

## **Referee report**

### **Differences in MOPITT surface-level CO retrievals and trends from Level 2 and Level 1 3 products in coastal grid boxes**

The authors presents a comparison of results from analyses performed using original L3 MOPITT data products, and a new land-only L3 product (“L3L”) and a water-only L3 product (“L3W”) that have been created from L2 products, for all MOPITT L3 grid boxes that overlay coastlines. Comparing the full L3O dataset to L3L, it is shown that if L3O is filtered so that only retrievals over land (L3OL) are analyzed, there is a huge loss of days within the data. This is because L2 retrievals over land are routinely discarded during the L3O creation process. Even by retaining L3OM (mixed) retrievals, the resulting L3O “land or mixed” (L3OLM) subset still has less data days than L3L for 61 % of coastal grid boxes. The loss of data influenced the results where it is shown that, the mean VMRs in L3OL and L3L differ significantly for 11 of the 27 grid boxes that can be compared. They concluded that a L3 product based only on L2 retrievals over land – the L3L product analyzed in this paper, could be of benefit to MOPITT data users, given the significant differences in mean CO VMRs and trends that can be obtained for coastal grid boxes using L2 products.

**The paper can be published with minor changes.**

The main challenge in the paper is the length and the clarity. Paper needs to be shortened and rewritten in a clear way. It is very hard for regular user to follow up the flow of the paper.