) and . . .33.8-34 range

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in (b) Corrected

19) Fig. 2 and 3 – According to UNESCO recommendations, the isopycnal values should be in terms of  $\gamma$  and not  $\sigma_t$   $\gamma$  contours are shown in both figures

20) Fig. 3 – According to the text, station 34 is slope and station 32 is offshore The caption was corrected as follows: Figure 3: Temperature – Salinity diagrams of selected stations occupied in the outer shelf (37), slope water (34) and offshore waters (32) in March 1994 (see Figure 2). Station 527 was occupied in July 1996, 125 km inshore from the 200 m isobath. The thin lines are constant  $\gamma$  ( $\text{kg.m}^{-3}$ ).

21) Fig. 7 – It is difficult to distinguish the symbols for the station locations from the dots of the isobaths. Figure 7 was redrawn with larger station symbols.

22) Fig. 10 – It is difficult to see the grey lines for the drifter trajectories. Figure 10 was redrawn

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