Dear Editor:

We would like to thank the editor for the comments and suggestions for improvement. Below please find a point-by-point explanation of how we have modified our submitted manuscript.

1. Abstract line 7. Before giving the specific details of the modelled World Avoided simulation it is necessary to say what hypothetical scenario it is based on. Otherwise the numbers will not have any context. The abstract needs a second sentence which give the assumed halocarbon scenario.

We agree that adding a sentence to the abstract with the assumed halocarbon scenario provides essential context. The beginning of the abstract now reads (changes in **bold**):

"Without the Montreal Protocol the already extreme Arctic ozone losses in boreal spring of 2020 would be expected to have produced an Antarctic-like ozone hole, based upon simulations performed using the Specified Dynamics version of the Whole Atmosphere Community Climate Model (SD-WACCM) **using an alternate emission scenario of 3.5% growth in ozone depleting substances from 1985 onwards.** In particular, **we find that** the area of total ozone below 220 DU, a standard metric of Antarctic ozone hole size, would have covered about 20 million km$^2$. Record observed local lows…"

2. I have seen that in the GRL/JGR Arctic Ozone special issue there is an update to the cited Chipperfield et al (2015) study of winter 2011 (Feng et al 2021), which uses the same model to look at winter 2020 (in the Supplementary Material). The availability of this should be mentioned around line 62.

https://agupubs.onlinelibrary.wiley.com/doi/full/10.1029/2020GL091911

We thank the editor for pointing out the availability of this study, and have added the citation and changed the relevant sentence to the following:

"Chipperfield et al. (2015) examined the WA for the recent extreme cold year of 2011. They found that Arctic ozone levels would indeed have dropped below 220 DU in that year in the WA, but in a limited region that did not span the entire pole as in the Antarctic, as we discuss in Section 3. During a recent study quantifying drivers of depletion in Spring 2020 in the real world (Feng et al., 2021), they updated their previous WA model and found that the year 2020 would have seen much deeper column depletion during March than 2011 did (see their Supplementary Information)."

3. Line 260-261. 'We have … ecosystem'. I have a problem with the logic of this sentence. It is based on an assumed ODS scenario and also assumes that the meteorology of all the previous years would have been the same as actually occurred, even with a different atmospheric

composition. Maybe a cold year would have happened in 2019, for example, in an actual no-protocol world. I think what you can say is the 2020 meteorology would have caused an 'Arctic ozone hole' in your assumed scenario. I think you should phrase the message I this way.

We agree that the assumption of 2020 meteorology may not have remained the same in a no-protocol world, and have rewritten the sentence to clarify this as follows:

"We have demonstrated that, were it not for the Montreal Protocol, the meteorological conditions seen in 2020 would have produced the first Antarctic-like ozone hole over the Arctic, an area with a substantial human population and vibrant ecosystem."