

## ***Interactive comment on “Optical property retrievals of subvisual cirrus clouds from OSIRIS limb-scatter measurements” by J. T. Wiensz et al.***

**Anonymous Referee #2**

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General comments:

The Wiensz et al. article is a study on how to derive the optical properties optical thickness and particle size of thin cirrus cloud from OSIRIS limb measurements. This is shown by forward model simulations and a retrieval test case. This clearly is an interesting topic for AMT. I recommend the article to be published after the following comments are addressed.

Specific comments:

- Are aerosols in the troposphere taken into account (forward model simulations and retrieval)?

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- If the retrieval is very sensitive to the albedo, tropospheric aerosols must also have a large impact on the method. In the measurement vector the lower wavelengths is 470 nm (which is also used for aerosol retrievals). How does the radiance@470nm reacts when used in the FM simulations (Fig. 1a, 5, 7-9, 11)?

- How can lower tropospheric clouds in general be treated? Will contaminated measurements be excluded? As the lowest tangent height is at 10km, does the albedo correction catch lower clouds?

- P5333L23: That means, the measurement vector, which is built from only two wavelengths is not enough to retrieve like optical properties like the particles and more wavelengths are needed. This must also be mentioned in the conclusions.

- Why these wavelengths were chosen in Fig.5 (550/650nm), Fig.8 and 9 (700/800nm), and Fig.11 (..)? Are they important for the retrieval or used anywhere else?

Tables and Figures:

- Fig1a: Can the different tangent heights be colour coded and somewhat named to see which heights are there. Fig1b: Too small, the region is hard to see. Displaying only part of the image might be enough to see the region.

- Figures with measurement data: an idea is to put the thick black measurement line in the background to better see the simulations.

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