RESPONSE TO REFEREE#1 COMMENTS

The extension to decadal time scale improves the details of the annual variability and gives better picture on timing of the beginning, peaking and ending of the polar loss periods including useful visualizations and gives hints for the recovery discussion. ... To get a better insight to the ozone layer recovery issue they use a piece wise linear trend estimator or EESC for spring time total ozone data with tipping point at 1997. The third element of the of the work includes speculation of whether or not and when "the first signs of recovery" can be seen from the Antarctic ozone data analyses.

The Antarctic ozone is of course one of the most widely covered subject in geophysics and consequently, it is very difficult to find and present new aspects on it. The main novelty here is the extension of Antarctic ozone loss time series to two decades and clearly the work advances the knowledge on the details of polar ozone losses time series. On the other hand, general conclusions are quite as expected from the previous literature. Structurally, the manuscript organization is well done and description of the methods sufficient as well as referencing to previous literature. I leave the specific comments on the use of English language to specialists or native speakers but in my mind rephrasing expressions and changing wording at places would improve the readability. In addition to language improvements I would like to draw attention (at least) to the following points in case the manuscript will be published.

 # Thank you for this review. We appreciate the time and effort taken by the referee for this review. We have revised the manuscript in accordance with these suggestions. Please find them below.

Detailled comments:
Personnally ,I do not like the abbreviation GB (= gigabyte). "ground based" is short enough expression to write.

 # This has been corrected elsewhere in the article (e.g. Abstract, Line 3)

On the top of page 5 ; the Brewer instrument precision 0.5 % is unrealistic. Use later more realistic references to Brewer accuracy in the field work. In polar monitoring it is also essential to mention the model Brewer Mk II , Brewer Mk III, etc, which should be readily available from the data source, since the performance in high SZA is significantly different in single and double monochromator versions.

 # The measurements used in our studies are taken by MK IV Brewer instruments. The recent studies suggest that the measurements from well-maintained Brewer instruments have a precision of the order of 0.15—0.25% (and the total error of 2.5%) (Scarnato et al. 2010, Kerr and McElroy, 1995). These have been noted in the text in Lines 129—131

Ch 2.2 is devoted to satellite instruments which are listed together with their accuracies and biases, algorithm versions, time periods and other details. A table would help following and shortening the discussion here.

 # The previous version of the article used 6 satellite data sets. In this version we have used only TOMS/OMI and GOME-2 data. Therefore, we have not given the details of them in a table, but provided in the text. We hope that the referee will find it as a good decision. Thank you. However, we have listed the details of ground-based measurements in a table and in a figure. Please find Table 1 and Figure 1

Page.8 , ch 2.4, 2nd sentence on the initialization of the ozone field I did not quite catch, could this be re-phrased, please. Also note that in here you speak about difference between passive tracer and measured ozone , (in this order), but in following parenthesis vice verca: " (ground based ozone – model tracer)". You should really clearly define the concept of loss because your sign convention seems to vary (in the table positive and in the figures negative, in the text usually positive, this should be

unified. The same with loss rates.

 # We have revised the sentences with appropriate signs (negative sign for ozone loss and loss rates, e.g. Table 2 and Lines 9—10). Please find the revised text about the initialisation in Lines 166—171 and 177—180

I would prefer minus sign when referring to the loss.

 # This has been done throughout the article (e.g Lines 9—10 and Table 2)

Page 15. 5th row from bottom; ".. show about 130-145 DU." Is about

 # This sentence has been rephrased in Lines 296—301

Page 17, A personal view again but I would prefer subscripts over superscripts in coefficients of the trend model (because the superscript represents usually exponent).

 # Done, please find it in Lines 336—343

Page 19 top : ". . .the ozone reduction in the Antarctic dominates the halogen loading ." Shouldn't this be vice verca?

 # Yes, corrected in Lines 429—430

Chapter 4.4.3
Page 19. Here again the sign convention is confusing and this time in speaking of trends from different sources. Check and unify.

 # Done. We have given positive sign for positive trends and negative sign for negative trends throughout the article (e.g. Table 3)

Page 19 and 20 . Somewhat confusing that first on page 19 last paragraph starting at the 2nd row they state that ". . .are significant at 85% confidence intervals but not significant at 95% confidence intervals." but next on page 20; "..our diagnosis yield a positive trend at 95% confidence intervals.." Actually the whole discussion here with layered (i)-structure should be written more clearly.

 # The entire section has been revised with new data sets and new break point. We have also given subsections (Section 4.3.3, Section 4.3.4, and Section 4.3.5) for the discussion of trends in each period and case studies. The revised results show that the ozone trends deduced using PWLT and EEASC regressions are significant at 95% confidence intervals in both periods (1979—1999 and 2000—2010) for all data sets. Please find the revised Section 4.3.3 and Section 4.3.4. The case study about Antarctic meteorology is presented in Section 4.3.5