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Interactive comment on "Quantifying variability, source, and transport of CO over the Himalayas and Tibetan Plateau" *by* Youwen Sun et al.

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The paper presents the comprehensive analysis of the source and transport of atmospheric CO over the Himalayas and Tibetan Plateau (HTP) and its potential implications on the melting of glaciers, damaging air quality, water sources, grasslands, and threatening climate on regional and global scales. The diurnal, seasonal, and interannual variability of CO over the HTP is also investigated from January 2015 to July 2020. The GEOS-Chem model has been used and further validated with the ground-based observations. This study concluded that the anthropogenic and oxidation sources originating either local or in the SEAS region dominated the surface CO over the HTP, which is different from the black carbon that is mainly attributed to BB source from the SEAS region. The authors have made a good effort and demonstrated the transportation of

CO and NOx mainly from biomass burning and primary sources to the HTP region.

Fig. 5 should be plotted in 1:1 also (insitu:GEOS-Chem).

For Fig6, the only correlation coefficient can be used in the text, and Fig 6 may be deleted.

The sub-section: Concluding remarks should be Conclusions

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