The manuscript by Maier et al. presented measurements of $^{14}CO2$ and CO in flasks collected at two sites, and the purpose of these measurements is to assess the ratio and the associated uncertainties of CO and fossil-fuel sourced CO2 (ΔffCO2). The latter, proposed by the authors, can be further used to estimate ΔffCO2 based on CO measurements which is easy doing. The idea behind this study appears to be that since C-14 analysis is difficult and there is a need of alternatives to estimate ΔffCO2, while CO that is produced mainly from the same fossil fuel combustion source can serve as a tracer to estimate ΔffCO2 as long as the ratio of CO to ΔffCO2 can be constrained.

I would say this is a fair theory, however, the manuscript is more like a measurement report rather than a research article. This is my first impression of reading this manuscript. The second, as the authors indicated in the manuscript, there are many issues regarding the ratio based on flask measurements, so as the ability of this ratio used to predict ΔffCO2 from CO measurements. This whole idea has a few confusions or flaws that leads to little confidence for its applications. I list my major concerns as follows:

1). The authors point out the disadvantage of using C-14 measurement to assess ΔffCO2, high cost, low coverage, and etc., and thus there is a need of independent tracers that are easy monitoring. The proposed tracer is CO. But in order to use CO to estimate ΔffCO2 in a site or regions, one has to first measure enough C-14 data to build a robust CO/ΔffCO2 ratio? This is sort of a loop, if there is already C-14 measurements, isn't that can be directly used to calculate ΔffCO2? Although CO measurements can be continuous, so as the derived ΔffCO2 with a known CO/ΔffCO2 ratio, would continuous ΔffCO2 record be offering significantly more valuable information than discrete (e.g., daily or hourly average) ΔffCO2 measurements?

2) I am not sure if this is the authors' idea: once a robust CO/ΔffCO2 ratio was available, then perhaps this ratio is able to apply to other locations or the same location but at a different time? This is my impression of reading the manuscript, and this is perhaps the most (if not only) significance of establishing the ratio. However, as the measurement reports from the two sites indicates, the CO/ΔffCO2 ratio are different among these sites, and there are also large temporal variations. This causes doubts on the ability of the ratio to be applied to period or regions without

C-14 but only CO observations. In fact, due to spatial and temporal variations in the use of fossil fuel energy, as well as the spatial and temporal variations in other sources/factors that could influence the production and atmospheric removal of CO, there is a doubt that whether the CO/ΔffCO2 ratio can stay relatively constant with time and space.

The first concern emphasizes that no matter what one needs to measure C-14, and the second indicates the established ratio is probably not able to fulfil the intended tasks. As such, the scientific significance of these measurements is somewhat weak, and this is why I suggested that this manuscript is more like a measurement report.

In addition, I have some technical suggestions that the authors can consider to use or not:

1) in the method part, please state more clearly how other sources especially the biomass burning source of CO is treated to get ΔCO; This includes the modeling of inventory based ratio.
2) In 2.2.1., the defined R_{flask} is in fact not used but instead ΔCO/ΔffCO2 in follow-up results and discussion. I suggest to keep constant throughout the manuscript.
3) Figure 3b, could not understand how real flask measurements can be plotted in the figure, the X-axis is measurements, while the Y-axis is synthetic data which is not scaled to real measurements.