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Comment on angeo-2021-13

Anonymous Referee #1

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-RC1, 2021

This paper focuses the spatiotemporal characteristics of ionospheric scintillation in Southwest China by examined the GPS data recording from January 2018 to September 2020 in Chengdu. The results illustrate that the ionospheric scintillation events show a seasonal and diurnal distribution pattern, and more frequently occur at an azimuth angle of 120°-200°, the strong scintillation events take place at an azimuth angle of 160° and 40°. Basically, the information presented is useful to the community and should be published after major revisions and clarification. The list of some revisions and clarifications is suggested as below, especially lots of clarifications should be necessary.

- Usually, those abbreviation, for example GPS/BDS/GAL (including but not limited to), need clarification in scientific publication.
- Some statements should be clarified. What is the difference between the frequency ionospheric scintillation events, the incidence of ionospheric scintillation, the occurrence of ionospheric scintillation, the occurrence rate of ionospheric scintillation events, the scintillation rates and the probability of occurrence of ionospheric scintillation events, which may confuse readers.
- In line 90, the two functions are in duplicate? In the S4 formula, what is $<SI'2>$? They share the same dimension? It should is $<SI'^2>$?
- Those abscissas in Figs. 1 and 2 should be consistent with each other (including but not limited to).
- Fig. 2 is computed by function 2? It may confuse reader.
- Similar to comment 2, what is the scintillation rates in line 149?
- In line152-157, the wind field can be measured in Chengdu? If so, the measurement of wind field may significantly support the discussion and improve this paper.
- What is the abscissa of Fig.7? The title of Fig.7 is 2018-5, whereas the abscissa of Fig.7 is month of year? The writing may confuse reader.
- In Fig 8, what parameter does the scale colorbar note? It should be noted.
- In Abstract section, author writes " a data processing program was developed". Thus, the developed program should be stated in detail, and what is new?
- English should be improved, for instance, "Ionospheric amplitude scintillation is the amplitude change caused by the electromagnetic wave signal passing through the ionosphere." (including but not limited to). Indeed, amplitude scintillation should not be

caused by the electromagnetic wave, but by the iohospheric irregularity.

- In line 113, what is "abnormal occurrences of ionospheric scintillation"? which needs clarifications (including but not limited to).