

## Responses to the editor and reviewer

### Comments-----

#### Editor

**Fig. 2)** This is potentially misleading, since in the plot, CTH means really the top of the cloud, while in the “clouds-as-reflecting-boundaries” model, the retrieved cloud "top" is within the cloud.

**Ans)** Changed the cloud top height as effective cloud top height. Line No. **105**

In the ATBD of Sentinel-5P TROPOMI Clouds, the product is also referred to as cloud top height.

**Fig.10)** CCD-ESA and CPC are hard to discriminate.

**Ans)** We assigned them similar colours because they share almost the same methodology, with the main difference being in the climatology.

**All the technical corrections incorporated in the updated draft.**

#### Reviewer 1

just a few minor to technical comments:

**184** please double the TROPOMI resolution: 3.5 x 7 km<sup>2</sup> and 3.5 x 5.5 km<sup>2</sup> (both across x along track)

**Revised:** Corrected. Now **line no. 85**

**1208** The homogeneity parameters for the CCD-ESA data are given in the METADATA:

- 1) minimum 50 ACCO data per latitude band
- 2) maximum std within the ACCO per latitude band is 15 DU
- 3) maximum difference between two neighbouring bands 5 DU
- 4) minimum ACCO 200 DU

if one of the criteria is not met the data will still be calculated but the stratospheric flag is set and the QA is reduced

The main difference is probably the climatology.

**Revised:** Included the details. **Line no. 208**

**1390 and elsewhere,** If both northern and southern data are discussed I suggest to use something like "local summer" or "hemispheric summer"

**Revised:** Changed to “local summer”, **line no. 396** and elsewhere.

**1454** for the southern hemispheric stations like Irene I recommend to use the austral seasons

**Revised:** Changed accordingly

**1503** How about including an "in-homogeneity" parameter for CLCT (minimum std in the cloud heights)

**Ans)** In the next update of our tropical algorithm, we will enable an automatic selection between the classical CCD and Theil-Sen method based on cloud characteristics. The algorithm will also assign different quality flags for each method, similar to the approach used in our midlatitude algorithm.

