RC1- Second review: 'Comment on acp-2021-458', Anonymous Referee #1

The revised text and figures strengthen the paper, which offers interesting insights into the effect of atmospheric circulation patterns on pollutants in the Arctic. I offer a couple of suggestions/questions related to the new text:

1. It would be useful to indicate somewhere, perhaps on the corresponding figures in the appendix, which of the 20 patterns in the appendix correspond to the 8 shown in the main text.
The following sentence is added to the manuscript " The 8 CTs (CT1 - CT8) selected in this study (shown in Fig. 2) correspond respectively to CT1, CT4, CT9, CT12, CT14, CT18, CT19 and CT20 in Fig. A1.1 in the Appendix."

2. On page 8, it is stated: "An inverse correspondence between O3 and NO2 away from the source regions is not expected due to the different life times, aging and transport processes." Can you speculate on what causes this unexpected result? Do photolysis or stratosphere-troposphere exchange play a role?
The following paragraph in the manuscript speculates this result.
"The springtime photochemistry in the Arctic is very complex, as duly noted in the rich literature that documents the research and observations on this subject matter (Lu et al., 2019 and the references therein). The interactions between NO_2 and O_3 are also highly non-linear in reality and hence a one-one correlation can not be established. In the troposphere, NO is converted to NO_2 in the presence of O_3 which is a potential sink for O_3. However, during sun-lit conditions, NO_2 is converted back to NO via photolysis which results in O_3 production. Apart from these chemical reactions, local meteorological conditions such as temperature, relative humidity and rainfall play an important role in the production and dispersion of these pollutants. Stratospheric intrusions are another source of O_3 variability in the troposphere that may play a role under different circulation types (Yates et al., 2013; Langford et al., 2015; Lin et al., 2015). The persistent anticyclonic conditions could not only lead to the accumulation of the tropospheric O_3, but also favour the large-scale descent or intrusions into the lower troposphere, leading to positive O_3 anomalies."