Reviewer #2:

1. This manuscript by Xu et al assess the mean difference, standard deviation and error for eight different Yunyao satellites by comparing them to radiosondes, COSMIC-2 and Metop B/C observations. The main measure is retrieved refractivity. The study is very detailed and the figures are in a good shape. This paper demonstrates nicely the quality of this new dataset. However, I miss the assessment of bending angles instead of refractivity as this measure is most often used for the assimilation in NWP models. I accept the publication after addressing this issue. Further, I have the following minor issues:

Response: We appreciate your positive evaluation of our work. We have actively adopted your suggestions for the manuscript and made modifications in accordance with your requests. We further evaluated the bending angles. We used the one-dimensional forward model in the Radio Occultation Processing Package (ROPP) to transform the ERA5 variables into bending angles and compared them with the observations (Figures 5, S1). We have added a description of the methods in Sections 2.2.1 and 2.2.2, and included the results in Section 3.1 (lines 248-257).

2. page 1, l.30: I wouldn't phrase that refractivity is a function of liquid and frozen water – of course if you have a polarized signal than the polarisation would be affected but not the bending of the ray path. Of course, super refraction can occur in stratocumulus regions.

Response: Thank you for the suggestion. We have removed "liquid water content and ice water content" (line 30).

3. page 2, l.46. It would be good to know what data goes already into CMA-GFS. 20.0000 daily profiles is impressive. Maybe a small table would help.

Response: Thank you for the suggestion. We have provided the source of the 20,000 profiles (Table 1).

4. page 2, l.47: Does GeoOptics still provides data in year 2024?

Response: We have verified that GeoOptics data does not appear to be included in CMA at present and have made modifications in the manuscript (lines 49).

5. page 6, l.126/127: This phrase summarizes very shortly how one derives e.g. refractivity or also physical measures, like temperature. It is good to mention that one has to make certain assumptions to get there. Probably good to add this here.

Response: Thank you for the suggestion. We have added the relevant description to the manuscript (lines 150-152).

6. page 7, l.142: How is the interpolation done in the vertical? Linearly or doing a spline interpolation?

Response: We used linear interpolation. A more detailed description is provided in Section 2.2.2 of the manuscript (lines 165-175).

7. page7, l.146/7: Here, I am slightly confused. Which method to you use to calculate MB and SD? The method by Lanzante or eq 2,3 and 4. I guess you use Lanzante to get rid off outliers and then use this cleaned sample to compute MB, SD according to the given equations. Probably rephrasing this sentence, makes this clearer.

Response: Thank you for the suggestion. We have made modifications in the manuscript (lines 177-180).

8. p.12, l.216: instead of *will be* write *is*

Response: Thank you for your careful review. We have made modifications in the manuscript (line 269).