

Atmos. Chem. Phys. Discuss., referee comment RC1
<https://doi.org/10.5194/acp-2021-324-RC1>, 2021
© Author(s) 2021. This work is distributed under
the Creative Commons Attribution 4.0 License.

Comment on acp-2021-324

Anonymous Referee #1

Referee comment on "Decadal changes of connections among late-spring snow cover in West Siberia, summer Eurasia teleconnection and O₃-related meteorology in North China" by Zhicong Yin et al., Atmos. Chem. Phys. Discuss.,
<https://doi.org/10.5194/acp-2021-324-RC1>, 2021

This study makes a full investigation about connection between snow cover/EU teleconnection and O₃ pollution in north China. The April-May snow cover in West Siberia was proposed as a preceding climate driver that influenced the summer surface O₃-related meteorology in North China during 1980–1998, and the associated physical mechanisms were also explained by comparing the periods before and after the mid-1990s. The results of this study could provide a reference for the seasonal prediction of O₃. This paper is well written and organized. I recommend it to be published in ACP after several minor corrections.

- Based on the content in the main text, the O₃-related meteorology (OWI) is focus on summertime. I would suggest to clarify the specific season in the title, which will give a more direct expression about the seasonal prediction mechanism.
- The high level O₃ concentrations before mid-1990s are considered to be connected with the positive phase of EU teleconnection. While, after mid-1990s, the northward shift of snow cover results to the insignificant connections between snow anomalies, EU pattern and O₃. What is the possible reason for the change point of mid-1990s? That is, why 1990s was selected as the turning point in this study. Is it based on the statistical analysis or some physical mechanisms?
- Some detailed information about the calculation of OWI index in Line 105 are suggested to add. E.g., how to normalize the meteorological variables. The absolute value of observed O₃ concentration and OWI should be included to indicate the robust of OWI.