This manuscript investigated future climate change impacts on near-surface O_3 concentrations over Asia from 2020-2100 using a machine learning model along with multisource data. The random forest model was trained based on results from global atmospheric chemical transport model simulations, real-time O_3 observations, and other datasets. Future climate-driven changes in O_3 concentrations were predicted by the trained model together with 18 CMIP6 multi-model simulations under four future scenarios. The paper found that future climate change would aggravate O_3 pollution in Asia and expanded the pollution from North China to South China and extended it into the cold season in a warming future. Overall, this is a good example of machine learning and big data analysis in atmospheric science. The results are of good significance and novelty. The manuscript was well-written and properly organized. Therefore, I recommend the acceptance of the manuscript.

General:

1, In this study, the authors trained the machine learning (ML) model using O_3 precursor emissions, but did not consider the role of methane. So, I suggest the authors discuss more about how the results will be affected if the role of methane is included in the ML model prediction.

Minor:

1. Line 42: Change "primary" to "secondary".
2. Lines 67-74: How is performance of model in predicting ozone pollution?
3. Line 172: Has this dataset been quality controlled or has been used in scientific studies?
4. Line 217: Please describe more about the four scenarios.
5. Line 231: How the meteorological fields be adjusted?
6. Usually ground-level O3 concentrations (225, 353 lines), Surface O3 concentrations (271 lines), near-Surface O3 concentrations (24 lines and so on) were included in the article, how do these concentrations differ? If all of them refer to the same meaning, please use the same name.
7. As a lot of methods and data are used, I suggest to draw a structural block diagram to more clearly express the structure and ideas of this article, including how to assimilate.
8. How are Importance scores of independent variables (meteorological parameters, emissions, land use, topography, and population density) used in the ML model for predicting future near-surface O3 concentrations over Asia obtained?
9. The authors could add some discussion and some references.
   such as:
   Li, M., et al. (2021). Rising surface ozone in China from 2013 to 2017: A response to the recent atmospheric warming or pollutant controls? AE, 246. doi:10.1029/2021JD036393,
   https://doi.org/10.1016/j.scitotenv.2021.150338,
   Lu, X., et al. (2020). Rapid Increases in Warm-Season Surface Ozone and Resulting Health Impact in China Since 2013. EST&L, 7, 240-247.