The authors would like to thank Reviewer 1 for the constructive comments and concerns about the paper, which will help to improve the paper and make it more accessible. Below, each comment (black) is addressed (blue) in detail, indicating the changes we intend to make on the manuscript where applicable.

My main concern with the paper is the wider applicability of the method which the authors claim to discuss in section 5 (the conclusions section). However in that section, they only have the following sentence: "We expect the method to be applicable in the construction of climatologies for tracers with variabilities on similar scales, including most compounds for which climatologies from ACE-FTS data have been compiled by . . . "

To be acceptable for publication, the authors should showcase that their method works for other molecules, like O3 and H2O (the molecules used by Toohey 2013), specially considering the next line in the conclusions: "Even though it is important to consider the sampling pattern of satellite based measurements, which leads to a sampling bias, at least for OCS the influence of the sampling bias is too small to significantly alter the scientific conclusions of climatologies." That is, the authors showcase their method to correct sampling biases in a molecule which does not have any significant sampling biases. The authors should either use model outputs sampled as performed in previous studies to prove the applicability of their method, or, construct O3 and H2O climatologies using all the available MIPAS measurements and those closest to the ACE-FTS measurement locations.

Our paper is intended as a "proof of concept" for a new method to correct for sampling bias, and we feel that the comprehensive application to gases such as O_3 and H_2O with all the potential scientific implications is well beyond that scope. Nevertheless, we agree with the reviewer that the one sentence in Section 5 falls short of a thorough discussion of the wider applicability, and that such a discussion is indeed warranted.
In the revised manuscript, we will provide arguments why the method should be applicable to a range of gases, and also point out some impediments that may arise with other gases. We will specifically address the examples O_3 and H_2O in the light of what has been presented by Toohey et al. (2013) with respect to characterizing the sampling bias of these two gases.

Section 2.1 Mention the horizontal sampling of ACE-FTS for consistency with the MI-PAS section.
We will add this information to the manuscript.

Equation 2: where is the longitude information coming from. The model explained in section 2.1 is a 2D (time and latitude) regression.
Theoretically, the model can work with longitude information. However, we are not using longitudes in our study and will therefore exclude the longitude dependency in the Equation.

Figure 2(right): Why is this regression model "Bodeker"
The reference to the model as "Bodeker regression model" is obsolete and will be removed from the paper.

Figure 6: please use different symbols for the unadjusted and adjusted comparisons. Also bigger the symbols.
Different and larger symbols will be used.