This work presents valuable data with a thorough analysis. The high-resolution data over a long time period offers a great opportunity for studying CO2 in a remote location and the comparison of 2 atmospheric transport models is informative. Some of the text could be more concise to help with the flow, although generally the structure is logical and easy to follow. Publication of this article would make a valuable contribution to the community.

- Line 103: would benefit from a brief description of C3 & C4 plants e.g., examples of the types of plant in each category.
- Line 260: the explanation of the variables in equation 1 are a little hard to find as it is quite separated from the equation, reorganising this would make it easier to follow and refer back to.
- Section 2.2 - previous studies have found that disaggregating the LPDM footprints back in time better captures the CO2 diurnal cycle as it does not assume that fluxes are constant for the duration of the simulation (i.e., 4 and 10 days) (e.g. (Denning et al., 1996; Gerbig et al., 2003; Gourdji et al., 2010, White et al., 2019). Do the authors expect that their results could be affected by this assumption?
- Figure 1 - are the STILT-ECMWF peaks larger because of the PBL contribution discussed in section 3.1.1 A) - if so a reference to this figure in section A) would help visualise the effect; if not does the author have some idea of what causes this?
- Lines 480-490 – the authors suggest that some of the difference between the results from the 2 LPDM runs are due to difference in resolution, have the authors attempted to regrid the FLEXPART-COSMO to the STILT-ECMWF resolution to check how that affects the performance and if it can account for the difference as suggested?
- Figures 5 and 8 – should be much bigger to make out the labels and detail
- Figure 6 - it would be useful to include a zoom in on specific time periods as it is difficult to pick out how well the model matches the observations e.g., when discussing mismatch throughout the summer
- Figure 9 - what is meant by ‘lumps of ecosystem’?