We would like to thank Dr. Rahpoe for his review. Detailed replies are below in green.

This paper is valuable for the creation of long term tropospheric ozone data record from different instruments. Since it deals with the error characeterisation which is a prerequisite of merged tropospheric data, therefore I would suggest that the title should be more precise: 'Analysis of extended data...' or 'Characterization of...' etc...
We changed the title to: *Extending the satellite data record of tropospheric ozone profiles from Aura-TES to MetOp-IASI: characterization of optimal estimation retrievals*.

Major Comments:
This work deals with great rigor the error sources, their mathematical description and explanation which is excellent for the reader. However other error sources has not been considered. Following parameters can also have an impact on the retrieved ozone:
-Albedo
-Aerosol
-Pressure
-Polarization
Although these effects are of concern for solar radiation, IASI observes thermal infrared radiation emitted from the Earth's surface and the atmosphere itself. Hence contributions of reflection and scattering to the measured signal are negligible and the above phenomena have negligible effects on the radiative transfer as well. We changed a sentence in the introduction for clarification (P.2, l. 19-20): *Spectrally resolved measurements in the submillimeter, thermal infrared (TIR, emitted from the Earth's surface and the atmosphere itself) and UV regions can provide ozone profile information.*

A rough estimation should be added describing the underestimation of the theoretical errors vs. empirical (See Fig. 8)
We added the following sentence to the manuscript (p. 16, l. 12-13): *In general, (although not in all cases) the empirical errors are larger than the theoretical errors. Absolute differences are less than 11 %.*

Technical Corrections/ Minor Comments:
Page 3: Line 30: '..from multiple TIR instruments'. Please name all of them.
We added: *While this study is concerned with TES and IASI, instruments such as AIRS and CrIS also have potential to contribute information to such a record.*

Page 3: Line 31: ' This study concentrates on mid-latitudes in 2008'. Please explain the reason for selecting this sample.
We chose to follow the selection made in Dufour et al. (2012) in order to evaluate our results with the other available IASI ozone products. We changed the sentence as follows: *This study concentrates on mid-latitudes in 2008 in order to facilitate comparison of our results to other IASI ozone retrievals as presented in the study by Dufour et al. (2012).*

Page 7: Line 26: Fig. 2 has been mentioned before Fig. 1.

Figure 1 is first mentioned in Sect. 4.1 and Fig. 2 in Sect. 4.2.

Page 8: Line 16: '..MATCH..'. Please expand.
done

Page 9: Line 25: 'Chi-Square > 1.3'. Please explain the threshold selection of 1.3.
This is a somewhat arbitrary number which was chosen by visually inspecting the retrieved ozone profiles.

Page 10: Line 30: 'burst height'. Please explain this term.
Expanded to: *burst height of the sounding balloon*

Page 10: Line 4: 'correction factor > 15
Page 12: Line 20: 'cloud fraction ... < 6
We spelled out all </> signs throughout the text.

Page 12: Line 22: 'alorithm' = algorithm.
done

Page 12: Line 26: 'Only one global ozone....covariance matrix are used'. Please verify in a diagram or text that this restriction does not affect your statistics/results.
It is not in the scope of this paper to evaluate the retrieval settings of the FORLI code. Several publications have shown the good quality of the FORLI retrievals (e.g. Dufour et al., 2012).

Page 14: Line 26: '...are similar for different locations....'. Any reasons for this systematics?
As discussed in Sect. 7 (Summary of results and discussion), the reason is most likely incorrect spectroscopic parameters.

Page 16: Line 13: '...consistent with theoretical error...'. See 'Major Comments'.
s.a.

Page 22: Line 8: 'Hilton.....yccomplishments' = accomplishments.
done

Page 24: Line 1: 'Rodgers.....Practise' = Practice.
done

Page 26: Table 1: 'all' = All.
changed

Figure 1: Colors for water/Smoothing too close. Legend not readable.
We increased the size of the figure and the legend, enhanced the resolution, and changed the colour for the smoothing error.

Figure 2: Change the caption into 'Three microwindows (red lines) ....'.
done

Figure 3/6/7/9: Change 'height' into 'Pressure'. Add Y-Axis of geom. height. Y-title on the rhs with 'Approx. geom. height [km]'.
We changed the label to *pressure*. However, we are not convinced that a rough estimate of the geometric height improves the clarity of these figures: we perform our retrievals on a pressure grid. The calculation of the geometric height would require a surface elevation model on a finer grid than 12 km, the surface footprint of a nadir pixel.

Figure 6/7/9: Add more labels ('1000 800 600 etc. hPa').
We added more labels to figures 1,5,6,7,8, and 9.