



EGUsphere, referee comment RC1  
<https://doi.org/10.5194/egusphere-2022-365-RC1>, 2022  
© Author(s) 2022. This work is distributed under  
the Creative Commons Attribution 4.0 License.

## **Comment on egusphere-2022-365**

Anonymous Referee #1

---

Referee comment on "Comparing Sentinel-5P TROPOMI NO<sub>2</sub> column observations with the CAMS regional air quality ensemble" by John Douros et al., EGU sphere,  
<https://doi.org/10.5194/egusphere-2022-365-RC1>, 2022

---

The authors compare the NO<sub>2</sub> simulated by CAMS and observed by TROPOMI. The comparison shows better agreement in summer than that in winter. The finding about the vertical profile is very informative. The methodology and conclusions are sound. However, the authors seem to favor super long sentences, which makes it difficult for readers sometimes. I recommend rephrasing the long sentences thoroughly to make them more reader-friendly.

General comments:

- Section 3. The authors discussed a lot of details about the ensemble database. It is not very clear to me what has been used for comparison in this study, what will be upgraded in the near future, and what has been done by previous studies since all information was mixed. I recommend reorganizing this section.
- section 5.5. It will be useful to compare the differences between ensemble vs tropomi and ensemble vs individual models.
- I recommend adding a table listing all products used for comparison in the manuscript and adding a brief description of those products.

Specific comments:

- line 30. The grammar seems incorrect for the 2<sup>nd</sup> Please check.
- line 40. Line 50. Those sentences are too long to read.
- Line 70. I don't see the reason to separate items 2 & 3 as two angles. Additionally, it is useful to point out that the vertical profiles are replaced in item 2. Otherwise, it is confusing for the readers why TM5 is mentioned here.
- Line 145. What is "compo"?
- Line 149. Is it operational now?

- Line 204. I suppose the R in S5P-R represents regional? I suggest putting the name after the description directly. It is easier for the reader to link the name with the product.
- Line 275. I suggest commenting on the potential reason why TROPOMI cannot detect ship lanes here.
- Line 281. What is 1<sup>st</sup> day forecasts?
- Line 328. What is "process modelling"?
- Figure 10. What is "spread"? Do you simply mean NO<sub>2</sub> column densities here?
- Line 513. Do the authors claim a new methodology for satellite-model intercomparison here? What is the improvement compared to Eskes et al. (2003)?