COMMENT FROM REVIEWER (page 4, line 15 of previous author comments):

Using monthly values in figure 7 might lead to spurious correlations. There will be strongly seasonal variations in isoprene and NOx, and also strong seasonal variations in meteorology (wet vs dry). Some of the correlations in figure 7 might be due to the meteorology -i.e. isoprene emission changes might be stronger in the dry season where the meteorological impacts on ozone might also be more positive if dry gets drier.

The author response remains unchanged, however the authors would like to update the quoted changes to the manuscript (page 5, line 8 of the previous author comments). Amendments are shown in **bold** below.

PREVIOUS TEXT:

'The change in O_3 production rate will be further affected by meteorological changes, temperature in particular. This is the reason that O_3 production increases in UKESM1 and MRI even in the absence of changes in NOx and isoprene (the intercepts of the linear model are 19 % and 5 % respectively) and O_3 production increases in areas showing decreasing NOx concentrations in UKESM1. Since the temperature change varies seasonally and regionally, with dry seasons experiencing the largest increase in temperature, some of the changes in O_3 production in Fig. 7 may be driven by temperature rather than NOx or isoprene changes. If isoprene/NOx and O_3 production are both influenced by the underlying meteorology, the identified correlations may be due to meteorology rather than the chemical species changes. We verify that percentage NOx change is not related to temperature in any of the models and that percentage isoprene change is not related to temperature in UKESM1 (not shown), which indicates the identified correlations are related to chemical species changes not meteorological variation, although this cannot be entirely ruled out.'

THE MANUSCRIPT NOW READS:

'The change in O_3 production rate will be further affected by meteorological changes, temperature in particular. This is the reason that O_3 production increases in UKESM1 and MRI even in the absence of changes in NOx and isoprene (the intercepts of the linear model are 19 % and 5 % respectively) and O_3 production increases in areas showing decreasing NOx concentrations in UKESM1. Since the temperature change varies seasonally and regionally, with dry seasons experiencing the largest increase in temperature, some of the changes in O_3 production in Fig. 7 may be driven by temperature rather than NOx or isoprene changes. If isoprene/NOx and O_3 production are both influenced by the underlying meteorology, the identified correlations may be due to meteorology rather than the chemical species changes. **We verify that the monthly mean temperature change in each gridcell is not significantly correlated with percentage NOx change in any model, nor percentage isoprene change in UKESM1 (not shown). Therefore, NOx and isoprene changes are likely controlled by many processes in addition to temperature, including background chemistry and emissions for NOx, and vegetation type and cover for isoprene, as well as other meteorological variables. This indicates that the identified correlations between NOx and O_3 production are unlikely to be the result of a spurious relationship driven by temperature, although it is still possible that the strength of the correlations may be inflated by confounding meteorological variables.'**