<u>Response to reviewer 2:</u>

Thank you for the very helpful comments and suggestions.

Major points:

1) Which process creates significant negative (westward) transports of 7 +/- 4 Sv across the B-D transect (perpendicular to the shelf break)? There a peaks exceeding 15 Sv in magnitude! Where does this water volume come from? Is this a downstream signature of the upwelling jet known as "Columbine Jet"? Interestingly, there seem to be instances of high correlation between the zonal transport perpendicular to the shelf break and that at 3W. Could some of these variations be caused by coastal wind variations (driving the upwelling jet)? In my view this is an important feature that needs to be studied and explained as part of this paper.

Thank you for pointing this out. Based on the suggestions from reviewer 1 we have updated our analysis on the transport budget and discuss several events. In the previous version the slope of transect BD was not handled correctly. Now, the cross-shelf transport is estimated for line BD.
This transport is smaller than the previous one, with a southwestward mean of about 0.3 Sv. However, some large transports occur (<8 Sv). It is found that these anomalies can mostly be attributed to cyclonic and anticyclonic eddies. The revised text can be found in lines p8, lines 4-19.

2) Total volume transport is only one limited aspect of scientific interest. Heat and freshwater transports and also nutrient fluxes are probably of similar or even higher significance. Changes in the baroclinic flow structure would be another point worth exploring. Have the authors considered to extend their analysis to those features? If not, I suggest the paper be renamed to "A Study of the Variability of Total Volume Transports of the Benguela Current." As it is, the current title may be misleading.

Thank you for the suggestion. We have changed the title of the manuscript to : A Study of the Variability Volume Transport of the Benguela Current.

3) Given that the authors have developed a complete data set, I am confused as to why the authors used four different southern latitudes of 28, 30, 31 and 35. Why not only 28 and 31, or only 30 and 35? Why not a continuous section at 1 degree steps?

Mean values of transport are shown for a continuous section at 1 degree steps in figure 4.
For the transport budget we chose an area enclosed between 30S and 35S, and 3E and 1000m isobath parallel to the African coast. This area is very dynamic since both Indian Ocean water and the water from the south Atlantic Current interact here; also, Agulhas eddies use this region as a corridor to the northwest. Therefore in order to explore the limitation/capabilities of our data set this region was chosen.

4) The authors' reference to "transport in the upper 800 m" can be misleading. The fact that the analysis excludes regions <1000 m in depth needs to be stated in the abstract and elsewhere.

Thank you for the suggestion, the manuscript has been revised. (See lines p2, line 6; p6, lines 23-25)

Other points:
Page 9 => found that Benguela Current transport is larger than "that derived from the" Sverdrup balance (their Figure 2a,b). => Insert suggested phrase.

Thank you for pointing this out. This is now corrected in the manuscript (p10, line 19).

Sverdrup Gyre => Where does this terminology come from? Technically this term is incorrect because the Sverdrup balance only describes most but not all of the dynamics inherent with subtropical gyres. You wouldn't call them "Stommel Gyres" either, would you? One option is to rename this to "Sverdrup balance", but perhaps a better option would be to use "Ekman pumping" as a parameter in the analysis, which would avoid the unnecessary discussion about the validity of the Sverdrup balance in the region.

Thank you for the clarification, the manuscript has been updated on this. (section title 3.4, p11 line3)