

This paper estimates the potential of synergistic IASI-NG/UVNS retrievals using a pseudo-observation simulator. The study focuses on four days (8-10 July 2010) over Europe. The subject of the paper is appropriate to AMT. I found the paper clearly presented, well organized and useful for the community, even if the paper could have been improved with comparisons with ozonesonde or aircraft profiles to evaluate the fidelity of MOCAGE simulation that have been used in this work. I recommend the paper to be published after the authors have addressed the following

minor comments:

P3 line 101-102: The authors should explain how the following changes from GOME-2 to UVNS would affect the ozone data, e.g. the increase of retrieval throughput of near surface ozone due to the lower frequency of cloud contamination within field of view of satellite observation. “UVNS will have a higher signal-to-noise ratio (SNR) than GOME-2, a much finer horizontal resolution but a factor 2 coarser spectral resolution.”

About Page 6 Table 1: The authors should add the actual spectral resolution used in the simulation/retrievals in the list of differences in nominal specifications since the spectral resolution is one of key parameters that determine the sensitivity of observation. The parameter of spectral sampling alone is not enough for this purpose.

P 8 Figure 1: Please add in maps of a priori ozone field and estimated uncertainty of near surface ozone to help in showing the performance of joint IASI/GOME2 retrievals catching the spatial distribution of near surface ozone.

Trivia:

P 1 line 21: lowermost troposphere > lower most troposphere

P 1 line 28: to observer > to observe

P 2 line 42: Should “the surface-2km” change to “the surface-3km” since elsewhere in the manuscript always refer to “the surface-3km”?

P 4 line 134: “(ozone concentration, skin temperature, temperature profile)” > “(ozone concentration and temperature profiles, skin temperature)”

P 7 line 224: “AKV” > “AVK”

P 9 line 279 to 282: “The positive difference of 0.74 DU (7%) that remains between PR*realAVK and real IASI+GOME-2 might be linked to systematic explained underestimation of cloud fraction. overestimation of ozone production in MOCAGE model, coming from the systematic underestimation of cloud fraction.” The sentence is not clear and there is an extra “.” in front of overestimation. Please consider to revise it, e.g., “The positive difference of 0.74 DU (7%) that remains between PR*realAVK and real IASI+GOME-2 might be due to systematic underestimation of cloud fraction since the systematic underestimation of cloud fraction could lead to overestimation of ozone production in MOCAGE model, coming from the systematic underestimation of cloud fraction (reference therein).”. Please add the reference(s) on the relationship between cloud fraction and ozone production, if there is. Or, perform a brief sensitivity study on the impacts of cloud fraction on ozone production.

P 10 line 294: “smoothed by real AVK” > “smoothed by real AVK (blue)”

P 20 Figure 9 and Page 21 Figure 10: Besides showing the color bar with unit of $\text{mol}/\mu\text{m}^3$, authors should consider add color bar of ppbv for the convenience of many readers in air quality community.

P 21 line 541: “9E” > “9°E”