In this manuscript, Pommier et al., report a set of formic acid (HCOOH) enhancement ratios with respect to carbon monoxide (CO) derived from 2008 – 2014 IASI measurements. The authors pay special attention to 7 biomass burning regions comparing their estimates with previous studies. The comparisons show reasonable agreement. In the context of recent studies reporting large underestimations in the HCOOH atmospheric budget (i.e. Stavrakou et al. 2011) the IASI dataset can help to understand a fraction of the underestimation. However for publication in ACP I suggest the paper to undergo major revisions.

Abstract: With the evidence provided in the text the following sentence is not fully supported "The comparison with other studies highlights a possible underestimation by 60% of emission or a secondary production of HCOOH by Siberian forest fires while the studied fire plumes originating from Southern African savanna could suggests a limited secondary production of HCOOH or a limited sink." The differences in ER between different studies, need to be explained to support such conclusion.

Section 4.2: Figure 2 provides a qualitative analysis. HCOOH and CO concentrations apparently track MODIS fire counts. Working out correlations coefficients for CO, HCOOH and fire counts separately will help to address the origin of the air masses and what is the influence of the fire activity on them.

Sections 4.2 and 4.3: The authors try to isolate IASI retrievals influenced by biomass burning using MODIS and ECMWF data. While the definition of the biomass burning regions based in MODIS fire counts is clear, it is not clear to me how co-located IASI data are selected. Quoting the text: "To do so, we co-located the IASI data at 50 km around each MODIS pixel and between 0 and 5h for each detected fire, so that each MODIS pixel is associated with a value of HCOOH and CO total column from IASI". Further clarification is needed. All these questions are not answered in the description given in the text. For a MODIS pixel is it possible to have more than one IASI retrieval within 50 km? If so, the associated value for that MODIS fire is the average? MODIS has a resolution of 1km by 1km, a given retrieval can be accounted several times due to adjacent MODIS fire pixels. What does it mean 0 and 5 h for each detected fire? 5 hours ahead and 5 hours behind? With MODIS overpass times at 10:30am and 13:30am the night time IASI measurements 9:30pm will always be excluded. What is the influence of modifying the 50 km and 5 hour threshold in the results?

Surface ECMWF winds definitely increase the confidence of using only biomass burning affected IASI retrievals. However, the sensitivity of the IASI retrievals is highest between 1km and 6km. The authors should address the uncertainties introduced in the calculations due to transport vs. lofting of the air masses and influence of non-pyrogenic air masses in the IASI retrievals. This is particularly relevant for regions other than Equatorial Africa and South Africa were biomass burning signal is superimposed with other sources (Chaliyakunnel et al., 2016).

Table 1 and 2 can be combined in one single table.

Sections 5.1 & 5.2: What is the reason for the exception in Siberia where using only columns with a thermal contrast larger than 10K changed the ER from 6.5 mol/mol to 4.4 mol/mol.

Ground based FTIR, IASI, ACE-FTS, TES, and airborne FTIR are sensitive to different altitudes. The good agreement over Southern Africa can be linked with the distinctive burning season and air masses not containing other origins. That can explain why when ACE-FTS samples air masses that have travelled across the Atlantic Ocean (Risland et al., 2006) the ER are significant. Therefore, to extract quantitative conclusions from the comparison exercise, it is necessary to have information about the origin of the air masses and the type of fuel burned. The authors can address these two issues using back trajectory model, for example Hysplit, and MODIS land surface type. As the manuscript stands now the discussion is mostly speculative.

Conclusions: As with the abstract "Fires over Australia and over Siberia are probably underestimated in terms of direct emission or secondary production of HCOOH. The analysis over Australia is however delicate as our $ER_{(HCOOH/CO)}$ approximately corresponds to the mean of the values reported in Paton-Walsh et al. (2005) and in Chaliyakunnel et al. (2016); and is also 450% higher than the $E_mR_{(HCOOH/CO)}$ derived from Akagi et al. (2011). The underestimation by 60% over Siberia is consistent with conclusions given in R'Honi et al., (2103)." a more detailed analysis is needed to link differences in ER with direct emission and secondary production.

Finally, IASI is also capable of measuring HCN a useful biomass burning tracer. It will be useful if the authors discussed the possibility of using it in future analysis.

Technical comments:

A revision of the English used could improve the transparency and clarity of the paper, particularly in the introduction.

Line 68, please include reference to Razavi et al., 2011 (first HCOOH retrievals from IASI).

Line 71, please include Gonzalez Abad et al., 2009 in ACE-FTS papers.

Line 98, please include citation about IASI CO_2 retrievals.

Line 118, correct typo (Pommier et al., 2016).

Line 141, actives to become active.

Line 206, should read "Both biases are however" instead of "Both biases is howeve"

Line 282, please specify which other studies.

Figure 2, include units in plots.

Figure 4, please include units in plots.