

## ***Interactive comment on “Anisotropy of small-scale stratospheric irregularities retrieved from scintillations of a double star $\alpha$ -Cru observed by GOMOS/ENVISAT” by V. Kan et al.***

### **Anonymous Referee #1**

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#### General Comments:

The paper is one out of a series published by authors, which are well known experts in the field. Previous work is covered in a comprehensive way showing (also with respect to former work of the authors) the development of analyses from simpler to more complex cases, using optical methods to analyze the structure of the atmosphere. The observations used (satellite based occultation measurements at two frequencies using the GOMOS fast photometers) allow probing the upper atmospheric regions (UTLS) without “noise” from the lower atmosphere, which would be the case for ground-based

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observations.

This information is very valuable to better characterize electromagnetic wave propagation for several areas of application like remote sensing or communication.

Title and abstract are concise; the analysis presented is novel and addresses an area where little experimental data is available today.

Detailed Comments:

As the method applied is limited to a weak scintillations regime and thus limits the applicable atmospheric altitude range are there any prospects to be able to overcome this in future work?

2 Assumptions and approximations: The section is supported by a number of citations to other papers. Nevertheless it would help to expand a bit more with respect to the justification of assumptions and approximations used for the analysis.

Figure 1, please add captions to the axes or explain the meaning of z & y in the figure caption

The estimated parameters of irregularities in Table 1 exhibit quite some fluctuations, it is mentioned that the result is consistent with former work. Can this be explained as a physical phenomenon (natural variability) or is it more likely related to the used model/assumption and/or sampling?

Typos:

4884, 10 ...a single star -HAS- been analyzed... 4885, 7 ...double sources, -HAVE- been discussed...

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