This is my second-round review of the manuscript "Age of smoke sampled by aircraft during FIREX-AQ: methods and critical evaluation." The authors estimate smoke age during FIREX-AQ using two complementary approaches and discuss the associated uncertainties. Based on the revised manuscript, I think the authors have adequately addressed the comments from the two independent reviewers in the first round. The dataset should be useful for studies of biomass-burning chemistry, smoke evolution, and model evaluation. I recommend publication after the following comments are addressed.

Major comments

1. The manuscript would be more useful to future users and field campaign planners if the authors included a table summarizing fires or plume encounters for which smoke age was not reported, or for which only one age method was applicable. The text notes several cases where the methods were limited, including eastern US fires sampled close to the source with little downwind sampling, plumes with transport distances greater than about 200 km, plumes affected by wind shifts, and trajectory ensemble members excluded based on satellite imagery. A supplementary table listing the fire name, date, aircraft, sampling geometry, available age products, and reason for exclusion or limited applicability would make these limitations clearer and help future users interpret the dataset. If providing additional table is too much work, should consider providing at least opinion or insight to those tracks, somewhere in the manuscript.

2. The trajectory-based framework can be applied to pyroCb outflow in a formal sense because ages are calculated from each aircraft location. However, the physical assumptions are weaker for fresh active-anvil samples than for ordinary downwind smoke transects. The Williams Flats pyroCb sampling geometry differs "substantially" from the non-pyroCb plume transects. In pyroCb cases, the sampled air may still be affected by active convective transport and detrainment (D. Peterson's paper cited in the original manuscript, see Fig.4), so the estimated age depends on uncertain updraft residence time, detrainment height, and timing. These uncertainties may not be fully represented by using a representative plume-rise vertical velocity of approximately 12 m/s, right? The method appears more defensible for detached aged-anvil samples than for fresh active-anvil or cloud-top samples. Additional guidance on how users should interpret pyroCb age estimates would be helpful, and should be discussed.

3. Line ~482: smoke age products provide a basis for interpreting chemical and physical aging in FIREX-AQ smoke observations. This is an important conclusion and deserves a little more discussion. The treatment of plume-rise time is one of the key contributions of the study, and it has implications for both measurement interpretation and model evaluation. Many chemical transport models output hourly fields, which is much coarser than the age resolution discussed here. In fresh smoke, dilution and chemical transformation can occur on time scales of minutes to tens of minutes, depending on plume conditions. A short discussion of how physical plume age affects chemical age interpretation, inferred aging rates, and comparison with model output would make this point clearer.

Minor comments

4. Line 53. The Introduction describes the FIREX-AQ campaign broadly before narrowing to the smoke-age dataset developed in this study. Should mention the ER-2, which also sampled multiple fires and provided important remote-sensing observations. Alternatively, the authors could revise the sentence to clarify that they are referring specifically to aircraft with in situ smoke measurements used in this age analysis, namely the DC-8 and Chem Twin Otter.

5. Line 59. Please specify the approximate time scale meant by "short periods of time when winds are steady."

6. Line 85. Please define carbon monoxide as carbon monoxide (CO) at first use. Several instrument acronyms, including DACOM and SP2, are also introduced quickly in this section. Please provide the full names at first use. And please double check same issue for other places.

7. Lines 120-122: The text states that the Williams Flats and Sheep Fires were the two largest fire complexes and had multiple centers of fire activity separated by more than 10 km. Please provide a more quantitative description of "very large fires," such as approximate burned area, fire extent, or distance among active fire centers.

8. Figure 1 is central to the manuscript, but the current layout makes it difficult to compare age distributions across individual fires. The authors could consider splitting the figure into multiple panels (as they already did it for top/bottom), for example by region or fire group. A discrete color scale may also make the age ranges easier to distinguish.

9. Table 2 is difficult to read in its current format. Italic font in the Table content..? Additional horizontal lines or clearer grouping of variables would improve readability. The formatting of Tables 1 and 2 should also be made more consistent.

10. In Section 2.5, the authors use HRRR meteorological fields to drive HYSPLIT. Please cite the HRRR system description paper, such as Dowell et al. (2022), "The High-Resolution Rapid Refresh (HRRR): An Hourly Updating Convection-Allowing Forecast Model. Part I: Motivation and System Description," or otherwise explicitly acknowledge NOAA's HRRR product. And if possible, GFS and NAM as well.