Ann. Geophys. Discuss., referee comment RC2
https://doi.org/10.5194/angeo-2021-13-RC2, 2021

Comment on angeo-2021-13

Anonymous Referee #2

Referee comment on "Characteristics of Ionospheric Scintillation in Chengdu, China" by Song Zhang et al., Ann. Geophys. Discuss., https://doi.org/10.5194/angeo-2021-13-RC2, 2021

The work presents little contribution to the area and the results present very superficial discussions and without any geophysical contextualization that would be necessary. This article needs a huge major revision. My main concern is the fact that there are S4 records outside of nighttime. For me it shows that the database of this work has to be reviewed more carefully and perhaps it is damaged and cannot be used for scientific analysis. Figure 1/2/3 for example reinforces my suspicion of poor quality data.

Authors should justify their equation 1. Does this equation come from somewhere? what is the advantage of knowing the percentage over cases above 0.2? There are works in the literature for example that show the complementary cumulative distribution function(CCDF) where scintillation decay on an exponential scale as s4 increases. This is just one example of how to characterize your environment.

Figure 1: it has to be better explained. There are S4 records during daytime, this is not scintillation signature from plasma bubbles.

Figure 2: besides the index does not represent much it seems that it has notable records throughout the day, which would not be ionospheric scintillation. I do not know cases of bubbles at 17; 00 LT in the literature. In addition, the levels used in equation 1 for Fig2 are not specified.

Figure 4: It is hard to extract information from those panels. They are very polluted. Innumerable works in the literature show the cases in a more synthetic way

The spatial analysis of section 3.2 are hard to justify. A decreasing number of cases was

expected over the years and decreased solar activity, this is not seen in the results. The occurrence of events with almost uniform distribution is very unusual as well.

A photographic record of the installations of the receivers, mainly antenna, is missing. A more careful description of the receiver's specification and all the data processing would be important as well.

In summary, the work has no geophysical context, the data may not be reliable (scintillation during the day), the explanations are confusing, the methodology and analysis metrics do not help and finally the work does not contribute to the ionosphere area. So many improvements need to be made in this research for it to be accepted for publication